

Neath Port Talbot County Borough Council

Local Flood Risk Management Strategy

June 2013



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NOTE: Further details from the figures contained in the Strategy can be obtained using the Hyperlinks indicated or by visiting the Offices of Neath Port Talbot County Borough Council during office hours.

FOREWORD

“The impacts of climate change are becoming increasingly noticeable to all of us and major incidents of flooding are a common event on the national news. It is inevitable that flooding will happen in the future despite all our best endeavours to prevent it.

This strategy seeks to reduce the risk and effects of flooding by raising awareness in the community and encouraging a partnership approach with the community and external organisations in tackling the challenges that lay ahead. The strategy looks to maximise funding opportunities that can contribute towards flood prevention, including the development of greater resilience and ability to recover from flooding.

The strategy has been developed with the objective of long term sustainability and to ensure that Neath Port Talbot remains an attractive place to live, work and visit”.



Ali Thomas – Leader Neath Port Talbot County Borough Council

1. INTRODUCTION

1.1 INTRODUCTION

Neath Port Talbot County Borough Council in its new role as Lead Local Flood Authority (LLFA) has to ensure that a Local Flood Risk Management Strategy (LFRMS) is produced for the area. The LFRMS determines the locally significant flood risk for the area, focusing mainly on flooding from surface water, groundwater and ordinary watercourses, and helps everyone affected to understand and manage flood risk. It also considers significant interactions with main rivers and sewers. The LFRMS must be consistent with what is stated in the **Flood and Water Management Act 2010** and the national strategy for Flood and Coastal Erosion Risk Management in Wales. The main aim of the strategy is to reduce the risk of flooding and the social and economic damage that flooding causes, in a sustainable manner. The LFRMS outlines the legislation with regard to flood risk, the nature of flood risk, the objectives for managing flood risk and the range of actions that could be undertaken. It will also consider what funding is available and how flood risk management could be used to make this funding adequately deal with existing and future flood risks.

There are many advantages to thinking holistically about all aspects relating to water. Due to climate change, on occasion we have less water than is necessary for human consumption, food production and to maintain flow in rivers. However, on occasion the opposite is true, we have too much water for our watercourses to cope with, therefore, leading to flooding.

1.2 FLOOD RISK MANAGEMENT IN NEATH PORT TALBOT

In 1989, the National Rivers Authority was set up, a national body that took over the roles and responsibilities for flood risk management, drainage and water quality throughout the country. In 1991, a number of pieces of legislation were enacted which consolidated existing water legislation. The **Land Drainage Act** outlines the responsibilities and identifies those responsible for the management of land drainage for a number of bodies including Internal Drainage Boards and Local Authorities. District Councils were originally responsible for sewerage and councils continue to manage a number of ordinary watercourses and highway drainage. The **Water Resources Act** outlines the roles and responsibilities of the National Rivers Authorities. In 1995, the **Environment Act** was established and from this, the Environment Agency took over the roles and responsibilities of the National Rivers Authorities, along with the duties for issuing flood warnings. The management and operation of Natural Resources Wales is divided into a number of regions across the country; Neath Port Talbot lies within the Wales region.

1.3 FLOOD AND WATER MANAGEMENT ACT AND OTHER LEGISLATION

The Pitt Review stressed the importance of implementing better legislation for the effective management of flooding, particularly from surface water. Many of the recommendations from the Pitt Review have been implemented through the **Flood and Water Management Act 2010**, which places a greater responsibility on County and Unitary Councils for surface water management issues, under their new role as a LLFA. The role of Natural Resources Wales in respect of river and tidal flooding remains in force. The Natural Resources Wales is also given a strategic overview role for all flood and coastal erosion risk management.

The Flood Risk Regulations (2009) came into force in December 2009 and transposed the EU Floods Directive into law for England and Wales. The Flood Risk Regulations requires a Preliminary Flood Risk Assessment (PFRA) to be produced which identifies areas where significant numbers of people are at risk of surface, ground and ordinary watercourse flooding. In these areas the regulations also require the production of hazard and risk maps and flood management plans. In Neath Port Talbot, localised surface flooding is considered to be a threat. This flooding occurs when drainage and sewerage systems are overwhelmed and when the ground is saturated. However, in many instances this is considered small scale affecting a relatively

small number of people or individual properties but the effect from such flooding can be equally devastating as that from a large scale event. The PFRA for Neath Port Talbot was completed in late summer 2011.

The PFRA is a high level screening exercise that brings together, from a number of sources, easily available information from past and potential flooding to enable judgement to be made about local flood risk. The assessment of potential flood risk was derived from national datasets produced by Defra to identify indicative Flood Risk Areas across Wales. Of the eight areas identified, one is located within the Neath Port Talbot boundary – see area edged red in Figure 4-7. The PFRA is being used to assess the potential harmful consequences of future flooding within the area.

The Flood and Water Management Act (2010) was approved in April 2010 and provides legislation for the management act of risks associated with flooding and coastal erosion. The Act reinforces the need to manage flooding holistically and in a sustainable manner. It places a number of new roles and responsibilities on Neath Port Talbot County Borough Council which is designated a 'LLFA'. The preparation of the Local Flood Risk Management Strategy is just one of the duties placed upon the County Borough Council.

The Reservoirs Act (1975) and as amended by **Schedule 4 of the Flood and Water Management Act (2010)**, sets out the safety legislation for reservoirs in the United Kingdom and preparation of related Flood Plans.

1.4. RESPONSIBILITIES UNDER THE FLOOD AND WATER MANAGEMENT ACT

See section 2.4.4 for the responsibilities of the LLFA in regards to the Flood and Water Management Act.

1.5. LOCAL FLOOD RISK MANAGEMENT STRATEGY (LFRMS)

The Local Flood Risk Management Strategy is a statutory document which will impact on activities of all Flood Risk Management Authorities – i.e. Local Authorities, Natural Resources Wales, Highway Authorities and Internal Drainage Boards.

The Flood and Water Management Act requires that Neath Port Talbot County Borough Council take a leading role in managing local flood risks, working in partnership with other relevant authorities and the public.

The Neath Port Talbot Flood Risk Management Partnership, comprising management authorities, is fundamental to the delivery of a coordinated and consistent approach to local flood risk management and working alongside the public to make a real difference in the County Borough.

1.6. LOCAL FLOOD RISK STAKEHOLDERS

The Neath Port Talbot Flood Risk Management Partnership is made up of the following:-

- Regional Flood and Coastal Committee.
- Neighbouring authorities: City and County of Swansea, Carmarthenshire County Council, Bridgend County Borough Council and Powys County Council.
- Stakeholders: Welsh Government, Network Rail, Police, Fire Brigade, Dŵr Cymru Welsh Water, Utility Companies, Port of Neath, Canal Companies; ie the Neath Canal Company, the Port Tennant Canal Company and Neath Port Talbot CBC.
- Shoreline Management Group.

- Internal departments of Neath Port Talbot County Borough Council.

1.7. CURRENT FLOOD RISK

There are five main sources of flooding in the Neath Port Talbot area, from surface water; groundwater; sewers; canals and ordinary watercourses, and the interaction with main rivers and the sea. Each have been defined and examples are given in section 4.2.3.

1.8. ENVIRONMENTAL ASSESSMENT

Neath Port Talbot have a number of nationally designated environmental sites in addition to locally important ecological areas. For further information and maps see <http://www.nrc.gov.uk>

Flood and coastal risk management have the potential to impact on these sites, therefore, all activities must take due consideration of the natural environment.

The Welsh Government determined that the National Strategy required a Strategic Environmental Assessment (SEA) according to the requirements of the SEA Regulations¹. According to the national LFRMS guidance, the Welsh Government anticipates, given the nature, content and legal requirement to produce LFRMS, that LLFAs may also be required to undertake a SEA. The Council, as a responsible Authority under the Regulations, must determine if the LFRMS falls within the scope of the SEA Directive. SEA is a statutory requirement for plans and programmes that may have significant effects on the environment and, as such, Neath Port Talbot County Borough Council has decided to undertake a SEA of the LFRMS according to the SEA Regulations.

The Council, as competent authority under the Habitats Regulations², must also consider requirements of the Habitats Directive in exercising its functions. As mentioned in the national LFRMS guidance, the emerging LFRMS should also be assessed for Water Framework Directive compliance. These environmental assessment processes will help to ensure that potential effects of the Strategy on the environment are considered in its development, and that opportunities for environmental gains are maximised.

1 The Environmental Assessment of Plans and Programmes (Wales) Regulations 2004 (Welsh Statutory Instrument 2004 No. 1656)

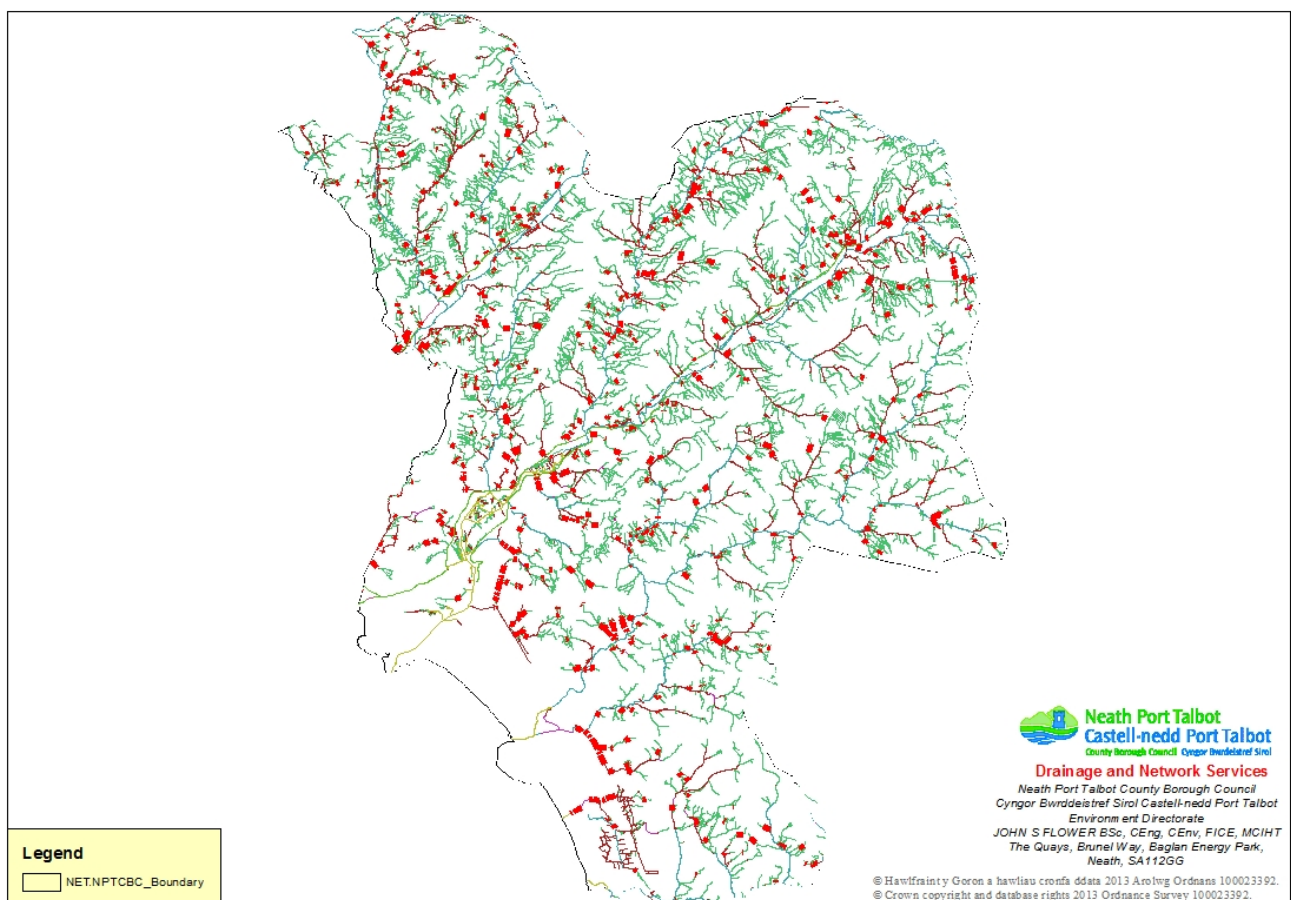
2 The Conservation of Habitats and Species Regulations 2010 (as amended) (Statutory Instrument 2010 No. 490)

2. FLOOD RISK AUTHORITIES

2.1 IDENTIFICATION OF EXISTING FLOOD RISK MANAGEMENT AUTHORITIES

Neath Port Talbot County Borough Council, as the LLFA, is responsible for leading the management of flood risk from local sources. This includes; ordinary watercourses, surface water, groundwater and where there is an interaction between these sources, and main river or the sea. This is important in Neath Port Talbot's case as it is a Maritime Authority. The County Borough Council also has a role in emergency planning and road drainage. Figure 2-1 shows information on watercourses in the County Borough.

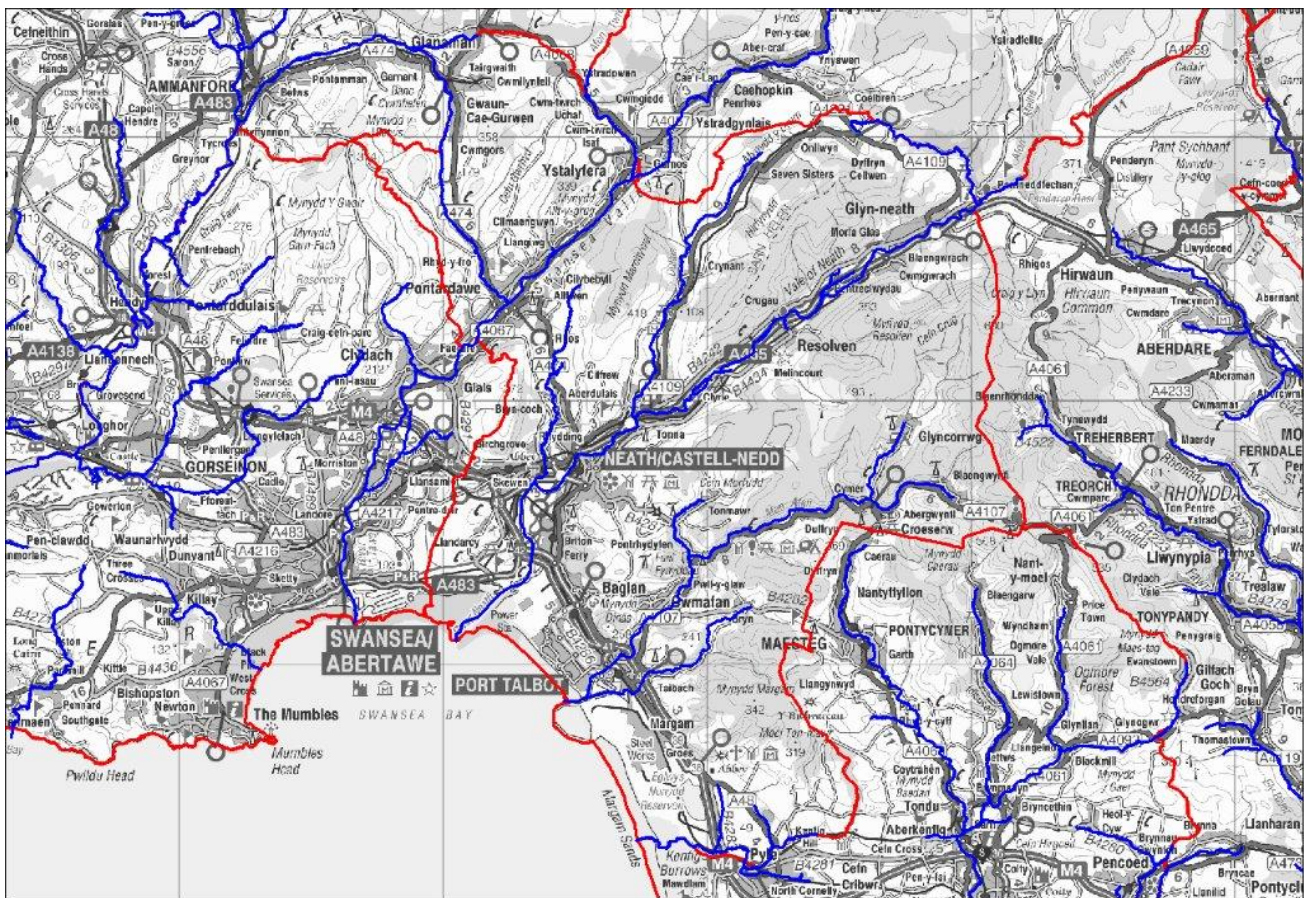
Figure 2-1 – Plan showing information from the Environment Agency on Watercourses in NPT



The Natural Resources Wales (NRW) is responsible for managing flood risk from main rivers, reservoirs and the sea and has a strategic overview role of all flood and coastal erosion risk management. It also has a key role in providing flood warnings to the public, protecting and improving the environment and promoting sustainable development. Figure 2-2 shows information on main rivers in the County Borough.

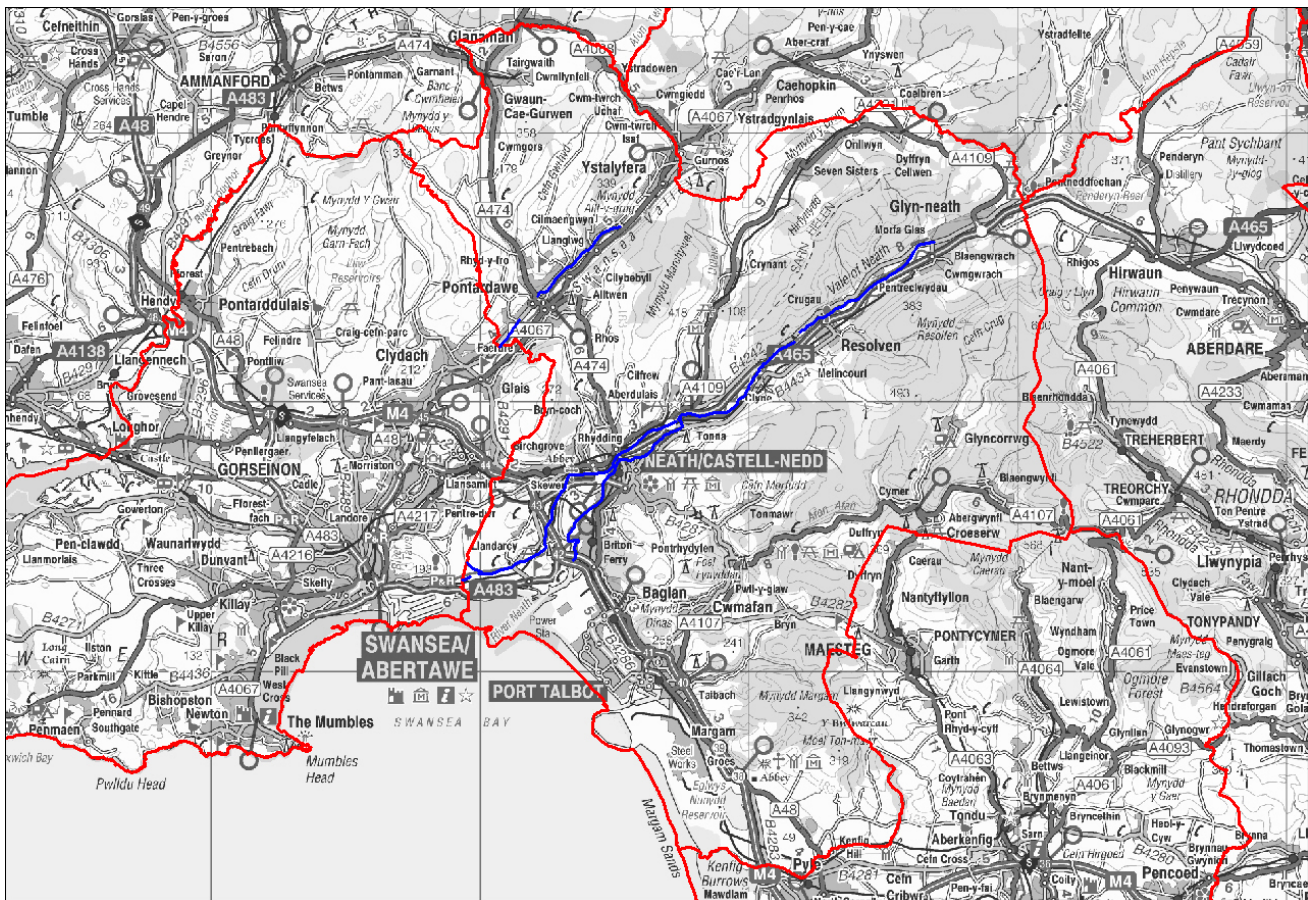
Neath Port Talbot CBC Environment Directorate are responsible for managing flood risk on roads and highways other than the motorway and trunk roads which are the responsibility of the Welsh Government.

Dŵr Cymru Welsh Water is a water and sewerage company, responsible for the provision of foul and surface water sewerage across the County Borough.

Figure 2-2 – Main Rivers

There are separate organisations responsible for the various canals (see Figure 2-3 for details) in the County Borough which are:-

1. The Company of Proprietors of the Neath Canal Navigation, responsible for the whole of the Neath Canal, from Briton Ferry to Resolven;
2. The Tennant Canal Company, responsible for the Tennant Canal that starts at Aberdulais and extends to Swansea docks;
3. The Canal and River Trust, covering the Swansea Canal from Pontardawe and up the Tawe Valley to Ynysmeudwy, including the feeder channel;
4. Neath Port Talbot CBC for the Neath Canal from Resolven to Glynneath; and
5. Neath Port Talbot CBC for the Swansea Canal from Ynysmeudwy to Godre'r-graig.

Figure 2-3 – shows information on canals in the County Borough

2.2. RESPONSIBILITIES FOR FLOODING

Recent legislation has tasked the various Flood Risk Management Authorities with responsibility for managing the risk from the different sources of flooding.

Flood risk from main rivers, coastal flooding and reservoirs is managed by National Resources Wales.

Neath Port Talbot CBC manage the risk for ordinary watercourses, surface water, groundwater and urban road flooding.

The Welsh Government, through its Agents, The South Wales Trunk Road Agency, deals with motorway and trunk road flooding.

Dŵr Cymru Welsh Water is responsible for burst water mains and main sewer flooding.

Details of the appropriate canal companies and trust that have responsibility for flooding from the various lengths of canal through the County Borough are contained in section 2.1.

Others such as landowners, businesses and householders, all with riparian interest and responsibility for flooding should also be involved in the flood risk management, as it is recognised that much better management could be provided by involving all parties with an interest in the process.

2.3. RESPONSIBILITIES FOR FLOOD RISK MANAGEMENT

The **Flood and Water Management Act 2010** identified certain organisations as ‘Risk Management Authorities’ which have responsibilities relating to flooding under the Act and from earlier legislation.

These organisations have the following duties and powers, to:-

1. be subject to scrutiny from the Lead Local Authority’s democratic processes;
2. co-operate with other Risk Management Authorities in the exercise of their flood and coastal erosion risk management functions, including sharing flood risk management data;
3. take on flood and coastal erosion functions from other Risk Management Authorities when agreed by both sides; and
4. comply with environmental legislation, taking reasonable steps to further the conservation of Sites of Special Scientific Interest by proper exercising of the Authority’s functions, all in accordance with the **Countryside and Rights of Way Act 2000**.

All authorities are required to have regard to the requirements of the Habitats Directive in the exercise of their functions [regulation 9{5}].

Co-operation between these Flood Risk Management Authorities will take place through the Neath Port Talbot Flood Risk Management Partnership – see also sections 1.5 and 1.6. Collaboration will be necessary on: recording flood assets; assisting with flood investigations; providing local knowledge to Sustainable Urban Drainage [SuDS] approval officers regarding drainage applications for new development in the area, and sharing data and information to ensure public enquiries are answered quickly by the appropriate organisation.

2.4. POWERS AND RESPONSIBILITIES OF THE LEAD LOCAL FLOOD AUTHORITY (LLFA)

- 2.4.1. The European Directive on the Assessment and Management of Flood Risks (2007/60/EC)**, known as ‘the Floods Directive’ is designed to help Member States prevent and limit floods and their damaging effects on human health, the environment, infrastructure and property. The Floods Directive came into force on 26 November 2007, and Member States have to transpose the Directive into domestic law. Defra and the Natural Resources Wales are coordinating the transposition of the Directive into UK law and are ultimately responsible for its timely and compliant implementation.

The Flood Directive requires Member States to prepare the following:-

- Preliminary flood risk assessments to identify areas that are at potentially significant flood risk.
- Flood hazard maps (showing the likelihood and flow of the potential flooding and flood risk maps; showing the impact).
- Flood risk management plans (showing measures to decrease the likelihood or impact of flooding).
- Updates every 6 years that take into account the impact of climate change.

- 2.4.2. The Flood Risk Assessment Regulations 2009 and The Flood and Water Management Act 2010** identified Neath Port Talbot County Borough Council as the LLFA for the County Borough. This gives the Council a strategic role in overseeing the management of local flood risk. It is a strategy for the whole Authority needing ownership and input from all disciplines. It needs to reflect the National Strategy for Flood and Coastal Erosion Risk Management launched by the Minister in November 2011. Neath Port Talbot CBC has responsibilities under this legislation as the:-

1. Lead Local Flood Authority;
2. Highways Authority;
3. Emergency Planning Authority;
4. SuDS Approval Body, when the appropriate legislation comes into force, currently anticipated to be in 2014;
5. Planning Authority; and has
6. Historical and natural environment responsibilities.

2.4.3. Under the **Flood Risk Regulations 2009**, Neath Port Talbot CBC are required: to identify and assess the risk of flooding in the County Borough; to prepare flood hazard and flood risk maps; to prepare flood risk management plans for each flood risk area, and to ensure these are all regularly updated to take into account climate change. The following table sets out the required timetable for the respective deliveries. The first two elements of work, highlighted in red, are covered by the Preliminary Flood Risk Report already prepared by Neath Port Talbot CBC.

Table 2.1 – Timetable under the Flood Risk Regulations 2009

| <u>TARGET</u> | <u>ACTIVITY</u> | <u>OBJECTIVE</u> |
|-----------------------|---|--|
| 22nd June 2011 | Prepare Preliminary Assessment Report. | The emphasis in the NPTCBC PFRA is on local flood risk from surface water, groundwater, and ordinary watercourses. |
| 22nd June 2011 | On the basis of the PFRA, identify Flood Risk Areas. | Flood Risk Areas are areas of significant risk identified on the basis of the findings of the PFRA, national criteria set by the UK Government Secretary of State and guidance provided by the Environment Agency. |
| 22nd June 2013 | Prepare Flood Hazard Maps and Flood Risk Maps for each Flood Risk Area. | Used to identify the level of hazard and risk of flooding within each Flood Risk Area to inform Flood Risk Management Plans. |
| 22nd June 2015 | Prepare Flood Risk Management Plans for each Flood Risk Area. | Plans setting out risk management objectives and strategies for each Flood Risk Area. |

2.4.4. **The Flood and Water Management Act 2010** gives the County Borough Council the following duties and powers without any associated timing imperatives:-

1. the strategic leadership of local Flood Risk Management Authorities;
2. the development, maintenance, application and monitoring of a strategy for local flood risk management;
3. to request information from any person in connection with the Authority's flood and coastal erosion risk management functions;

4. to investigate and publish reports on flooding incidents, identifying which authorities have relevant flood risk management functions and what they have done or intend to do;
5. to maintain an assets register of structures or features which have a significant effect, in the view of the LLFA, on flood risk in their area;
6. the responsibility as a SuDS Approval Body {SAB} for the approval, adoption and maintenance of most new SuDS {responsibility currently anticipated to start in 2014};
7. the decision-making responsibility for whether works on ordinary watercourses, affecting water flow, can take place. [Internal Drainage Boards also have this role on ordinary watercourses but there are no IDBs in the Neath Port Talbot area];
8. to exercise flood and coastal risk management functions in a manner consistent with the national and local strategies;
9. to aim to contribute towards the achievements of sustainable development in the exercise of flood or coastal erosion risk management functions, having regard to the Ministerial guidance on this topic;
10. to do works to manage flood risk from surface water runoff and groundwater. This includes powers under section 25 of the Land Drainage Act 1991, to require a person impeding the proper flow of water in an ordinary watercourse to remedy that condition; and
11. to designate structures and features that affect flooding.

2.4.5. In clarification, a duty is something the County Borough Council is legally obliged to do; a power can be used if appropriate but does not have to be used.

2.4.6. Neath Port Talbot CBC has an important role to play as the strategic leader for local flood risk management across the County Borough. This involves: developing this strategy; ensuring that all organisations involved in flood risk management are aware of their responsibilities; monitoring progress and activity by all those parties, and coordinating communications with the public and between organisations.

2.4.7 The Neath Port Talbot Flood Risk Management Partnership is led and managed by the County Borough Council and provides an important forum to discuss all aspects of flood risk management in the County Borough.

2.4.8 The project milestones and related programming targets for the Strategy are shown in Table 2.2 overleaf.

2.4.9 In addition, Neath Port Talbot CBC have duties and responsibilities to discharge under the following legislation:-

1. **Consenting and Enforcement of Ordinary Watercourses** – 6 April 2012.
2. **Sustainable Urban Drainage System (SuDS) Approval Bodies (SAB)** – Date to be confirmed.

2.5. RESPONSIBILITIES FOR RECORDING FLOODING INCIDENTS

2.5.1 An accurate recording of flood incidents across the County Borough will greatly assist the understanding of the flood risk. The Neath Port Talbot County Borough Council as LLFA will coordinate the recording and investigation of significant flood incidents. This will mean identifying which authority has the flood risk management function and what their intention is with regards to the incident.

Table 2.2 – Strategy Project Milestones and Timetable

| ACTIVITY | COMPLETION TARGET |
|---|--------------------------------|
| Outline Local Strategy | June 2012 |
| Establish Scope for Strategic Environmental Assessment (SEA), including statutory consultation with CADW, CCW and EA Wales | June 2012 |
| SEA and production of public consultation | June/July 2012 |
| Environmental Report to be agreed by NPTCBC prior to public consultation | July 2012 |
| Public consultation on Environmental Report (SEA) and Local Strategy), including statutory consultation with CADW, CCW and EA Wales | Mid-August to end October 2012 |
| Draft Local Strategy for Flood Risk Management sign off | November 2012 |
| Draft Local Strategy for Flood Risk Management for Ministerial sign off | December 2012 |
| Ministerial sign off | December 2012 – March 2013 |
| Local Strategy for Flood Risk Management completed | 31 March 2013 |

Neath Port Talbot CBC will notify other Risk Management Authorities where necessary and publish the results of any investigation. The decision whether to investigate a flood is at the discretion of the LLFA and the comprehensiveness of the investigation will reflect the significance of the incident and the resources available. The aim is to hold flood investigation reports in one place. An investigation will normally be carried out where any of the following criteria is met:-

- Risk to life as a result of flooding.
- The internal flooding of five properties has been experienced in one event.
- Critical infrastructure would be affected.
- Internal flooding of one property has been experienced on more than one occasion.
- There is ambiguity as to the source or responsibility of the flood incident.

The duty to investigate does not guarantee that problems will be resolved and cannot force other authorities into action. Decisions about next steps must be made by the parties involved, thus influencing the understanding of situations and directing possible long term solutions.

Flood Investigation Reports will be available to anyone on request once they have been compiled.

To assist in the recording of incidents in a comprehensive format a recording template is to be set up in the near future. Details to be included in such a template are contained in **ANNEX 1– Flood Incident Recording**, which for consistency requires being compatible with the Key Flood Risk Indicators described in the Preliminary Flood Risk Assessment.

2.6. RESPONSIBILITIES FOR THE PREPARATION OF ASSET REGISTER

Flood risk assets are structures or features which are considered to have an effect on flood risk. Examples would be an undersized culvert increasing flood risk or a flood defence wall that reduces flood risk. Neath Port Talbot CBC is required to ensure there are records of all significant assets available for use by Flood Risk Management Authorities and for inspection by the public at all reasonable times. It is considered that it will take many years before this register is sufficiently comprehensive to be of real value in flood risk management resources. In preparing the asset register, resources will be concentrated on areas of highest flood risk. Registers held by other authorities will need to be used to populate the County's own assets register.

There has been much confusion over the ownership of, and maintenance responsibility for, local flood risk assets such as those underground or along boundaries where owners do not acknowledge or realise that they have responsibility. The asset register is a way to address this problem. Residents can then be aware of assets in their area with information to enable them to contact owners when there are problems.

There are no set criteria for defining an asset as significant. Future flood risk mapping and the flood history will be used to analyse the significance and the vulnerability of the surroundings and the consequences of failure.

New sustainable drainage assets will be recorded via the SuDS approval process and asset data may be captured through local studies such as Surface Water Management Plans and flood investigations.

2.7. RESPONSIBILITIES FOR THE DESIGNATION OF ASSET

All Flood Risk Management Authorities can designate 'assets' when the designating authority thinks the existence or location of the asset affects:-

- A flood risk.
- A coastal erosion risk.

Or the following conditions are met:-

- The designating authority has flood or coastal erosion risk management functions in respect of the risk which is affected.
- The asset is not designated by another authority.
- The owner of the asset is not a designating authority.

If an asset becomes designated, its owner cannot alter or remove it without first consulting the designating Risk Management Authority. This will safeguard assets against unchecked works which could increase flood risk to the area. Additional assets will generally only be added to the register when there are concerns about that asset.

Details of the known flood defence assets of (1) Neath Port Talbot County Borough Council, (2) The Natural Resources Wales and (3) Other Riparian Owners are contained in **ANNEX 2 – Details of Known Flood Defence Assets**.

2.8. RESPONSIBILITIES FOR THE CONSENTING IN RESPECT OF ORDINARY WATERCOURSES

If riparian owners or other bodies wish to culvert an ordinary watercourse or insert any obstruction, consent is required from Neath Port Talbot County Borough Council. This consenting process is to ensure that no obstructions are placed in a watercourse that could create a flood risk.

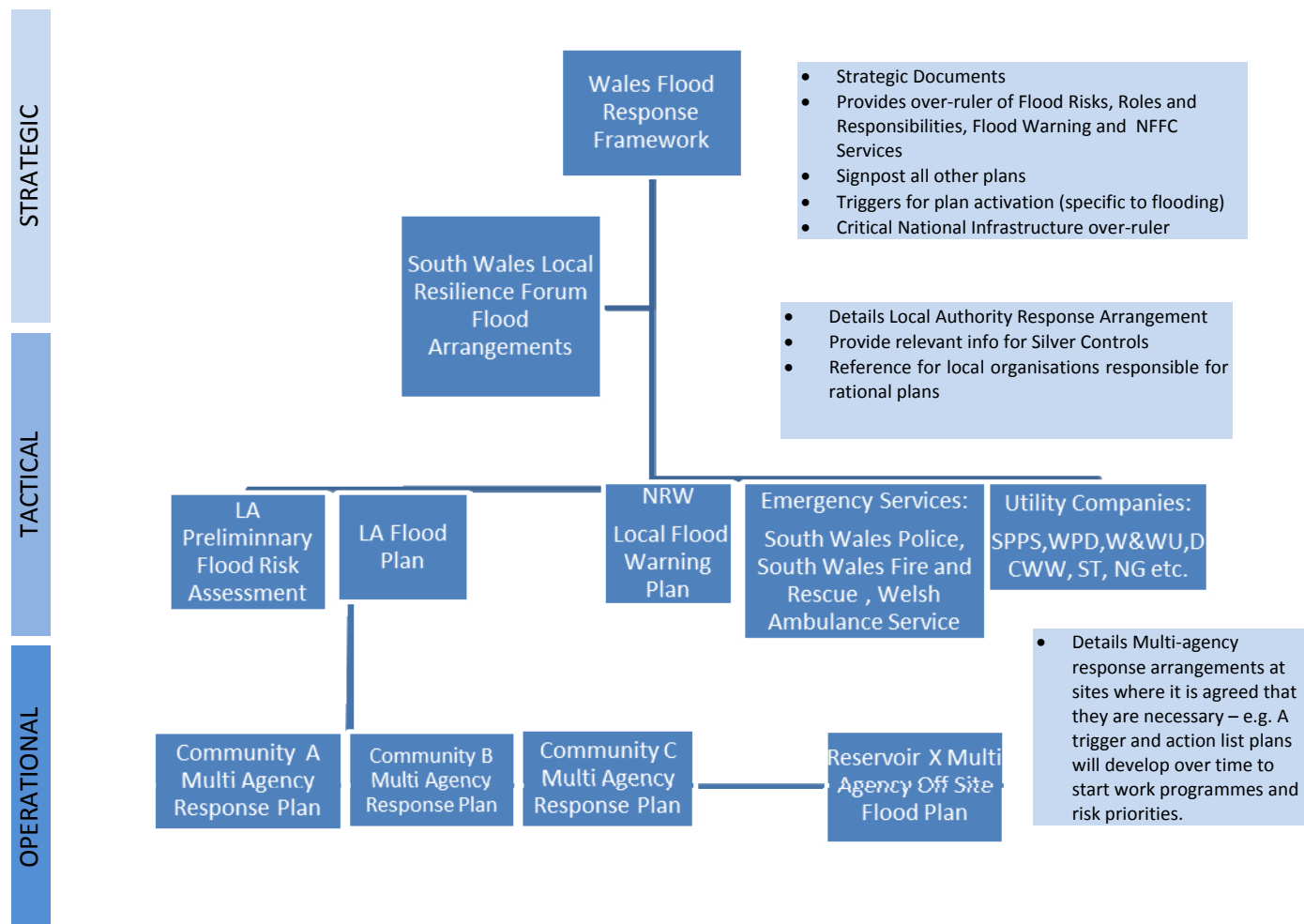
Where obstructions are inserted without consent or in a manner contrary to consent, the Council has the powers to enforce their removal or take remedial action.

2.9. RESPONSIBILITIES FOR EMERGENCY PLANNING AND AS EMERGENCY PLANNING AUTHORITY

Under the **Civil Contingencies Act 2004**, all Local Authorities have civil protection duties requiring them to put in place emergency plans and business continuity arrangements. The Act outlines the roles and responsibilities for those involved in emergency preparation and response at the local level.

A Partnership Agreement has been set up to formulate a Joint Resilience Unit (JRU) for the Neath Port Talbot & City & County of Swansea Council Emergency Planning Unit in collaboration with a number of multi-agency partners (see Figure 2-4 – Strategic/ Tactical /Operational Flow Chart).

Figure 2-4 – Strategic/Tactical/Operational Flow Chart



The Control of Major Accident Hazards Regulations (COMAH) stipulates that Local Authorities, in addition to writing the off-site emergency plans, have the duty to exercise them and to carry out exercises and training of those emergency plans and arrangements. The JRU are responsible for carrying out this duty on a three year rolling programme.

The JRU supports the delivery of civil preparedness and business continuity services within the Authorities, working closely with emergency services, Natural Resources Wales and other relevant bodies in the event of flood emergencies. This involves assisting in evacuation, rescue and recovery after a flood. The unit has the expertise to enable the Councils to meet their statutory responsibilities which include:-

- Assessing risks in accordance with lead responsibility and coordinate Local Authority input to Community Risk Register.
- Developing Emergency Plans in accordance with lead responsibility.
- Developing Local Authority Business Continuity Management arrangements.
- Developing Civil Preparedness information and arrangements for public use.
- Maintaining a system for warning, informing and advising public in the event of an emergency.
- Co-operating and sharing information with other services to enhance efficiency.
- Providing advice and assistance to the business organisations about business continuity management.

With the support of Natural Resources Wales, the County Borough Council is encouraging the formation of local emergency groups with respect to flood risk.

During and after an emergency, the JRU will undertake the following roles and responsibilities:-

- Coordinate emergency response within its own functions.
- Deal with surface water and groundwater flooding and flooding from non-main river.
- Deal with other responders as part of the multi-agency response to floods.
- Coordinate emergency support from the voluntary sector.
- Liaise with Departments of the Welsh Government and, where appropriate, Central Government Departments.
- Liaise with essential service providers.
- Open rest centres.
- Manage the local transport and traffic networks.
- Mobilise trained emergency social workers.
- Provide emergency assistance.
- Deal with environmental health issues, such as contamination and pollution.
- Coordinate the recovery process.
- Manage public health issues.
- Provide advice and management of public health.
- Provide support and advice to individuals.
- Assist with business continuity.

2.10. RESPONSIBILITIES FOR HIGHWAY MAINTENANCE

All Highway Authorities are Risk Management Authorities as stated in the Flood and Water Management Act and must adhere to all the responsibilities of Risk Management Authorities. The County Borough Council is the Highways Authority for all the County's public highways, except motorway and trunk roads for which the Welsh Government is the relevant Highway Authority and their Agents, the South Wales Trunk Roads Agency, have operational responsibility.

Under the Highways Act 1980, a Highway Authority has a duty to maintain the highway, including highway drainage and blockage clearance. As part of this duty, roads are regularly inspected and maintained.

The Highway Authority has powers to deliver works that they consider necessary to protect the highway from flooding. These works can be on the highway or on land which has been acquired by the Highway Authority in the exercise of land acquisition powers.

Highway Authorities may divert parts of a watercourse or carry out any other works on any form of watercourse if it is necessary for the construction, improvement or alteration of the highway, or provides a means of access to any premises from a highway.

2.11. RESPONSIBILITIES FOR THE LLFA AS PLANNING AUTHORITY/SUDS APPROVAL BOARD (SAB)

Neath Port Talbot County Borough Council is a Planning Authority with responsibilities for all planning matters, under the Town and Country Planning Act 1990 *et al.* Part of this legislation requires the preparation and implementation of Local Development Plans. The current relevant plans are:-

- The Neath Port Talbot Unitary Development Plan (2008) ; and
- The Neath Port Talbot Community Plan (2010).

The primary aim of the Unitary Development Plan is to move towards Sustainable Development and the effective protection of the environment is identified as one of the plan's most fundamental and important duties.

In addition, Neath Port Talbot CBC has universal responsibilities under the Flood and Water Management Act and has power to designate structures and features that affect flood and coastal erosion. They also have the duty to act in accordance with local and national strategies.

The three main ways that the Council's planning function affects flood risk are by:-

- considering flooding concerns in developing these local plans;
- ensuring that planning applications and drainage applications are complementary by working alongside developers;
- considering flood risk assessments submitted in support of applications on which Natural Resources Wales does not require to be consulted.

The Planning Authority, therefore, needs to produce a Strategic Flood Risk Assessment and to develop a Local Development Framework (LDF) that considers flood and coastal erosion risks. This will be used as a statutory planning document that can then be utilised to object to inappropriate development in the floodplain. In undertaking its duties in this regard the Authority takes cognisance of the guidance contained in the **Welsh Government's Technical Advice Note (TAN) 15: Development and Flood Risk (2004) – (Reference 1)**.

The Advice Note sets out the national policy on flood risk. The general approach of national policy is to advise caution in respect of new development in areas at high risk of flooding by setting out a precautionary framework to guide planning decisions. The overarching aim of the precautionary principle is to:-

- direct new development away from those areas which are at high risk of flooding and coastal erosion;

- where development has to be considered in high risk areas, only those developments which can be justified on the basis of certain tests are located within such areas, namely that :-
 - It does not increase the overall risk of all forms of flooding from the development. The layout of the development and the use of SuDS must clearly demonstrate there is no increase in flood risk;
 - It will be adequately protected from floods;
 - It will be safe for people for the lifetime of the development; and
 - It will include water efficiency measures such as rainwater harvesting or use of local land drainage water where practicable.

Action Plans should be developed to support sustainable spatial planning and all plans should be integrated with local strategies. This should ensure that neighbourhood plans fully consider flood risk issues.

Where appropriate the planning authority is required to advise applicants that there may be a requirement for land drainage consent for alterations or new structures within a watercourse.

Due to the topography of Neath Port Talbot, tidal and river flooding pose particular threats. Significant areas of the County Borough near to the coast fall within Flood Zone C2 (i.e. areas defended against flood risk), together with large areas of the valley floors. This constrains and limits the availability of sites for development. Further information on Flood Risk Zones is contained in **ANNEX 3 – Areas Susceptible to Surface Water Flooding**, which has been extracted from the Preliminary Flood Risk Assessment.

Further information on areas of flood risk, due to tidal and river flooding, in Neath Port Talbot is provided in **Neath Port Talbot County Borough Council Strategic Flood Consequences Assessment (Reference 2)**.

Included within these Plans is the need to address and respond to the challenges presented by Climate Change in order to create a more resilient environment and to mitigate against such changes.

It is expected that the Council will become the Sustainable Urban Drainage Approval Authority in 2014, when the legislation comes into force and will be required to cooperate fully in all development matters, so that planning and drainage applications are considered consequentially.

2.12. RESPONSIBILITIES FOR MAINTENANCE OF PUBLIC SPACES

Neath Port Talbot CBC is responsible for the maintenance of some parks and public open spaces, and has responsibility for street cleaning. Good maintenance practices can help reduce flood risk by, for example, ensuring that drainage channels are kept clear.

Where the Council is the riparian owner of any watercourse they would carry out the duties imposed on riparian owners by the Land Drainage Act and maintain all assets in their ownership.

2.13. RESPONSIBILITIES AS A COASTAL EROSION RISK MANAGEMENT AUTHORITY

Neath Port Talbot CBC is a Coastal Erosion Management Authority and is required to manage this role by:-

- Shoreline management planning in conjunction with Natural Resources Wales.
- Delivering coastal erosion risk management activities.
- Coordinating with National Resources Wales to develop and maintain coastal flood and erosion risk information.
- Maintaining a register of assets and features that help to manage coastal risk.

- Implementing, managing, maintaining and monitoring shoreline management plans to understand and manage coastal flood and erosion risks.
- Assisting communities in planning for the future and taking appropriate steps to adapt to changing coastal erosion risks.

2.14. POWERS AND RESPONSIBILITIES OF INTERNAL DRAINAGE BOARDS (IDBs)

There are no Internal Drainage Boards in the Neath Port Talbot area.

3. LOCAL POLICIES

3.1. LOCAL POLICIES

NEATH PORT TALBOT COUNTY BOROUGH COUNCIL POLICY ON FLOOD AND COASTAL DEFENCE

The Welsh Government has published a policy aim and three objectives for flood and coastal defence. To ensure these are met the Welsh Government produced a series of High Level Targets. The first of these targets tasked every operating authority to publish a policy statement consistent with the objectives.

The Neath Port Talbot CBC policy statement, "Policy on Flood and Coastal Defence", published in October 2002, sets out how the Government's policy aim, and objectives are planned to be delivered in the County Borough as follows:-

Objective [a] To encourage the provision of adequate and cost effective flood warning systems.

Whereas Natural Resources Wales delivers the flood warning system, Neath Port Talbot CBC has a role in emergency planning and response which includes flood emergencies. The response plan is reviewed every two years.

Objective [b] To encourage the provision of adequate, economically, technically, and environmentally sound, sustainable flood and coastal defence measures.

Neath Port Talbot CBC adopts a strategic approach to the provision of flood and coastal defences by playing a full role in the development of Shoreline Management Plans. The Plans lead to the identification of sustainable defences which provide social and/or economic benefits but consider natural processes, thus avoiding committing future generations to inappropriate defence options. To this end the Council will:-

- Ensure that all work will be carried out using best practice, and to deliver best value for money.
- Pursue all funding avenues such as Public Private Partnerships, contributions from developers and other direct beneficiaries of the works. There will also be appropriate maintenance regimes set in place.
- Ensure that all statutory duties and other responsibilities for furthering nature conservation as defined by the Government will be discharged.

Objective [c] To discourage inappropriate development in areas at risk from flooding and coastal erosion.

As the Local Planning Authority, the Council takes account of flooding risks in all planning matters including the preparation of the Unitary Development Plan, supplementary guidance, development control and enforcement, in accordance with Planning Guidance [Wales] Planning Policy and TAN 15 - Development and Flood Risk.

3.2. CATCHMENT FLOOD MANAGEMENT PLANS – NATURAL RESOURCES WALES PLANS AND POLICIES

The production of Catchment Flood Management Plans (CFMPs) is required of Natural Resources Wales by **the Flood and Water Management Act 2010**. These are high level strategic plans through which Natural Resources Wales, working with key decision makers within the river catchment, identify and agree policies for sustainable flood risk management. These plans are further explained in 4.6.

These CFMPs are split into the five policy areas of Neath Port Talbot CBC, taking into consideration all types of inland flooding from rivers, groundwater, and surface water and tidal flooding but not flooding directly from the sea. In each of these five areas the most appropriate approach to managing flood risk is identified and a generic flood risk management policy allocated:-

1. **Upland Rivers** [including main rivers] – areas of low to moderate flood risk where Natural Resources Wales and partners are generally managing the flood risk effectively.
2. **Tawe Valley** [from Trebanos to Ystalyfera and beyond] – areas of moderate to high flood risk where Natural Resources Wales and partners can generally take further action to reduce flood risk.
3. **Upper Neath, including the area covered by the Neath Valley Spatial Area** – Natural Resources Wales and partners are already managing the various flood risk levels but there may be a need to take further actions to deal with climate change.
4. **Lower Neath, (including the dense urban area of Neath)** – this area is the same as the Upper Neath with the same mix of low, medium and high risk being addressed by Natural Resources Wales.
5. **Port Talbot, (including the dense urban area of Port Talbot and Margam)** – this is an area of moderate high flood risk where the Natural Resources Wales can generally take action to reduce flood risk.

3.3. SHORELINE MANAGEMENT PLAN 2 (SMPS2) – NATURAL RESOURCES WALES – IDENTIFIES POLICY AREAS AFFECTING NPT

Shoreline Management Plans are strategic plans for the long term management of the coast. The Neath Port Talbot section of shoreline forms part of the SMP2 that considers the South Wales shoreline from Penarth in The Vale of Glamorgan to St. Anne's Head in Pembrokeshire.

This Plan identifies areas at risk of flooding directly from the sea.

The Neath Port Talbot coastline falls within Policy Scenario 8 of SMP2 and the following policies are proposed to:-

- Hold the line of the shoreline through the maintenance and upgrading of existing defences.
- Allow the sand dune systems to continue to evolve naturally by managed realignment.
- Hold the line policy is recommended at the former BP tank farm site to the west of Crymlyn Burrows.

3.4. THE UNITARY DEVELOPMENT PLAN (UDP)

The Local Government (Wales) Act 1994 requires Local Authorities to prepare Unitary Development Plans for their areas. The Neath Port Talbot UDP was adopted in March 2008, and is the current development plan for the whole of the County Borough. It sets out the council's vision, strategy, objectives and policies against which development proposals are considered and is the land use plan against which all planning applications in Neath Port Talbot are judged.

3.5. THE LOCAL DEVELOPMENT PLAN (LDP)

The Planning and Compulsory Purchase Act 2004 requires the Council to prepare a LDP for the County Borough, setting out the Council's strategy and objectives for the use and development of land in Neath Port Talbot, together with its policies to implement them over a 15 year period (2011 – 2026). The LDP is presently at Deposit Stage, and it is anticipated that the Plan will be submitted for examination during the summer of 2014, with the examination taking place late 2014 and anticipated adoption of the Plan in the summer of 2015. Once adopted the Plan will supersede the UDP and become the land use plan for the County Borough.

To manage the effects of Climate Change including the needs to avoid vulnerable developments in areas that are at risk from flooding or that may increase the risks of flooding elsewhere.

A number of strategic policies are identified which will deliver the LDP objectives, among these are, to:-

- Avoid siting vulnerable developments within areas of noise and air pollution or flood risk;
- Address the impacts of climate change through the sustainable design and location of development (i.e. low carbon and mitigation).

The LDP will identify: how new development will be located to minimise the risk from flooding; how land will be safeguarded to provide flood capacity, and how developments will be assessed against the need to provide Sustainable Urban Drainage Systems.

3.6. RIVER BASIN MANAGEMENT PLAN

The Western Wales River Basin Management Plan (RBMP)³ contains measures and objectives to improve the quality of rivers, estuaries, coastal waters, aquifers and other water bodies in the area as required by the Water Framework Directive. The RBMP protects and improves the water environment and has been developed by Natural Resources Wales in consultation with other organisations and individuals. Flood risk management measures, including any measures included in the LFRMS, should not affect the achievement of objectives included in the RBMP, nor should they be allowed to cause deterioration in water body status.

3.7. SUDS GUIDANCE

Planning Policy Wales Edition 4 2011 promotes the use of SuDS and delivering sustainable developments. Policies ENV11 and ENV12 of the Neath Port Talbot County Borough Council Unitary Development Plan requires the use of SuDS on new developments, leading to the publication by the Authority of the “Design Guide for Sustainable Urban Drainage Systems in Neath Port Talbot County Borough Council” in February 2012.

3.8. OTHER LOCAL POLICIES

There are a number of other local policies, for example, the Community Plan 2010, the Western Valleys Strategy 2006, and Waterfront Strategy that intrinsically do not cover flooding matters.

3 Environment Agency (2009) River Basin Management Plan for Western Wales River Basin District

4. ASSESSMENT OF LOCAL FLOOD RISK

4.1. GENERAL

Many areas of the United Kingdom have been recently affected by severe flooding and while there have been few recent newsworthy flooding events caused by fluvial or surface water flooding in Neath Port Talbot, the County Borough contains 1 of 8 sites in the Principality, identified as “Indicative Flood Risk Area” see Figure 4-1. For the rest of the County Borough it does not mean severe incidents will never occur. Localised floods have and will continue to occur in many of these areas under severe weather conditions and climate change is likely to make them more frequent and more severe.

To ensure a consistent national approach, the Strategy embraces the approach adopted by Defra and the Welsh Government who have identified significance criteria and thresholds to be used for defining flood risk areas. Guidance on applying these thresholds has been released in Defra’s document “**Selecting and reviewing Flood Risk Areas for local sources of flooding**” (Reference 3). This guidance document has set out agreed key risk indicators and threshold values which must be used to determine Flood Risk Areas.

An early task (see Delivery Theme 2 – Flood Forecasting, Warning and Response) will be to review the historic flooding information to see whether it might be possible to identify locations where flood mitigation measures could be implemented. Property flood protection such as flood doors and air brick covers can, in appropriate situations, provide very effective resistance to flooding at minimal cost (see Delivery Theme 5 – Studies, Assessments and Plans).

4.2. HISTORIC FLOODING

4.2.1. Interactions between the different sources of flooding

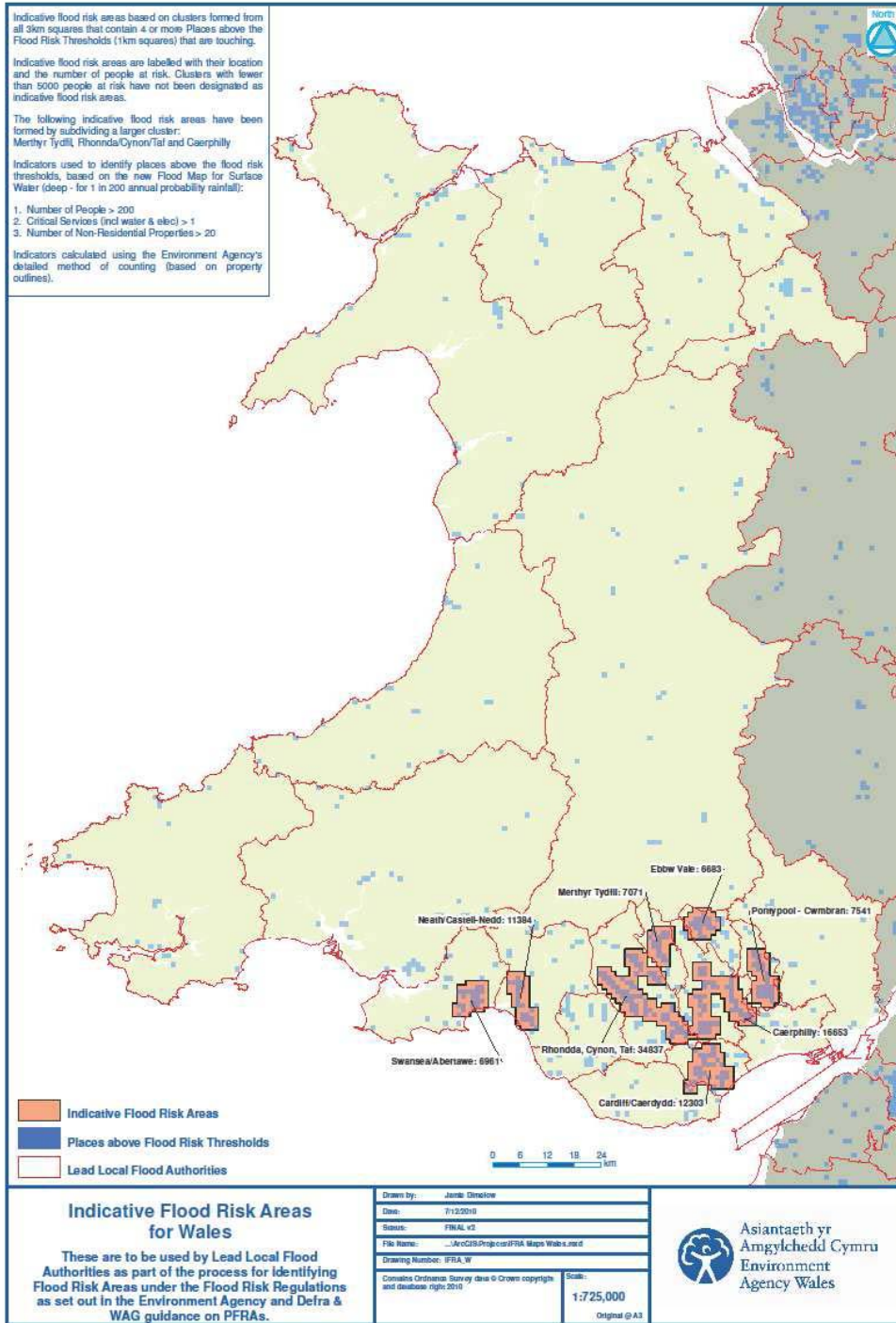
The history of flooding in the County Borough indicates the following sources:-

- a) Surface Water Flooding
- b) Groundwater Flooding
- c) Sewer Flooding
- d) Canal and Ordinary Watercourse Flooding
- e) Interaction with Main Rivers and the Sea

4.2.2. Relevant information on past flooding within the County Borough has been obtained from the following:-

- Dŵr Cymru Welsh Water
- Community Councils
- Fire and Rescue Service
- Police
- Joint Emergency Planning - Joint Resilience Unit
- Welsh Government
- South Wales Trunk Road Agency
- Natural Resources Wales
- Preliminary Flood Risk Assessments

Figure 4-1 – Disposition of Indicative Flood Areas throughout Wales



4.2.3. Flood Incidents

While there is good data on past river and sea floods, the information on historic surface water flooding is limited. Available information was collected as part of the Neath Port Talbot County Borough Council's Preliminary Flood Risk Assessment (PFRA) process – see **Reference 4 - Preliminary Flood Risk Assessment**.

The main historical flooding events are set out in tables contained in the PFRA and are reproduced in **ANNEX 4 – Main Flood Events**. The catchments are defined in accordance with the Catchment Flood Management Plans. Records of flooding from these sources provide the following:-

a) **Surface Water Flooding**

Surface water flooding occurs when heavy rainfall exceeds the capacity of local drainage networks and water flows across the ground. Information on surface water flooding incidents was obtained from a number of sources, the key sources being the County Borough Council's own day to day records and the CFMPs, which are high-level strategic plans published by Natural Resources Wales that focus on flooding in major river catchments.

b) **Groundwater Flooding**

Groundwater flooding occurs as a result of water rising up from underlying aquifers or from water flowing from abnormal springs. This tends to occur after long periods of sustained high rainfall and the areas most at risk are often low-lying where the water table is more likely to be at shallow depth. Groundwater flooding is known to occur in areas underlain by major aquifers, although increasingly it is also being associated with more localised floodplain sands and gravels. Historically, there are no specific areas of groundwater flooding recorded in the Neath Port Talbot area.

c) **Sewer Flooding**

Sewer flooding is often caused by excess surface water entering the drainage network.

d) **Canal and Ordinary Watercourse Flooding** – see Figure 2-3 for details of canal lengths in Neath Port Talbot County Borough.

Information was obtained from the Canal and River Trust which details the canal network through the NPT area at Pontardawe including the location of canals, weirs, sluices and locks. There are two other canals within the NPT area and enquiries were made with both the Neath Canal Company and the Tennant Canal Company. It is, however, acknowledged that the topography of these latter two canals is vastly different from the Swansea Valley Canal at Pontardawe where the canal is perched above part of the town and could be viewed as a 'significant' flood threat to the area under certain circumstances (see Annex 4 Section A4.1). The Canal and River Trust also provided details of historic breaches or overtopping events that have occurred across the County Borough.

e) **Interaction with Main Rivers and the Sea**

There is good anecdotal evidence (see Annex 4 Section A4.2) to suggest that surface water flooding may be exacerbated in some locations such as the Neath Abbey / Milland Road areas during high tidal cycles when gravity drains and outfalls are blocked with high tidal waters, affecting the River Neath.

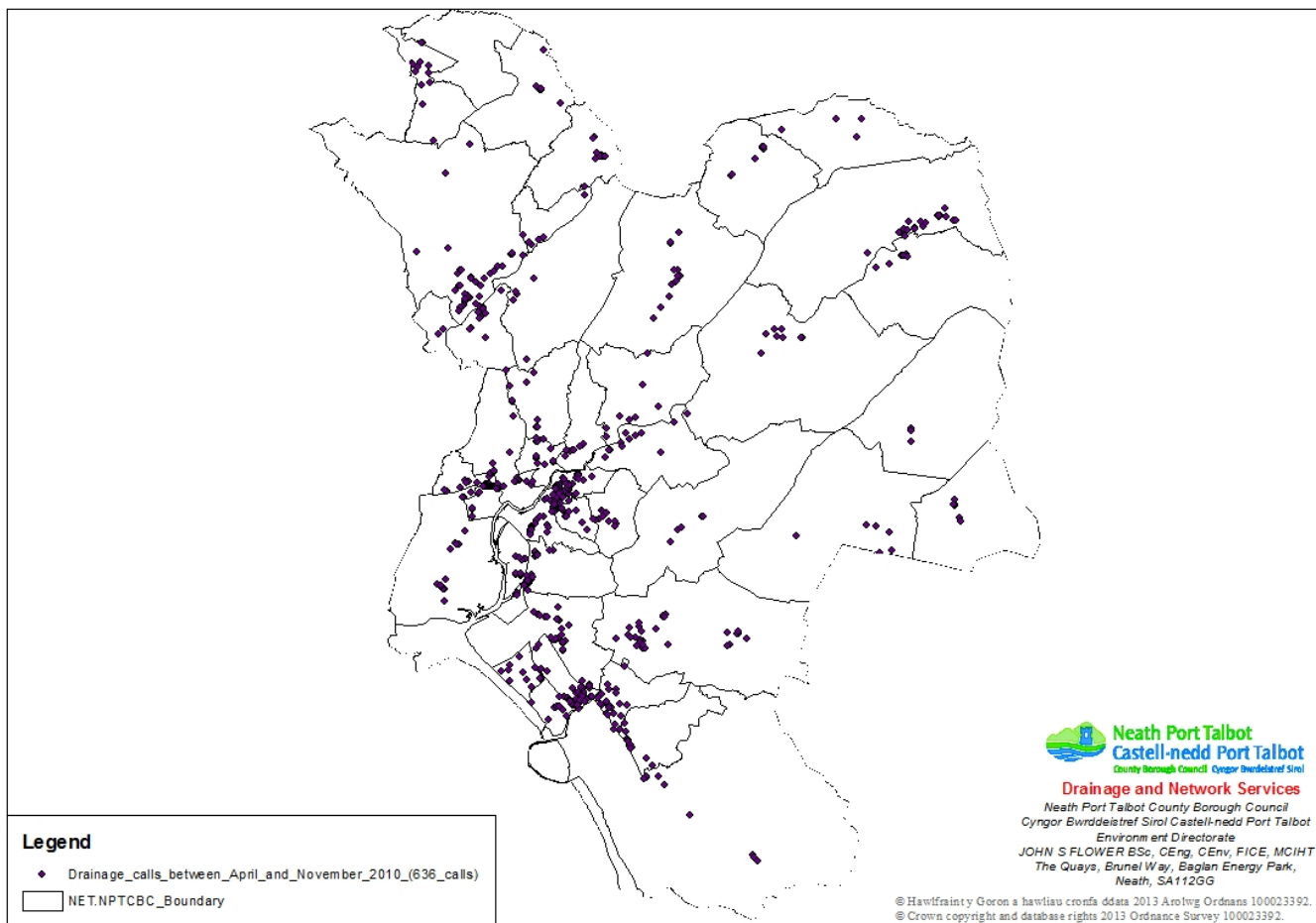
4.2.4. **Locally significant or adverse flooding events**

For the purposes of this report a locally significant or adverse event is defined as one where generally 5 or more residential properties have been flooded in comparatively recent times. For that reason the only flooding events recorded in PFRA Annex 1 - Records of Past Floods and their Significant Consequences makes reference to the Preliminary Assessment Spreadsheet, access to which is contained in **ANNEX 5 – Preliminary Assessment Spreadsheet Annex 1 – Records of Past Floods and their Significant Consequences** are those which affected Pontardawe from the canal breach in 1998, which caused flooding to 30 residential properties, a health centre and numerous businesses in the industrial sector of the town. Subsequently, work was undertaken to alleviate the risk of flooding at this location and to provide adequate warning to residents. More recently, flooding occurred in 2010 at Baglan, when **5 properties** were inundated. As a result of this flooding event, a Project Appraisal Report was prepared and application made for funding of a flood

alleviation scheme which is expected to commence in 2013. Details of all recent incidents are maintained on the Council’s database.

In the majority of cases of pure historical flooding, there is insufficient available data to draw definitive conclusions on the impacts and consequences of flood events on people, the economy and the environment. Between April and December 2010, (see Figure 4-2) information relating to **749** surface water flood events from local sources, was collected and analysed to the best of the existing capabilities and compared with information supplied by Natural Resources Wales.

Figure 4-2 – Main (recent) historical flood events April to December 2010



4.3. POTENTIAL FLOOD RISK

4.3.1 Unlike a tidal surge, flooding caused by localised rainfall is much harder to predict and as yet there are no adequate warnings available to allow evacuation of an area at risk from this sort of event. The objectives of this local strategy are to try to predict and reduce the risks where possible and have emergency plans in place to deal with exceptionally severe flooding events. Delivery Theme 2 - Flood Forecasting, Warning and Response (section 5.5.1) addresses these objectives specifically through ‘Measures’ listed under this Delivery Theme.

It is important to be able to consider the relative significance of incidents of flooding on a County Borough-wide basis and alongside this strategy a flood incident reporting process is being set up. This should permit a better understanding of where the main problems are and where the focus of future help should be placed.

The data collected through the flood incident recording process will be used to supplement the current information on historic flooding. This information together with that derived from any flood investigations undertaken will be reviewed on a regular basis to guide future work, in particular where there is a need to undertake more detailed investigations to understand flooding mechanisms and possible solutions in particular locations.

The PFRA was carried out by Neath Port Talbot County Borough Council in accordance with its duties and obligations under **the Flood Risk Regulations 2009** and identified key areas in the County Borough where the potential risk of surface water flooding is thought to be greatest.

As far as the PFRA is concerned, the perceived flood risk is defined as any flood that could potentially occur in the future, which includes predicted floods extrapolated from current conditions in addition to those with an allowance from climatic change where appropriate. The assessment takes into account the following factors:-

- Topography
- Location of ordinary watercourses
- Location of flood plains that retain water
- Characteristics of watercourses e.g. lengths, modifications
- Effectiveness of any works constructed for the purpose of flood risk management
- Location of populated areas
- Areas in which economic activity is concentrated
- The current and predicted impact of long-term developments that might affect the occurrence or significance of flooding such as proposals for future development.

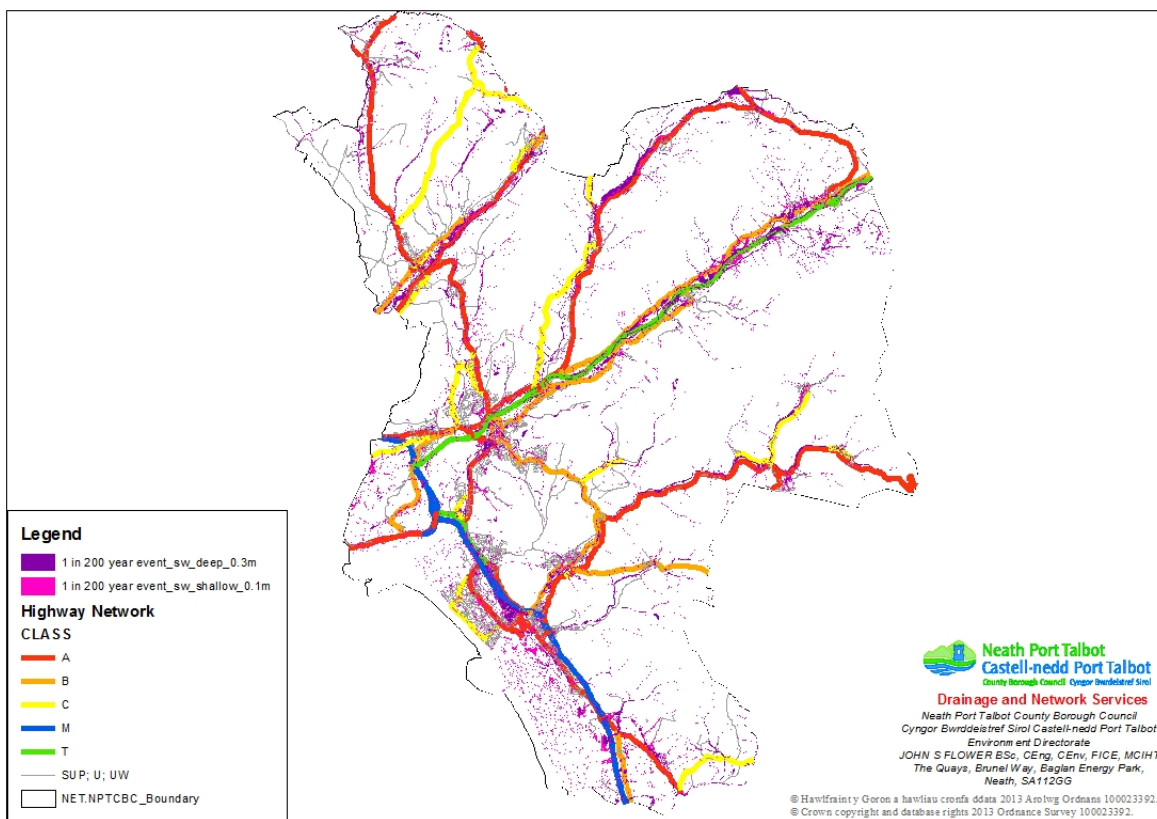
4.3.2. Future Flooding

Future flooding from each flooding source has been assessed as follows:-

a) Surface Water Flooding

The assessment relies both on reporting undertaken by Neath Port Talbot CBC and a review of Natural Resources Wales Flood Map for surface water that has been circulated to LLFAs and appears at Figure 4-3 which highlights the areas at risk of surface water flooding in the future for a 1 in 200 year annual chance.

With information from the sources listed in 4.2.2, and that provided by Natural Resources Wales taking into account the factors in 4.3.1, the number of properties at risk of surface water flooding within the County Borough has been estimated. For a rainfall event with a 1 in 200 annual chance of occurring, 25,900 residential properties are at risk of flooding to at least a depth of 0.1 metres and of these, 10,200 at risk from flooding to a depth of 0.3 metres.

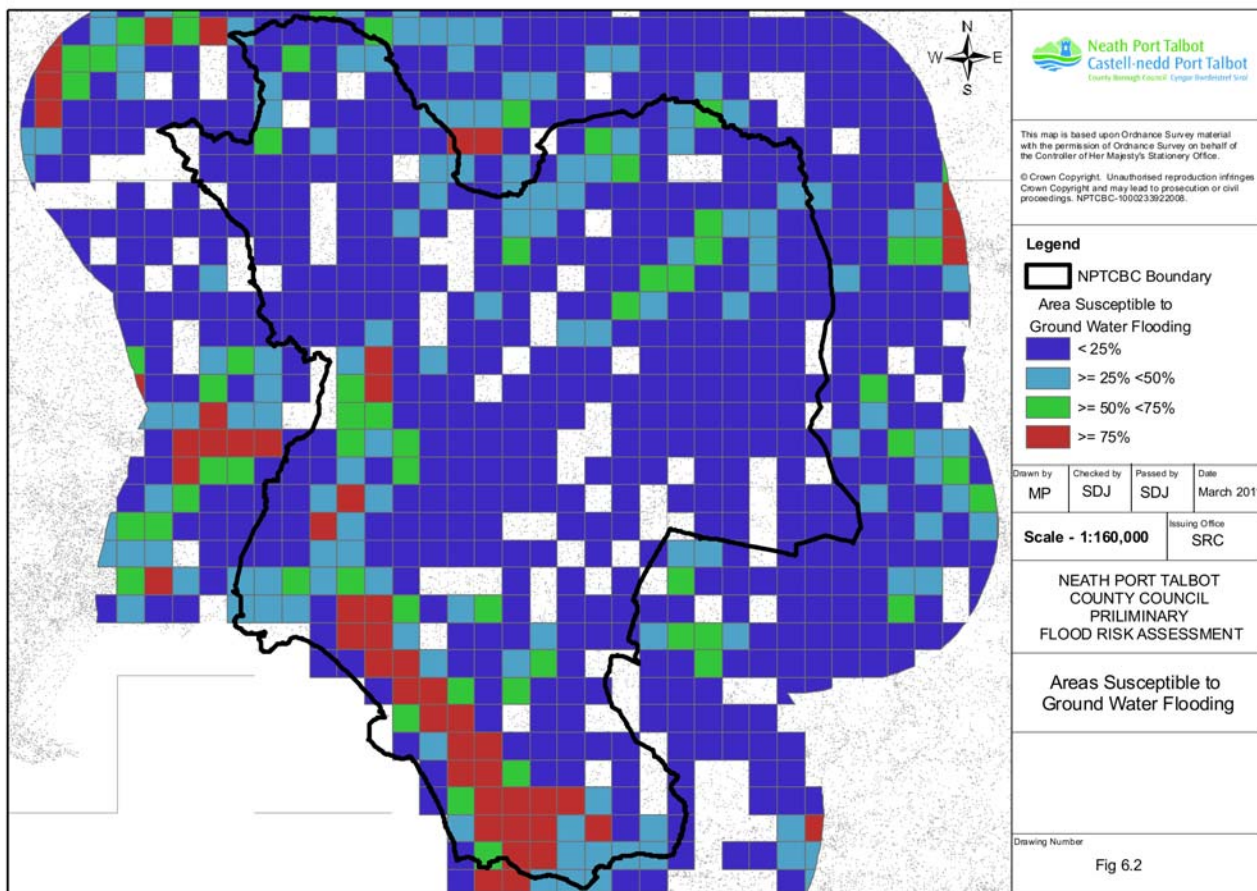
Figure 4-3 – Environment Agency Flood Map for Surface Water**b) Groundwater Flooding**

As noted in Section 4.2.3 b) that there have been no specific areas of historical groundwater flooding in the County Borough. While it is not considered to have the potential as a major source of flooding, there is the possibility of groundwater flooding to occur in the future. As a consequence and given the lack of local information available, reliance has been placed on information from the Natural Resources Wales national dataset, **Areas Susceptible to Groundwater Flooding** to form the basis of the assessment of future flood risk from groundwater. This dataset is illustrated here as Figure 4-4.

c) Sewer Flooding

DG5 registers from Dŵr Cymru Welsh Water (DCWW) were analysed to investigate the occurrence of sewer flooding incidents across the County Borough. Once a property is identified on the water companies DG5 register, it typically means that the water company can put funding in place to take properties off the DG5 register. It was found that there were a total of 430 sewer flooding events that have been recorded by the water company, of which 355 were identified as being at high risk with 34 suffering from internal flooding.

Figure 4-4 – Areas Susceptible to Groundwater Flooding



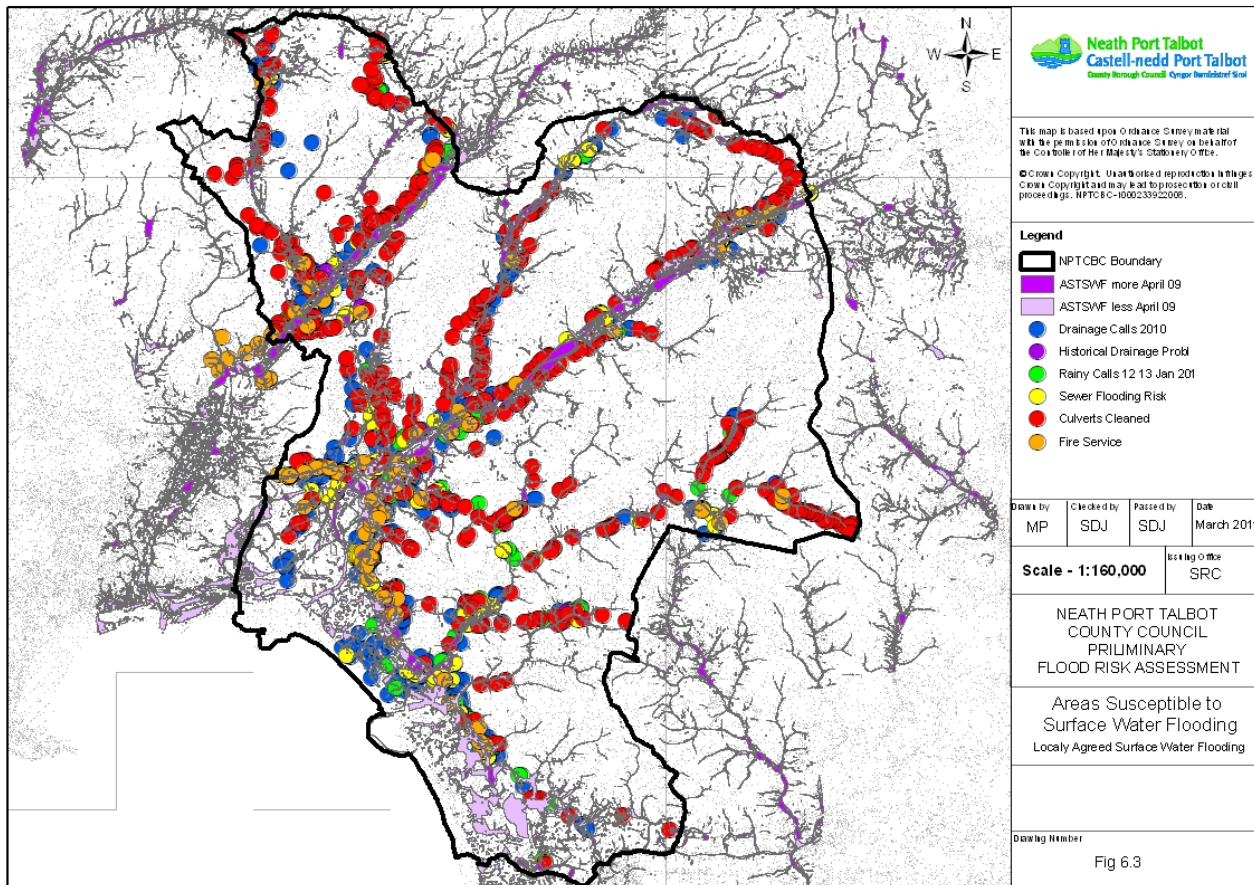
d) Canal and Ordinary Watercourse Flooding

There is no available information on future flood risk from canals. However, the River and Canal Trust are currently working on a study to better understand the future flood risk from this source.

The fluvial flood map has been used to assess the risk of flooding from ordinary watercourses. The Detailed River Network was used to identify ordinary watercourses and this was cross referenced with the Flood Map for Rivers and the Sea together with information contained in the County Borough’s Preliminary Flood Studies (PFS) and Project Appraisal Reports (PAR) prepared to assess future flood risk from this source.

The most appropriate source of information and taken as the “locally agreed surface water information” is the Flood Map for Surface Water dataset which gives an overview of the future flood risk from surface water across the County Borough. The dataset is illustrated as Figure 4-5 and by using the hyperlink http://www.npt.gov.uk/PDF/PFRA_Report_2011.pdf more detailed and localised information may be obtained from the Neath Port Talbot County Borough Council Preliminary Flood Risk Assessment. Figure 4-6 illustrates a typical example of this.

Figure 4-5 – Areas Susceptible to Surface Water Flooding



The Natural Resources Wales flood map (Figure 4-3) uses a numerical hydraulic model to predict and identify individual 1km squares where the following criteria were satisfied in respect to potential flooding from two rainfall events (a) 1 in 30 year annual chance and (b) 1 in 200 year annual chance, both with two depth bandings (greater than 0.1 metres (surface water shallow) and greater than 0.3 metres [surface water deep]). The 1km squares that satisfied the criteria are often referred to as “blue squares”.

The grid squares within the County Borough where flood risk is considered to exceed this threshold are illustrated in Figure 4-7 by the blue squares, representing the most severe risk of flooding. The potential consequences on key flood risk indicators have been assessed by Natural Resources Wales; this information has been included in Annex 2 of the Preliminary Assessment Spreadsheet which may be accessed by reference to **ANNEX 6 – Preliminary Assessment Spreadsheet Annex 2 - Records of Future Floods and their Consequences**. It should, however, be noted that flooding from ordinary watercourses and surface water flow may take place almost anywhere within the County Borough should the specific circumstances prevail.

Clusters of these 1km grid squares were formed on the basis of 4 or more touching blue squares in Wales in a 3km by 3km (9km²) grid. The clusters were ranked on the basis of the total number of people at risk, the number of critical services and the number of non-residential properties. A threshold of **5,000 people in Wales** was applied to determine the Indicative Flood Risk Areas.

Figure 4-6 – Typical Local Surface Water Flood Information

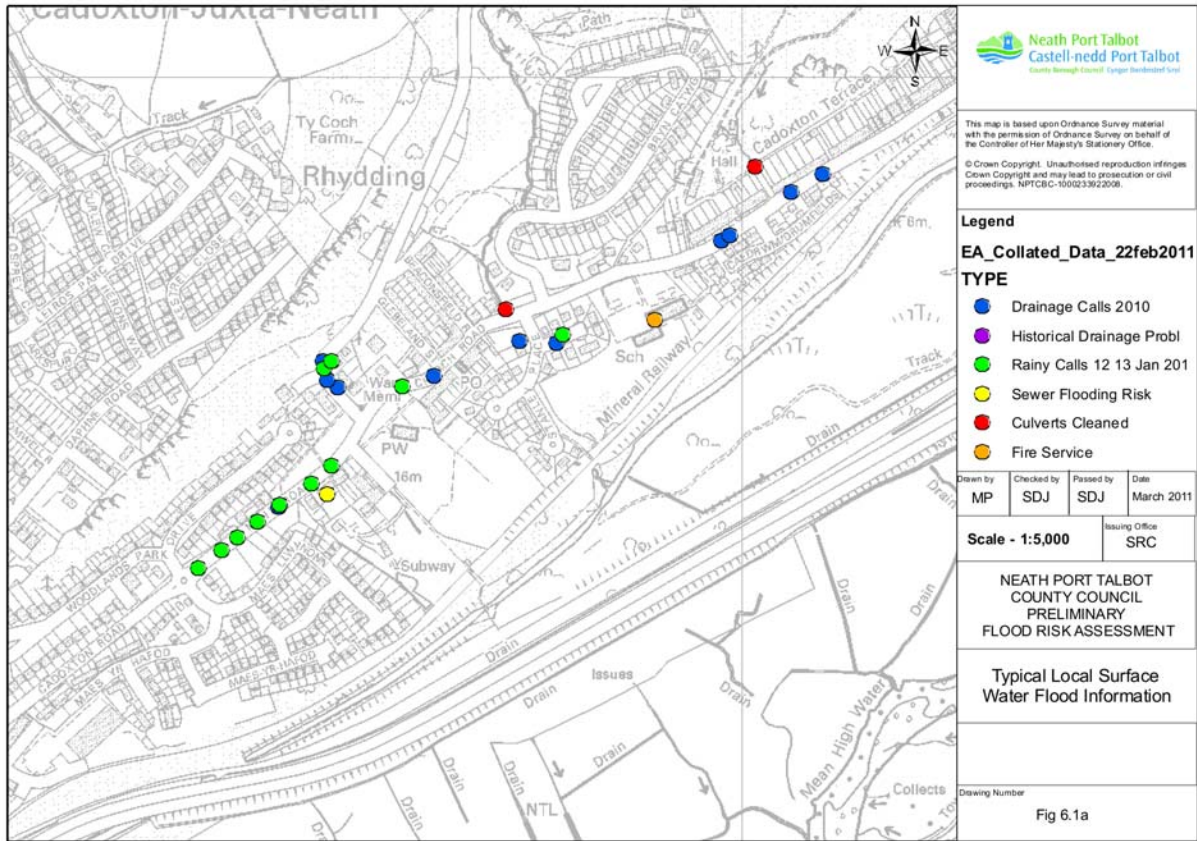


Figure 4-7 – Areas Susceptible to Surface Water Flooding

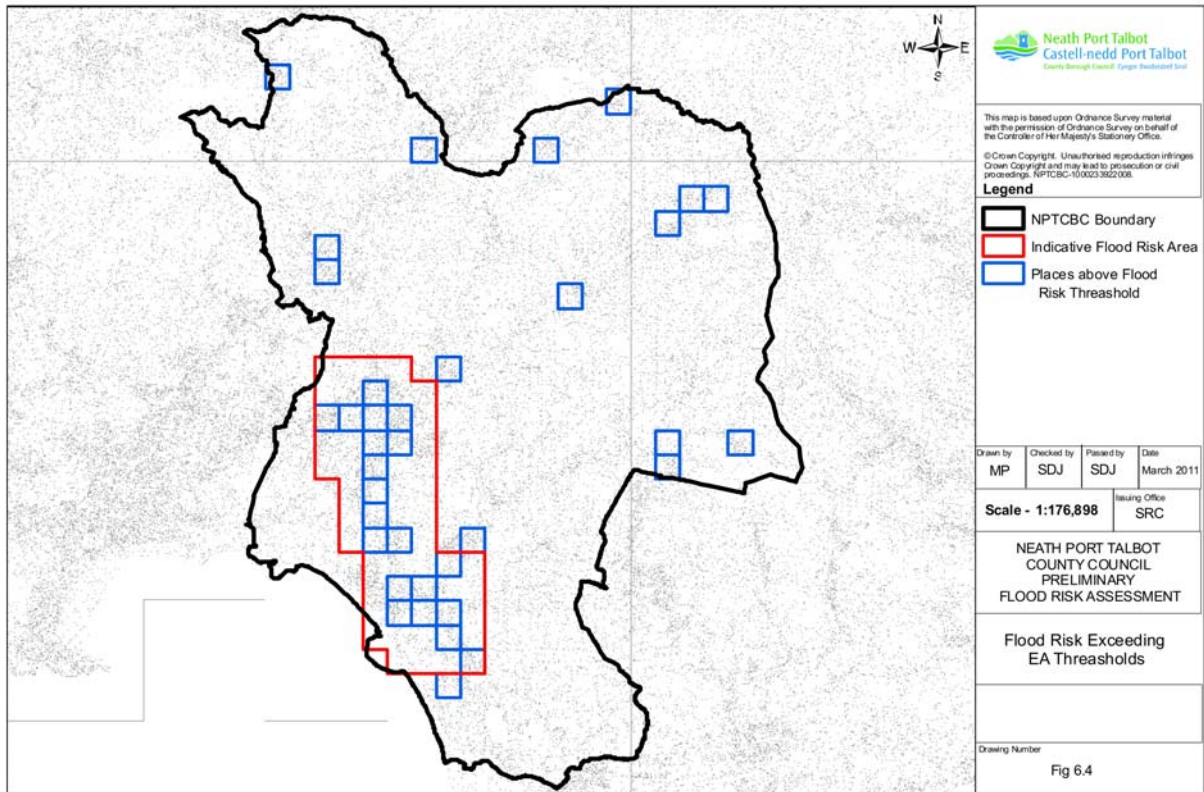


Figure 4-8 indicates a map representing the rainfall event with a 1:200 chance and flooding depth 0.300 metres County wide i.e. defined by the Natural Resources Wales as “Significant harmful consequences” and the spreadsheet at Annex 6 has been prepared by reference and inspection of the data on this map for areas outside the generally indicative flood area.

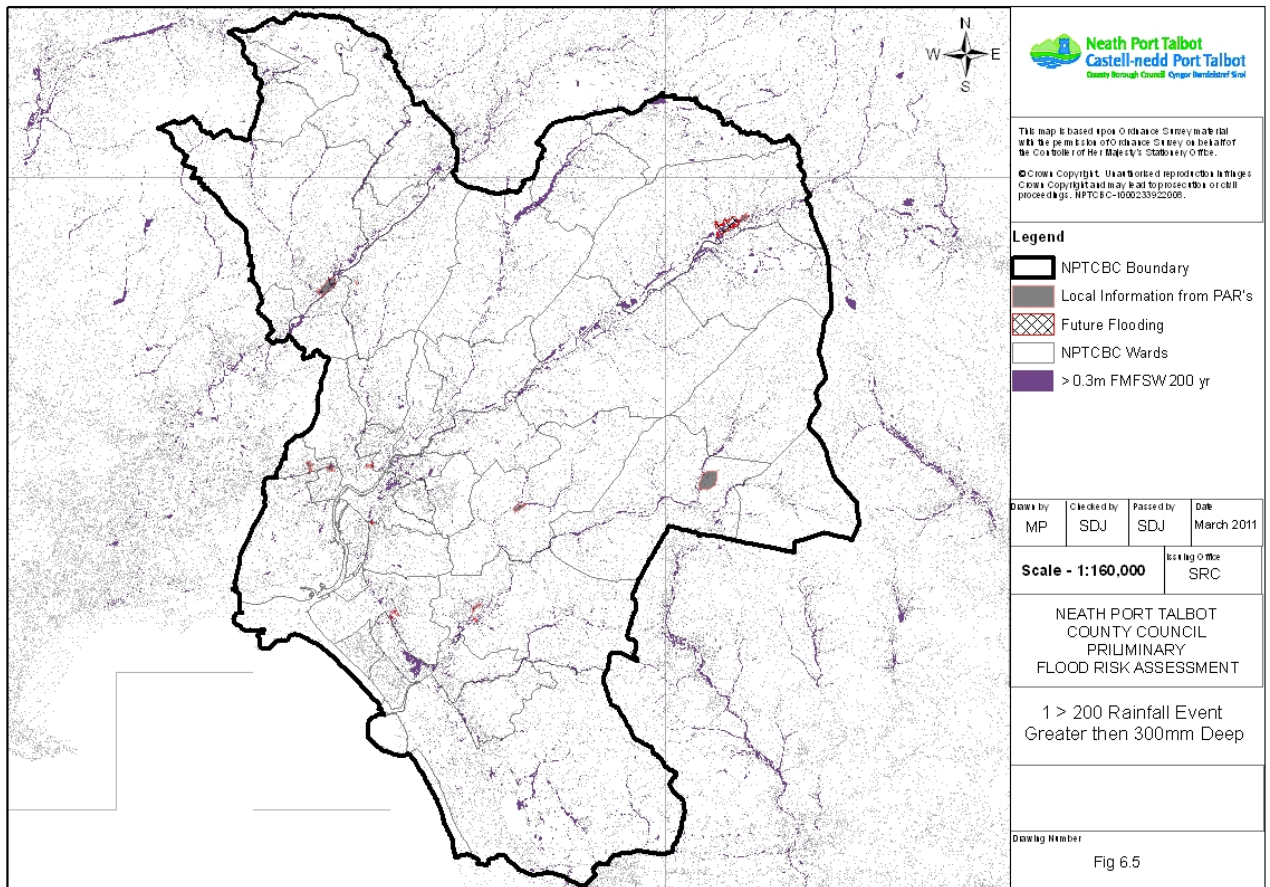
Table 4.1 sets out the flood risk threshold used to identify future consequences of flooding.

Table 4.1 – Flood Risk Threshold

| “Significant harmful consequences” defined as greater than..... | Description |
|---|--|
| 200 people or | Flooded to a depth of 0.3m during a rainfall event with a 1 in 200 chance of occurring (or 0.5%) |
| 20 businesses or | |
| 1 critical service | |

These thresholds only relate to local flood risks i.e. from surface runoff, groundwater and ordinary watercourses. There are no significant thresholds for flooding from main rivers, the sea and large raised reservoirs as Natural Resources Wales have prepared flood risk and hazard maps and flood risk management plans for these sources across the country.

Figure 4-8 – 1 > 200 Rainfall event Greater than 300mm Deep



e) Interaction with Main Rivers and the Sea

Periods of prolonged high levels in main river flows will affect areas behind raised defences. Urban areas protected by these defences such as Ystalyfera, Pontardawe and Trebanos on the River Tawe; Glynneath, Resolven, Aberdulais and parts of Neath on the River Neath; and parts of Port Talbot on the River Afan, will experience problems due to streams and storm drainage being unable to discharge freely to those rivers. As defined by the National parameters, these figures indicate that Neath Port Talbot is a Significant Flood Risk Area especially when considering the promulgated effects of Climate Change.

In addition, studies have also identified a flood risk in both the Dan-y-Coed area of Tonmawr and the Gellinudd area of Pontardawe from surface run-off and ordinary watercourses. There are, however, no specific amendments required to indicative flood areas as threshold for population and properties are not met. All other areas fall within (or partly within) flood risk areas identified by mapping.

4.4. INTERACTIONS BETWEEN THE DIFFERENT SOURCES OF FLOODING

The LLFA needs to be mindful that flooding can result from the accumulative effects of flooding sources listed in section 4.2.1 above. However, this is particularly relevant from the combined effects of Main Rivers and the Sea. See paragraph 4.2.3 e) for further information.

Generally speaking, in urban areas major surface water flooding events are almost always affected by interactions with sewerage and highway drainage systems. Investigation of these interactions will be an important element of future work.

Whilst the primary focus of this strategy is local flooding (surface, ground and small watercourses such as ditches and streams), flooding can arise from a number of different sources. To members of the public suffering from flooding, the water source may seem irrelevant but for each source there may be a different responsible organisation.

Where the source can be clearly identified, the responsible organisation will be the main point of contact. However, as is often the case, where it is not easy to ascertain the source or where multiple sources are involved, the LLFA will take the lead and work with partners to investigate and deal with the issue in a manner appropriate to the level of risk.

The flood incident reporting process will have provision within it for the collection of information to enable, where at all possible, the responsible organisation for flooding to be identified. Where the flooding satisfies the criteria for carrying out a full investigation (see section 2.5) and it has not been possible, based on information obtained through a flood incident report, to establish the source, this would need to be done as part of the full investigation.

The full investigation will take account of all elements of information such as stakeholders' historic records, hydraulic model output and, critically, information obtained from members of the public at the time of the flooding incident. Community Councils, landowners and the public will be crucial in helping to increase the knowledge and understanding of localised flooding.

Table 4.2 lists the potential flooding sources and responsible authorities.

4.5. PRIORITISATION OF AREAS ACROSS THE COUNTY BOROUGH WHERE RESOURCES WILL BE FOCUSED

At the outset it is essential that the resources of the Flood Risk Management Authority are listed together with the location to which each has been allocated.

The knowledge of potential as well as known flood risk areas is essential in the prioritisation of resources, as well as the logistical difficulties afforded by flooded areas. An assessment of the consequences of flooding in the County Borough appears as **Neath Port Talbot County Borough Council Strategic Flood Consequences**

Assessment (Reference 2).

Planned responses have been developed for lesser flooding events that take into account the possible escalation of the event. If such cases arise, all resources will be managed by the Joint Resilience Forum which has a greater area of responsibility.

Table 4.2 – Potential flooding sources and responsible organisations

| Flooding Type | Description | Responsible Authority |
|---|---|--|
| Coastal flooding | The capabilities of existing coastal defences are to be monitored for storm surge conditions given the rise in sea levels from climate change. | Natural Resources Wales |
| Tidal Flooding | Neath Abbey / Milland Road are affected during high tidal cycles. | Neath Port Talbot County Borough Council |
| Ordinary watercourses e.g. streams and ditches | Local, generally smaller watercourses. | Riparian owners |
| Main rivers | Principal watercourses and strategic smaller watercourses. | Natural Resources Wales |
| Reservoirs | Large raised structures, lakes or large ponds above the natural level at any point. | Natural Resources Wales |
| Surface water flooding | High intensity rainfall gives rise to overland flow of surface water which can pond in low lying areas giving rise to flooding. This is also known as pluvial flooding. | Neath Port Talbot County Borough Council |
| Sewer flooding | The public sewer system has a finite capacity and at times of heavy rainfall, surface water entering designated surface water sewers, combined sewers (ones which receive foul and surface water flows) and designated foul sewers which are subject to penetration of surface water through misconnections, etc. can become overloaded, giving rise to surface flooding. This will include those private sewers, foul and combined, that have recently come under the aegis of DCWW. It is known that some solely storm water drains have not yet been adopted so for now remain the responsibility of the riparian owner. | Dŵr Cymru Welsh Water |
| Groundwater flooding | Geological conditions can cause surface water which has infiltrated into the ground to emerge at certain locations in the form of wells, etc. Also high water tables can be present in locations where there are particular ground conditions. This type of flooding generally occurs after long periods of rainfall as water builds up in underground aquifers ultimately causing an increase in flow in features such as leets (groundwater-fed watercourses). | Neath Port Talbot County Borough Council |

| Flooding Type | Description | Responsible Authority |
|------------------|--|--|
| Highway flooding | Highways have extensive drainage systems and at times of heavy rainfall either hydraulic overload or blockage can give rise to ponding of water which can in turn have an impact on property. The presence of deep water on roads can also give rise to problems for road users causing flooded roads to be closed at certain times. | The Welsh Government (Motorway and Trunk Roads) and Neath Port Talbot County Borough Council (all other public highways) |
| Railway flooding | A rare occurrence, but at times of heavy rainfall there is the potential for hydraulic incapacity or poor maintenance to give rise to flooding which can affect railway operations. | Network Rail |

Areas where flooding is life threatening will receive the greater priority.

Resources made available by each Flood Risk Management Partner will be used holistically to best manage flood risk within the County Borough. In doing so, each Flood Risk Management Partner will have been made aware of their responsibilities and the level of risk they face.

To date and as a general approach, it has not been feasible to look in detail at every potential flooding location straight away, as such, a preliminary sift of information on each incident has been undertaken and those thought worthy of further consideration have been subject to a Preliminary Flood Study (PFS). In addition to the information required for flood incident reporting, an outline cost benefit analysis (COBA) on each likely solution has enabled a list of priorities to be established. Decisions were then made on taking potential projects to Project Appraisal Report (PAR) stage or retention within a listing of non-priority projects which can subsequently be subjected to a review procedure.

Following a study of potential projects it may prove cost effective to group projects by location where the focus of effort would derive the maximum benefit in terms of overall flood risk reduction in Neath Port Talbot. In this case and in order to help prioritise areas where the consequences of flooding are greatest, the information from the Flood Map for Surface Water can be used to identify individual 1km squares where the criteria set out in section 4.3.2 can be applied.

The resources to manage flood risk are finite and it is, therefore, necessary to identify locations exhibiting flooding clusters as shown in Figure 4-7 Neath Port Talbot Surface Water Risk Priority Areas Map. This offers an initial level of priority in relation to surface water flooding but there are other key factors which have a bearing on where resources should be concentrated:-

- **Population concentration** – the main aim of the strategy is to reduce flood risk for the greatest number of Neath Port Talbot residents.
- **Proposed development activity** – this will give rise to the consideration of drainage arrangements/opportunities in particular areas which might offer a way of reducing existing flood risks.
- **Locations for capital investment** – any capital project might offer opportunities for flood risk reduction through modification of construction proposals. Conversely, where specific flood defence investment is being made there may be opportunities to modify the project to provide wider benefits to other stakeholders, thus encouraging additional investment.
- **Locations of critical infrastructure** – such as schools, hospitals, etc. due to the vulnerability of the inhabitants.
- **The location of static and touring caravan sites** – due to their particular vulnerability.

- **Historic surface water flooding** – while the current information is limited and does not provide much insight into significance, this aspect will become increasingly relevant following the implementation of the flood incident reporting process.
- **Groundwater flooding.**
- **Main River flooding** – information on Main River flooding is derived from the Natural Resources Wales ‘Flood Map’ and is considered in detail in the CFMPs covering Neath Port Talbot.
- **Tidal flooding** – information on tidal flooding is derived from the Natural Resources Wales ‘Flood Map’ and is considered in detail in the Shoreline Management Plans.
- **Ordinary watercourse flooding** – there is currently limited data available on this and, like surface water flooding, would benefit from future records of local flooding incidents.
- **Dŵr Cymru Welsh Water records of sewer flooding** – Water Companies provide information to Ofwat on flooding experienced on the public sewerage network, referred to as DG5 information. Dŵr Cymru Welsh Water's investment in reducing flooding from the public sewerage network is focussed on historic flooding locations.
- **Environmentally protected sites, historic buildings and monuments** – National datasets are available which provide the location of structures and sites which are vulnerable to flood damage. It is worth noting that flooding is not always detrimental to environmental sites.
- **Reservoir Flooding** – results from the complete or partial flooding of a reservoir structure above the natural level of any part of the surrounding land. This may be caused by erosion due to seepage, overtopping of the dam beyond its design level or through accidental damage to the structure. A list of reservoirs and large ponds in the County Borough appears at **Annex 9 - Reservoirs and Large Ponds.**

A priority system for potential flood alleviation schemes has already been set up by Neath Port Talbot based on information currently available and this is set out in **ANNEX 7 – Neath Port Talbot County Borough Council Priority Rating System.**

More detailed surface water management plans for these towns and villages will be developed and determine the means of investigating, the locations at risk within, the reasons they are at risk and whether there is a sustainable, cost-effective means of reducing the risk – either in the short or longer term. The level of investigation will be appropriate to the perceived risk and will follow the national guidelines for undertaking surface water management plans.

In respect of potential new flood alleviation projects it is worth noting that existing drainage capacity has been designed to accommodate a 1 in 5 annual event chance. Modern practice is, however, to design for a 1 in 30 annual event chance, with SuDS schemes designed with attenuation to a minimum of 1:100+30% for climate change.

4.6. CATCHMENT FLOOD MANAGEMENT PLANS

Catchment Flood Management Plans (CFMPs) are prepared by the Natural Resources Wales’ Regions as required by the National Strategy. The role of the CFMPs is to establish flood risk management policies which will deliver sustainable flood risk management for the long term. This is necessary so as the right investment is made for the future to prepare for the impact of climate change.

An overarching CFMP covering the catchments of rivers from the River Ogmore in the east to the River Tawe in the west contains the Neath Port Talbot rivers. These main rivers are the Afan Kenfig, and Afan Ffrwydwyll, Rivers Afan and Neath plus the reach of the River Tawe from Pontardawe to Ystalyfera, including the tributaries.

The plan sets the direction for Flood and Coastal Erosion Risk Management. The CFMPs are to aid the Flood Risk Management Authorities in delivering their responsibilities. Natural Resources Wales will collate and review the assessments, plans and maps that Neath Port Talbot CBC, the LLFA, produces and, in addition, aid the Council in delivering its responsibilities. This will involve providing data, information and the tools to disseminate Government policy.

The CFMPs show how Natural Resources Wales will identify and agree policies for sustainable flood risk management in the Neath Port Talbot County Borough.

4.7. CLIMATE CHANGE

4.7.1. The Evidence

- a) There is clear scientific evidence that global climate change is happening now and cannot be ignored.
- b) Over the past century around the UK we have seen some sea level rise and more of our winter rain falling in intense wet spells. Seasonal rainfall is highly variable. It seems to have decreased in summer and increased in winter, although winter amounts changed little in the last 50 years. Some of the changes might reflect natural variation; however, the broad trends are in line with projections from climate models.
- c) Greenhouse gas (GHG) levels in the atmosphere are likely to cause higher winter rainfall in the future. Past GHG emissions mean some climate change is inevitable in the next 20-30 years. Lower emissions could reduce the amount of climate change further into the future, but changes are still projected at least as far ahead as the 2080s. We have enough confidence in large scale climate models to say that we must plan for change. There is more uncertainty at a local scale but model results can still help us plan to adapt. For example, we understand rain storms may become more intense, even if we cannot be sure about exactly where or when. By the 2080s, the latest UK climate projections (UKCP09) are that there could be around three times as many days in winter with heavy rainfall (defined as more than 25mm in a day). It is plausible that the amount of rain in extreme storms (with a 1 in 5 annual chance or rarer) could increase locally by 40%. The potential for 'flash flooding' to occur will be exacerbated by climate change.

4.7.2. River Basin District Specific

According to the River Basin Management Plan 2009, there are three districts within Wales. Neath Port Talbot is identified within the Western Wales River Basin District. The Plan primarily covers the management of water and environmental issues.

Key Projections for Western Wales River Basin District

- a) If emissions follow a medium future scenario (UKCP09) projected changes by the 2050s relative to the recent past are:-
 - Winter precipitation increases of around 15% (very likely to be between 3 and 33%).
 - Precipitation on the wettest day in winter up by around 12% (very 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).
 - Peak river flows in a typical catchment likely to increase between 12 and 20%.
- b) Increases in rain are projected to be greater near the coast than inland.

4.7.3. Implications for Flood Risk

- a) Climate changes can affect local flood risk in several ways. Impacts will depend on local conditions and vulnerability. Current flooding 'Hot Spots' will be exacerbated by climate change and cause new ones to emerge.
- b) Wetter winters and more of this rain falling in wet spells may increase river flooding especially in the steep, rapidly responding catchments typical of western Wales. More intense rainfall causes more surface runoff, increasing localised flooding and erosion. In turn, this may increase pressure on drains, sewers and water quality. Storm intensity in summer could increase even in drier summers, so we need to be prepared for the unexpected.
- c) Rising sea or river levels may increase local flood risk inland or away from major rivers because of interactions with drains, sewers and smaller watercourses.
- d) Where appropriate local studies are needed to understand climate impacts in detail, including effects from other factors like land use. Sustainable development will help adapt to climate change and manage the risk of damaging floods in future.

4.7.4. Adapting to Change

- a) Past emissions mean some climate change is inevitable. It is essential to respond by planning ahead and to prepare by understanding the current and future vulnerability to flooding, developing plans for increased resilience and building the capacity to adapt. Regular review and adherence to these plans is the key to achieving long-term, sustainable benefits.
- b) Although the broad climate change picture is clear, local decisions have to be made against deeper uncertainty. Therefore, a range of measures needs to be considered in order to retain flexibility to adapt to these changes. This approach, embodied within flood risk appraisal guidance, will help ensure that the vulnerability to flooding is not increased.

4.8. LONG TERM DEVELOPMENTS

- a) Long term developments could affect the occurrence and significance of flooding, hence current planning policy aims to prevent new development from increasing flood risk.
- b) Neath Port Talbot CBC has adopted the requirements of Technical Advice Note 15 (TAN 15) on development and flood risk which sets out a precautionary framework to guide planning decisions. The overarching aim of the precautionary framework is "to direct new development away from those areas which are at high risk of flooding".
- c) Adherence to Government policy ensures that new development does not increase local flood risk. However, in exceptional circumstances the Local Planning Authority may accept that flood risk can be increased contrary to Government policy, usually because of the wider benefits of a new or proposed major development. Any exceptions would not be expected to increase risk to levels which are "significant" (in terms of the Government's criteria).
- d) Neath Port Talbot County Borough Council planning officers are currently working on the Local Development Plan and initial assessments of flood risk at various residential development sites within Neath, Port Talbot, Pontardawe and the Neath Valley are being undertaken which may have, subject to Welsh Government and NRW guidelines, the potential to increase flood risk. It is, however, too early a stage to consider these development sites within this strategy.
- e) Although the detail is outside the limits of this report, The South Wales Local Resilience Forum Community Risk Register and the Neath Port Talbot & Swansea Resilience Partnership Risk Register have highlighted the risk of flooding as very high within the Neath Port Talbot area from Main River flooding. The statistics in Table 4.3 below are given for general information only.

Table 4.3 – Resilience Statistics

| FLOOD RISK COMMUNITY | RIVER FLOODING SOURCE | PROPERTIES AT RISK |
|-----------------------------|------------------------------|---------------------------|
| Aberdulais | Neath/Dulais | 34 |
| Neath | Neath | 1244 |
| Pontardawe Tawe | Upper Clydach | 457 |
| Port Talbot | Afan/Ffrwdwyllt | 4355 |
| Resolven | Neath/Clydach Brook | 713 |
| Ystalyfera | Tawe | 322 |
| Cwmtwrch | Twrch | 74 |

5. OBJECTIVES AND MEASURES TO MANAGE FLOOD RISK

5.1. OBJECTIVES IN THE MANAGEMENT OF FLOOD RISK

5.1.1 In its strategy document, “**National Strategy for Flood and Coastal Erosion Risk Management in Wales**” (November 2011) (Reference 5), the Welsh Government set out four over-arching objectives for the management of flood and coastal erosion risk in Wales:-

1. **reducing the consequences** for individuals, communities, businesses and the environment from flooding and coastal erosion;
2. **raising awareness of and engaging people in the response** to flood and coastal erosion risk;
3. **providing an effective and sustained response** to flood and coastal erosion events; and
4. **prioritising investment** in the most at risk communities.

5.1.2 The National Strategy explains that the implementation of these objectives will be the responsibility of everyone involved in or affected by, flood and coastal erosion risk management from the Welsh Government to the Welsh Flood Risk Management Authorities and the people of Wales themselves.

5.1.3 The strategy document further identifies a number of sub-objectives supporting each over-arching objective as follows:-

1. **reducing the consequences** for individuals, communities, businesses and the environment from flooding and coastal erosion:-
 - 1.1 provide strategic leadership and direction at a national level;
 - 1.2 provide strategic leadership and direction at a local level;
 - 1.3 develop policies for effective land use management and enhanced development control procedures where appropriate; and
 - 1.4 establish regular maintenance schedules for flood and coastal erosion risk management assets.
2. **raising awareness** of and engaging people in the response to flood and coastal erosion risk:-
 - 2.1 ensure that by 2026, everyone who lives in a flood risk area understands the flood risk they are subject to, the consequences of this risk and how to live with that risk; and
 - 2.2 enhance property and community level resilience.
3. **providing an effective and sustained response** to flood and coastal erosion events:-
 - 3.1 ensure the preparation and testing of Emergency Plans;
 - 3.2 respond to events in a timely and appropriate manner; and
 - 3.3 facilitate recovery from flooding within the shortest possible timescales.
4. **prioritising investment** in the most at risk communities:-
 - 4.1 develop a national Programme of investment for flood and coastal erosion risk management; and
 - 4.2 increase the use of alternative sources of funding for flood and coastal erosion risk management.

5.1.4 The sub-objectives listed above have been considered under each over-arching objective as either high or local level and are further classified under each of three key headings i.e. social, economic and environmental. High level sub-objectives, although listed in the following tables with appropriate measures for their achievement, are for the Welsh Government to take forward and develop and are, therefore, not considered further in this Local Strategy.

5.2 MEASURES PROPOSED TO MEET FLOOD RISK MANAGEMENT OBJECTIVES

5.2.1 Proposed measures to meet the flood risk management objectives are set out in the following tables under each over-arching Objective and are defined as activities which will be undertaken to manage risk and achieve the agreed objective. Where possible, a range of 'Measures' has been considered for the short (0-20 years), medium (20-50 years) and longer term (50-100 years). The 'Measures' identified reflect those for both high (national level) and local level action although as stated above, the former are not taken further under this Local Strategy.

TABLE 5.1 OVER-ARCHING OBJECTIVE 1, SUB-OBJECTIVES AND NECESSARY MEASURES

| OBJECTIVE REFERENCE | OBJECTIVE / CLASSIFICATION | LEVEL | MEASURES TO ACHIEVE THE OBJECTIVE |
|----------------------------|---|---------------------|--|
| 1. | REDUCING IMPACTS ON INDIVIDUALS, COMMUNITIES, BUSINESSES AND THE ENVIRONMENT FROM FLOODING AND COASTAL EROSION | OVER-ARCHING | |
| 1.1 | Provide strategic leadership and direction at a national level. | HIGH | 1. The provision of over-arching national policies for the management of flood and coastal erosion risk through a National Strategy and associated guidance. |
| | | HIGH | 2. The provision of national guidance relating to sustainable development, when exercising flood and coastal erosion risk management functions. |
| | | HIGH | 3. The provision of national guidance on the preparation of Local Flood Risk Management Strategies by LLFAs. |
| | | LOCAL | 4. Development of a toolkit by the LLFA to assist in raising community awareness and preparation for flood and coastal erosion risk. |
| | | HIGH | 5. Development of a National Standard for Sustainable Drainage Systems and accompanying guidance. |

| OBJECTIVE REFERENCE | OBJECTIVE / CLASSIFICATION | LEVEL | MEASURES TO ACHIEVE THE OBJECTIVE |
|---------------------|--|--|--|
| | | <p>HIGH</p> <p>HIGH</p> <p>HIGH</p> <p>HIGH</p> | <p>6. Undertaking a review of national policies in relation to coastal risk management including research on the options for communities facing increasing levels of risk.</p> <p>7. Development of a national funding policy and prioritisation methodology for the assessment of applications for funding for all flood and coastal erosion risk management activities funded from the Welsh Government.</p> <p>8. Establishment of a principle for ensuring access to buildings and contents flood insurance to replace the Statement of Principles.</p> <p>9. Drafting and commencement of legislation relating to flood and coastal erosion risk management as required through the life of this Strategy.</p> <p>10. Delivery of a Climate Change Adaptation Knowledge Transfer Programme.</p> |
| 1.2 | Provide strategic leadership and direction at a local level. | <p>LOCAL</p> <p>HIGH</p> <p>LOCAL</p> <p>LOCAL</p> | <p>1. The delivery of the appropriate implications of the 2nd round of SMP with proportionate implementation over the life of the Strategy.</p> <p>2. Development of the National Habitats Creation Programme as part of the delivery of the Natural Environment Framework.</p> <p>3. Development of Local Flood Risk Management Strategies.</p> <p>4. Implementation of the statutory responsibilities including those set out within the Flood and Water Management Act 2010 and the Flood Risk Regulations. To be achieved by the end of 2013 with the majority of strategies to be implemented by 2017.</p> |

| OBJECTIVE REFERENCE | OBJECTIVE / CLASSIFICATION | LEVEL | MEASURES TO ACHIEVE THE OBJECTIVE |
|---------------------|---|-------|---|
| | | LOCAL | 5. The provision of mapping of all sources of flooding. |
| | | LOCAL | 6. Proportionate implementation of the CFMPs over the life of the Strategy. |
| 1.3 | Development policies for effective land use and management enhance developments and control procedures where appropriate. | LOCAL | 1. Development of Local Development Plans that include adequate provisions in respect of flood and coastal erosion risk. |
| | | LOCAL | 2. Compliance to the requirements of Planning Policy Wales and relevant Technical Advice Notes. This is an ongoing action to be carried out by the Local Planning Authorities. |
| | | LOCAL | 3. Provision of appropriate advice on local flood and coastal erosion risk in relation to planning applications. |
| | | LOCAL | 4. Appropriate undertaking of Strategic Flood Consequence Assessments and their use to inform Local Development Plans. This is an ongoing process carried out by the Local Planning Authority. |
| | | LOCAL | 5. Approval and implementation of SuDS drainage systems by the SuDS Approving and Adopting Body. This action will be carried out from 2014. |
| | | LOCAL | 6. Provision of advice and guidance on appropriate land use management. |
| 1.4 | Establishment of regular maintenance schedules for flood and coastal erosion risk management assets. | LOCAL | 1. Development of a register and designation of natural and manmade structures/features which are likely to have an effect on flood risk by 2014. This is ongoing and is to be carried out by the LLFA. |
| | | LOCAL | 2. Review the programme of regular and appropriate maintenance for flood and coastal flood risk management assets to be implemented by the Risk Management Authorities. |

TABLE 5.2 OVER-ARCHING OBJECTIVE 2, SUB-OBJECTIVES AND NECESSARY MEASURES

| OBJECTIVE REFERENCE | OBJECTIVE / CLASSIFICATION | LEVEL | MEASURES TO ACHIEVE THE OBJECTIVE |
|---------------------|---|--|---|
| 2. | RAISING AWARENESS OF AND ENGAGING PEOPLE IN THE RESPONSE TO FLOOD AND COASTAL EROSION RISK | OVER-ARCHING | |
| 2.1 | Ensure that by 2026 awareness is raised about flood risk and the strategies that are in place. | HIGH/LOCAL LOCAL | <p>1. Programme of community based awareness and engagement activities utilising the Flood Risk Management Engagement Toolkit. To be undertaken from 2012 and to be delivered by the Natural Resources Wales and the LLFA.</p> <p>2. Affected groups and vulnerable individuals to be identified within the flood affected area by 2017 by the LLFA.</p> |
| 2.2 | Enhance property and community level resilience. | HIGH/LOCAL LOCAL HIGH/LOCAL LOCAL | <p>1. Ensure property level flood resilience measures and the requirements for SuDS are incorporated into Building Regulations.</p> <p>2. Enhanced awareness of property level resilience measures and guidance on their use.</p> <p>3. Development of a sustainable methodology for funding individual property level resilience measures.</p> <p>4. Provision of appropriate warnings in relation to all sources of flooding.</p> |

TABLE 5.3 OVER-ARCHING OBJECTIVE 3, SUB-OBJECTIVES AND NECESSARY MEASURES

| OBJECTIVE REFERENCE | OBJECTIVE / CLASSIFICATION | LEVEL | MEASURES TO ACHIEVE THE OBJECTIVE |
|---------------------|--|---|---|
| 3. | PROVIDING AN EFFECTIVE AND SUSTAINED RESPONSE TO FLOOD AND COASTAL EROSION EVENTS | OVER-ARCHING | |
| 3.1 | Ensure the preparation and testing of Emergency Plans. | LOCAL LOCAL HIGH/LOCAL LOCAL | <ol style="list-style-type: none"> 1. Complete emergency plans for all significant sources of flood risk. 2. Development of local level emergency plans with Community/Town Councils. 3. Pan-Wales emergency exercises to test response and recovery arrangements by 2016. 4. Local level emergency exercises to test response and recovery arrangements over the life of the Strategy. |
| 3.2 | Respond to events in a timely and appropriate manner. | LOCAL LOCAL LOCAL LOCAL | <ol style="list-style-type: none"> 1. Early and appropriate response to emergency events. 2. Development and implementation of effective evacuation protocols for emergency events. 3. Development of mutual aid protocols for resources, equipment and respite for emergency events. 4. Respite accommodation is to be identified and provided throughout the life of the Strategy by the Local Authority. |
| 3.3 | Facilitate recovery from flooding within the shortest possible timescales. | LOCAL LOCAL LOCAL | <ol style="list-style-type: none"> 1. Development of procedures by the LLFA for the effective clearance of debris. 2. Development of repair schedules including provision for the installation of resilience measures by 2015 by the LLFA. 3. Ensure procedures are in place to investigate, where warranted, the cause of flooding within one month of the occurrence of a flooding event by the LLFA. |

TABLE 5.4 OVER-ARCHING OBJECTIVE 4, SUB-OBJECTIVES AND NECESSARY MEASURES

| OBJECTIVE REFERENCE | OBJECTIVE / CLASSIFICATION | LEVEL | MEASURES TO ACHIEVE THE OBJECTIVE |
|---------------------|---|---|---|
| 4. | PRIORITISING INVESTMENT IN THE MOST AT RISK COMMUNITIES | OVER-ARCHING | |
| 4.1 | Develop a National Programme of investment for flood and coastal erosion risk management. | <p>HIGH</p> <p>HIGH</p> <p>HIGH</p> <p>HIGH</p> | <p>1. Undertake research into the costs and benefits of softer engineering approaches including the use of natural processes to flood and coastal erosion risk management.</p> <p>2. Guidance on the comparative use of hard and soft engineering approaches to flood and coastal erosion risk management to be issued by the end of 2013.</p> <p>3. Development of a national priority schedule for flood and coastal erosion risk management schemes.</p> <p>4. Development of a business case for the establishment of a single capital funding programme for Wales.</p> |
| 4.2 | Increase the use of alternative sources of funding for flood and coastal risk management. | HIGH | 1. Development of a national policy on the use of contributions towards flood and coastal risk management schemes, including the National Habitat Creation Programme. |

5.3 DELIVERY THEMES AND PROPOSED LOCAL MEASURES TO ACHIEVE THE OBJECTIVES

5.3.1 The National Strategy Document has requested LLFAs to consider local measures under the following high level themes:-

- development planning and adaptation (encompassing both new and adaptations to existing developments/landscapes);
- flood forecasting, warning and response;
- land, cultural and environmental management;
- asset management and maintenance;
- studies, assessments and plans;
- high level awareness and engagement (to increase individual and community resilience); and
- monitoring (of the flood risk issues).

5.3.2 Each of the 31 “Local” measures identified within the tables contained in section 5.2 are allocated to the most appropriate of the seven Delivery Themes listed in section 5.3.1 above. Consideration has also been given to any influences or knock-on effects on other Themes.

5.3.3 The measures are identified by a combination of their ‘Objective Reference’ and listing references in ‘Measures to Achieve Objective’.

5.4 DELIVERY THEME 1 – DEVELOPMENT PLANNING AND ADAPTATION

5.4.1 **Measures encompass both new and adaptations to existing developments/landscapes**, including the following:-

MEASURE 1.3.1 - Development of Local Development Plans that include adequate provisions in respect of flood and coastal erosion risk (see also 5.4.2 below).

MEASURE 1.3.2 - Compliance with the requirements of Planning Policy Wales and relevant Technical Advice Notes. This is an ongoing action to be carried out by the Local Planning Authority.

MEASURE 1.3.3 - Provision of appropriate advice on local flood and coastal erosion risk in relation to planning applications (see also 5.4.2 & 5.4.3 below).

MEASURE 1.3.4 - Appropriate undertaking of Strategic Flood Consequence Assessments to inform Local Development Plans. This is an ongoing process carried out by the Local Planning Authority.

MEASURE 1.3.5 - Approval and implementation of SuDS drainage systems by the SuDS Approving and Adopting Body. This will be subject to consideration of the requirements of the Habitats Regulations, in relation to likely significant effects on qualifying features of sites, taking into account in combination as well as individual project effects. It is expected that this action will be carried out from 2014 (see also 5.4.3 below).

MEASURE 2.2.1 - Ensure property level flood resilience measures and the requirements for SuDS are incorporated into Building Regulations (see also 5.4.2 below).

5.4.2 **Ensure planning decisions are properly informed by flood risk and that there is a consistent approach to flood risk management in new development**

It is necessary that the evidence-base used to determine planning decisions is kept consistent and up-to-date. The LLFA has the responsibility of developing a system for reporting and recording local flood events and the asset register, ensuring this is readily available to all who need to see it. As shown in the above measures; this is to ensure that all new developments are made to withstand any possible flooding risks.

Natural Resources Wales continues to develop and publish flood and coastal erosion maps:-
http://maps.environment-agency.gov.uk/wiyby/wiybyController?ep=maptopics&lang=_e5.4.5

5.4.3 The preparation of planning/drainage advisory guidelines and SuDS guidance to establish comprehensive requirements/opportunities associated with new development

The LLFA, Neath Port Talbot County Borough Council, is designated the SuDS Approval Body (SAB) for any new drainage system. The Council must, therefore, approve, adopt and maintain any new sustainable drainage systems (SuDS) within their area.

Neath Port Talbot County Borough Council, in collaboration with partners, provides guidance to the Planning Authority as well as detailed SuDS guidance for developers. This will include advice on environmental and public health considerations.

5.4.4 Encourage businesses and communities to take steps to prepare for flooding

Communities and businesses need a better understanding of flood management and what they can do as individuals to help to reduce this risk to their properties. Communities need to appreciate that for a significant decrease in flood risk to be achieved; each individual must contribute to the cause and help in the practical implication of the strategy along with helping with fundraising.

Some changes for the protection/prevention of flooding to properties can be subject to planning law and, therefore, communication between the relevant authorities and the community will be essential.

Information regarding water management must be made widely available and distributed to non-professionals throughout the affected community via websites and pamphlets. The main aim of this is to inform individual property owners of opportunities to reduce the flood risk such as reducing impermeable surfaces in gardens, however, in doing so they also must be warned that in protecting their own property they could give rise to increased flows in surface water systems, therefore, they also need to be made aware of how to prevent this from occurring. Also, with this increased awareness it is hoped to involve communities in the reporting of flooding incidents such as culverts overflowing and the blocking up of trash screens.

5.4.5 Blue Corridors – Green Infrastructure

Within an urban environment, both new and existing development is planned around watercourses, overland flow paths and surface water area, to create a network of corridors. This has been labelled a blue corridor, and it is through this network it is hoped to facilitate hydrological processes that minimise flooding, enhance biodiversity and help adapt to climate change. One main aim of developing Blue Corridors is to provide a network of multifunctional 'blue/green' spaces and corridors within the environment. A benefit of which is to allow land to perform various functions and provide a wider range of social, economic and environmental benefits. The term 'Green Infrastructure' is already well known by planners. Blue Corridors should be complementary and, therefore, should facilitate the future implementation of this idea. Blue corridors could also provide linking corridors to better enable species to move between fragmented habitats and, thereby, improving climate change resilience. They also provide potential synergies with SuDS.

5.4.6 Commitment on a catchment wide basis to preventing additional flow entering sewerage systems from new development

Urban creep and climate change shows an increase in the quantity of rainfall which will have to be dealt with in sewers and watercourses. It has been suggested that without new development, there could be an average increase of 1% per year in flows being received, which could cause significant system overloading. In areas of potential high flood risk, to prevent this increasing flow causing additional flooding, there would need to be serious investment in system upgrading and Sustainable Drainage (SuDS).

5.4.7 Mineral Waste Plans

As Lead Local Flood Authority, Neath Port Talbot CBC has developed Minerals and Waste Plans as part of the Unitary Development Plan which takes cognisance of the need to avoid areas subject to flooding or detrimental hydrological impacts.

5.5 DELIVERY THEME 2 - FLOOD FORECASTING, WARNING AND RESPONSE

5.5.1 Measures contained within this Delivery Theme are:-

MEASURE 2.2.4 - Provision of appropriate warnings and coordination of emergency planning in relation to all sources of flooding. Warning systems designed to give priority to more vulnerable sectors of the community.

MEASURE 3.1.1 - Complete emergency plans for all significant sources of flood risk.

MEASURE 3.1.2 - Development of local level emergency plans in co-operation with Community/Town Councils (see also 5.4.4 & 5.5.2 below).

MEASURE 3.1.3 - Pan-Wales emergency exercises to test response and recovery arrangements by 2016.

MEASURE 3.1.4 - Local level emergency exercises to test response and recovery arrangements over the life of the Strategy.

MEASURE 3.2.1 - Early and appropriate response to emergency events.

MEASURE 3.2.2 - Development and implementation of effective evacuation protocols for emergency events.

MEASURE 3.2.3 - Development of mutual aid protocols for resources, equipment and respite for emergency events.

MEASURE 3.2.4 - Respite accommodation is to be identified and provided throughout the life of the Strategy by the Local Authority.

MEASURE 3.3.1 - Development of procedures by the LLFA for the effective clearance of debris.

5.5.2 Involvement of residents in flood risk management

The administration of surface water has been simplified by recent implemented legislation but the average non-professional is likely still to find it difficult to develop an understanding of some of the more complex issues and there is a need to provide concise and clear guidance to address this. There are a number of areas where clarification will be required, most notably in respect to the role of the riparian owners and land managers and also in connection with issues associated with funding and installation of resistance/resilience facilities to premises where flooding has been occurring on a continuing basis.

One way of establishing and ensuring the awareness of the role communities play in flood and coastal risk management is to set up liaison with each affected community by way of 'Flood Surgeries' and 'Community Flood Recovery Groups', including the establishment of 'Local Flood Champions' and 'Flood Wardens'. As a precursor to the establishment of these groups and roles 'Flood Fairs' would be held within each community through the assistance and close liaison with each Town Community Council where these exist.

5.6 DELIVERY THEME 3 – LAND CULTURAL AND ENVIRONMENTAL MANAGEMENT

5.6.1 Measures contained within this Delivery Theme are:-

MEASURE 1.3.6 - Provision of advice and guidance on appropriate land use management subject to consideration of the requirements of the Habitats Regulations, in relation to likely significant effects on qualifying features of sites, taking into account in combination as well as individual project effects. Land use management advice could include advice on effects of SuDS development on mobilisation of contaminants.

MEASURE 2.2.2 - Enhanced awareness of property level resilience measures and guidance on their use.

MEASURE 2.2.3 - Development of a sustainable methodology, if appropriate by JRC, for funding individual property level resilience measures along with those for key infrastructures and designated cultural/historical heritage assets.

MEASURE 3.3.2 - Development of repair schedules including provision for the installation of resilience measures by 2015 by the LLFA.

5.6.2 Each of the above Measures will consider the following:-

- i) Restoration
- ii) Environmental Enhancement
- iii) Water level Management Plan
- iv) Habitat Creation

5.7 DELIVERY THEME 4 - ASSET MANAGEMENT AND MAINTENANCE

5.7.1 Measures contained within this Delivery Theme are:-

MEASURE 1.4.1 - Development of a register and designation of natural and manmade structures/features that are likely to have an effect on flood risk by 2014. This is ongoing and is to be carried out by the LLFA. Asset management and maintenance is to be a priority to ensure the protection of vulnerable sectors of the community and associated services.

MEASURE 1.4.2 - Review the programme of regular and appropriate maintenance for flood and coastal flood risk management assets to be implemented by the Risk Management Authorities.

5.7.2 Encourage ordinary watercourse maintenance and minimise unnecessary constrictions

The efficiency in maintaining assets relating to ordinary watercourses is variable over the Neath Port Talbot area. Before embarking on plans for capital spending it will be necessary to undertake a review of how maintenance is being carried out, by whom, and what actions need to be taken to ensure that assets are being used to their full capacity.

5.7.3 This will include a review of the following for each watercourse:-

- i) System Asset Management Plan
- ii) Defence/Structure Management Plan

5.8 DELIVERY THEME 5 - STUDIES ASSESSMENTS AND PLANS

5.8.1 Measures contained within this Delivery Theme which includes Storm Water Management Plans, Project Plan and Shoreline Management Plans are:-

MEASURE 1.2.3 - Development of Local Flood Risk Management Strategies.

MEASURE 1.2.4 - Implementation of the statutory responsibilities including those set out within the Flood and Water Management Act 2010 and the Flood Risk Regulations. To be achieved by the end of 2013, with the majority of strategies to be implemented by 2017.

MEASURE 1.2.5 - The provision of mapping of all sources of flooding.

MEASURE 1.2.6 - Proportionate implementation of the CFMPs over the life of the Strategy.

MEASURE 2.1.1 - Programme of community based awareness and engagement activities utilising the Flood Risk Management Engagement Toolkit. To be undertaken immediately and delivered by the Natural Resources Wales and the LLFA.

MEASURE 2.1.2 - Affected groups and vulnerable individuals to be identified within the flood affected area by 2017 by the LLFA.

MEASURE 3.3.3 - Investigations into the cause of flooding to be undertaken where deemed necessary within one month of the occurrence of a flooding event by the LLFA.

5.8.2 Explanation of everyone's responsibilities

In the past, the way that surface water has been managed has not been fully un-coordinated. In the Pitt Report, 2007, issues were identified which were believed to have contributed to the problems encountered. One primary issue was the absence of a single organisation having overall responsibility for surface water management, and the outcome of this was the identification of LFFAs as having that responsibility. This responsibility is now stated in the **Flood and Water Management Act 2010**.

Stakeholders can be defined as an individual or organisation that may be affected or interested by the problem or solution.

5.8.3 Ensuring a balance between the identification of high level plans and the resolution of local flooding

Although necessary, a focus on high level plans and strategies could lead to a delay in actual progress being made 'on the ground' in regards to flood risk recognition. For success of the overall flood risk reduction strategy, residents who have experienced problems need to see that progress is actually being made on flood risk reductions at their local level in their area.

5.8.4 To obtain as much information as possible on the latest best practice initiatives within the industry as a whole

The Pitt Recommendations, and related strategies such as the implementation of the **Flood and Water Management Act 2010**, have led to a profound change in the way that surface water management is carried out in England and Wales. Local Authorities, which previously had a non-significant role, now have the main responsibility for reducing the local risk of flooding from surface water, groundwater and ordinary watercourses.

5.8.5 Surface Water Management Plans should be considered with the Shoreline Management Plans where appropriate linking common themes if applicable.

5.8.6 It is crucial that all records of flood events are documented consistently and in accordance with the **INSPIRE Directive (2007/2/EC)**. The Directive sets out a coordinated approach to recording, disseminating and sharing information across the public sector. The LLFA will play the lead role with its flood risk management partners. The centralised database should be kept up to date by the LLFA, who have the overall responsibility

to manage flood data through the whole of the administrative area. These records will provide an evidence base to inform future assessments and reviews and for input into the mapping and planning stages as time progresses. In the short term, a database will be kept up to date by continual collaboration between partner organisations.

The information will include listings on a geographical basis (this may be Community/Town Council or Ward-based) and categorised within the 5 flooding sources together with all relevant information on the chronology, causes, consequences, costs, the existence of extenuating circumstances and options to resolve the problem together with costs.

5.9 DELIVERY THEME 6 - HIGH LEVEL AWARENESS AND ENGAGEMENT

5.9.1 To increase individual and community resilience and including the discussion of 3rd party assets

Resilience can be increased through promoting initiatives for community based support, targeting vulnerable sectors of the community. Awareness raising measures should be undertaken with other Flood Management Authorities to enable an holistic approach encompassing all sources of flooding.

MEASURE 1.1.4 - Development of a toolkit by the LLFA to assist in raising community awareness and preparation for flood and coastal erosion risk.

5.9.2 The adoption of an holistic approach to flood and coastal risk management

The partnership will be looking to consider issues associated with water supply, land irrigation and flooding 'in the round'.

The holistic approach will also be used in the context of new development and investment leading to multiple benefits and, therefore, multiple funding sources will be available.

5.9.3 Work in partnership to deliver flood and coastal risk management activities

There is always a need for Authorities to use those resources under their responsibility in a more effective and efficient way. It is recognised this will be best achieved by working closely with local community groups to deliver and maintain the smaller scale projects. It will be necessary to determine and record existing resources and plans to create a comprehensive strategy with programmed action plans.

Surface water management will require trained staff equipped with the appropriate skills and tools, to deal with this function, particularly SuDS.

5.10 DELIVERY THEME 7 – MONITORING

5.10.1 Measures contained within this Delivery Theme i.e. the monitoring of flood risk issues are:-

MEASURE 1.2.1 - The delivery of the appropriate implications of the 2nd round of SMP with proportionate implementation over the life of the Strategy.

5.10.2 The following items where available may be considered where appropriate:-

- i) Gravel/shingle monitoring (beach profile)
- ii) Habitats monitoring (e.g. saltmarsh survey/monitoring, BAP habitat monitoring)
- iii) Wave and tide monitoring
- iv) Topographical survey
- v) Aerial photography

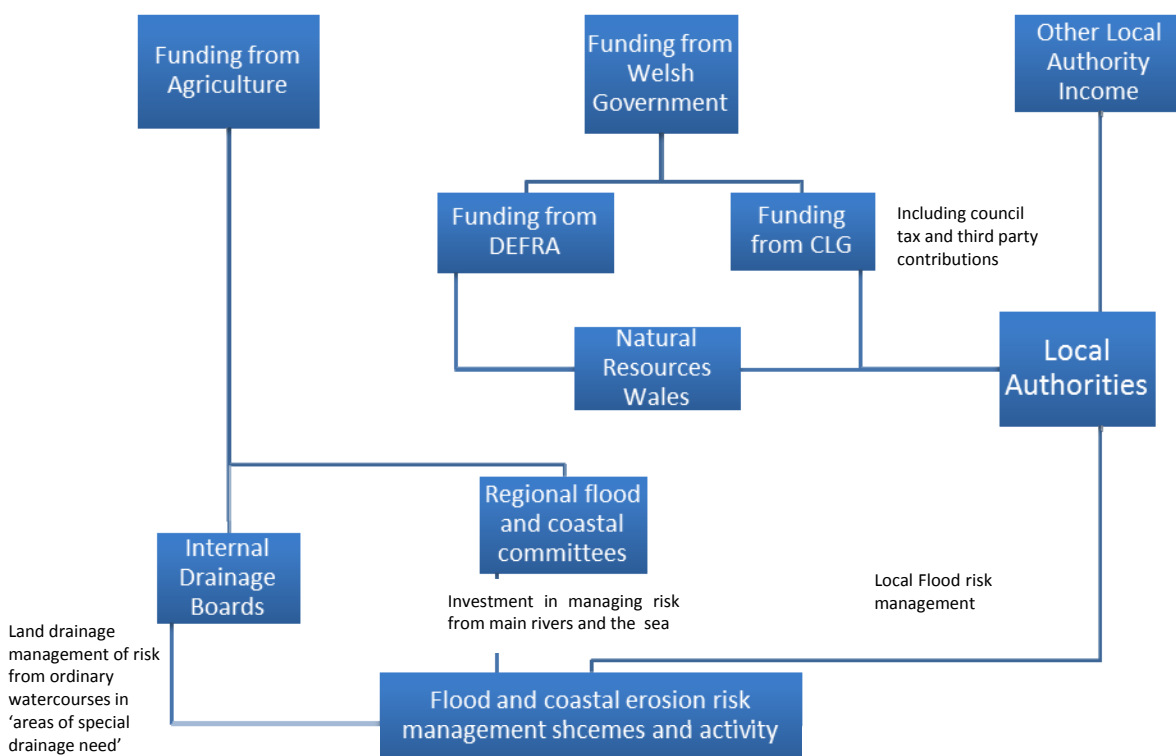
5.11 THE TIMING OF IMPLEMENTATION

The timing of the implementation of each Measure is recorded in the Local Strategy to the following timescales: short term (0-20 years); medium term (20-50 years), and long term (50-100 years). **Annex 8** records the current highest priority flood alleviation schemes and because of this status all these schemes are to be implemented in the short term i.e. within the next 20 years.

6. FUNDING AND DELIVERY OF STRATEGY AND PLAN

The local strategy sets out how the proposed actions and measures will be funded and resourced within Neath Port Talbot and will be reviewed periodically. It is also important to identify what funding mechanisms are available to Neath Port Talbot County Borough Council to pay for the flood risk management measures that are set out in the Strategy. Effective implementation of flood policy objectives requires adequate resources both for the management and response activities of the lead Local Authorities as well as for the capital projects.

6.1 CURRENT FUNDING



6.2 PUBLIC FUNDING

With less direct Government funding available, it is clear that changes are needed to the traditional approaches to funding flood risk management. The current situation of Government flood risk management funding is summarised below:-

In Wales the Welsh Government allocates funding to Natural Resources Wales and other Flood Risk Management Authorities, including Local Authorities. Natural Resources Wales has **£27 million** of Grant in Aid available in 2013/2014 and this is supplemented by **£2 million** of European Union funding allocated by the Welsh European Funding Office.

6.3 PRIVATE FUNDING

Neath Port Talbot County Borough Council can enter into a legally-binding agreement or planning obligation with a landowner in association with the granting of planning permission. These agreements are a way of delivering or addressing matters that are necessary to make a development acceptable in planning terms.

One of the recommendations of the Defra paper '**Making Space for Water**' (Reference 6) was that the local planning authorities should follow the section 106 agreements to ensure that whilst managing a flood risk there is a planning policy in place. This means that any flood risk which is caused by new development should be resolved and funded by the developer.

6.4 OTHER SOURCES OF FUNDING

The External Grant Co-ordination Group within Neath Port Talbot CBC is charged with acquiring grants from possible sources and can identify any that could contribute towards flood risk reduction, such as the All-Wales Agri-Environment scheme "Glastir". This scheme is a new 5 year whole farm agreement that replaces all previous initiatives such as Tir Mynydd, etc. Some elements of this environment enhancement scheme target uplands, heaths, common land, as well as field runoff. Aspects of this in terms of water quantity could be beneficial in the reduction of flood risk.

6.5 THE COSTS AND THE BENEFITS OF THOSE MEASURES, AND HOW THEY ARE TO BE FUNDED

Some of the Measures outlined in Section 5 have been the core activities for the LLFA over recent years and will remain so up to the point this Local Strategy has been implemented. **Annex 8**, in the form of a list of major flood alleviation schemes, represents some of the Measures currently considered by the LLFA as their highest priority. It should be noted that this list has been compiled with no priority rating between individual schemes other than to place the timescale for implementation of each scheme in the 'short term' delivery category.

Section 5 sets out 31 Measures by which the 4 over-arching objectives for the management of flood risk are to be achieved. The LLFA in partnership with other Flood Risk Authorities, where this is appropriate, will establish action plans including, as appropriate associated costs, benefits (be they tangible or intangible) and how they are going to be paid for.

One of the aims of this Local Strategy is to encourage contributions from the community in light of which, throughout the lifetime of the strategy, proposed measures, action plans and priorities may be reviewed.

Cost/benefit analyses will be undertaken according to the principles outlined in the Flood and Coastal Defence Project Appraisal Guidance FCDPAG3 "Economic Appraisal". However, the Welsh Government will shortly complete an appraisal on this guidance and further advice may be provided in the interim.

The timescale will accord with the requirements set out in the Welsh Government document "**Local Flood Risk Management Strategies - Local Strategy November 2011**" (Reference 7). See also Section 9.2.

It is important to determine how each of the Measures is to be funded.

7. INTERACTIONS OF THE STRATEGY WITH THE ENVIRONMENT

The draft LFRMS has been subject to Strategic Environmental Assessment (SEA) and Habitats Regulations Assessment (HRA) according to the requirements of the relevant regulations. These processes are documented in separate reports: “**Neath Port Talbot County Borough Council Local Flood Risk Management Strategy Strategic Environmental Assessment Environmental Report**” (Reference 8) and “**Neath Port Talbot County Borough Council Local Flood Risk Management Strategy Habitats Regulations Appraisal Stage 1 – Screening**” (Reference 9) issued for consultation alongside the draft Strategy.

7.1 STRATEGIC ENVIRONMENTAL ASSESSMENT

7.1.1 Effects of the draft LFRMS

It is to be expected that the LFRMS would have predominantly positive effects on the environment and this has been the finding of the SEA thus far. The aim of the LFRMS is to provide a framework for managing flood risk balancing the needs of the community, the economy and the environment. The LFRMS is driven by the **Flood and Water Management Act 2010**, which aims to improve the sustainability of flood risk management, for example, by setting new requirements and the basis for national standards for Sustainable Drainage Systems (SuDS). Furthermore, the national LFRMS guidance suggests that the principles of sustainable development and wellbeing should be central to the development of the LFRMS. It also suggests that measures which achieve multiple benefits, such as water quality, biodiversity and amenity benefits should be encouraged.

Through the SEA, the measures under consideration for the draft Strategy were assessed against a range of objectives. The objectives cover different environmental topics and were determined through consideration of the environmental and social issues relevant to Neath Port Talbot, and confirmed through consultation with the statutory consultees according to requirements of the regulations. The assessments determined only one minor adverse effect on biodiversity, in relation to the potential effects of necessary maintenance works to watercourses. However, such adverse effects would need to be judged against the benefits of flood risk reduction. Major beneficial effects were identified against the following SEA objectives:-

- 1 - Ensure that access to support facilities is maintained, particularly for more vulnerable sectors of the community.
- 2 - Ensure that new development is directed to reasonably available sites at the lowest probability of flooding, and that development promotes sustainable water management.
- 4 - Protect and enhance biodiversity.
- 6 - Manage local flood risk alongside strategies to manage coastal and fluvial flood risk, taking a whole catchment approach to risk and awareness.
- 8 - Enable adaptation to and mitigation of the impacts of climate change.
- 9 - Ensure the potential impact of flooding on existing and future infrastructure is minimised.
- 11 - Protect cultural heritage including designated and non-designated, known and unknown assets.

7.1.2 Opportunities to enhance environmental benefits

The SEA identified a significant number of opportunities for enhancement of the measures in order to maximise the environmental benefits gained and these have been built into the strategy. Potential opportunities are listed in the SEA Environmental Report, and include some of the following:-

- Prioritise resilience, awareness raising, warning and response enabling measures so that vulnerable members of the community are protected, and that access for these groups to key infrastructure and support services is protected.

- Maximise the benefits gained from SuDS - schemes may provide opportunities to create 'green infrastructure' and 'blue corridors' that provide multiple benefits. For example, ponds and wetlands can provide an array of amenity, biodiversity and landscape benefits. They provide connecting habitats to join fragmented habitats, thus enabling increased resilience of species to climate change and other pressures.
- Community involvement and 'ownership' of projects could help to increase up-take and enable maintenance.
- Land management advice should include specific focus on opportunities to benefit designated habitats, priority species, and to provide connecting habitats between habitat fragments. Advice should also target control of non-native invasive species.
- Ensure protection of biodiversity is embedded into asset maintenance procedures where reasonably practicable.
- Awareness raising, flood warning and response and emergency planning initiatives should incorporate flood risk from all sources requiring cooperation between the various Flood Management Authorities.
- There may be opportunities to implement SuDS to improve water quality, quantity, morphology or biology and WFD waterbody status.
- The LFRMS could promote the retrofitting of SuDS as well as the implementation of SuDS in new development.
- Advice could encourage targeting of resilience and land management measures to protect key infrastructure.
- The register of assets should allow prioritisation to enable maintenance of assets to protect key infrastructure.
- SuDS related planning advice should include provision for post installation monitoring of effectiveness.
- Advice to encourage targeting of resilience and land management measures to key heritage assets.
- The register of assets should allow prioritisation to enable maintenance of assets to protect key cultural heritage assets.

7.1.3 Further assessments

It has not been possible to undertake an assessment of environmental effects on specific locations as the measures are at this stage generic. As the LFRMS is implemented, for example, through action plans, and the measures are more defined, it may be necessary to undertake site-specific, less strategic assessments. These assessments may take the form of SEA or for schemes of sufficient scale, Environmental Impact Assessments (EIA). They may also include Habitats Regulations Appraisal (HRA) and Water Framework Directive (WFD) assessments.

7.2 WATER FRAMEWORK DIRECTIVE

The West Wales River Basin Management Plan (RBMP) confirms that there are 71 river water bodies and five lakes in the Ogmere and Tawe catchment. In accordance with the requirements of the WFD, ecological, chemical and biological status is monitored on these rivers by the NRW. Seven rivers and four lakes are artificial or heavily modified waterbodies. 38% of rivers (197km or 36% of river length) currently achieve good ecological status/potential, including the rivers Afan, Nedd Fechan and Llancarfan. 40% of rivers assessed for biology are at good or high biological status now, with 44% moderate, 17% poor and 2% bad. Many of the rivers in the west of the area support fisheries, both migratory and non-migratory. Artificial barriers to migration are prevalent in this area and flood risk management measures will need to be considered for their effect on migration.

The RBMP sets targets for improvements to the status of these watercourses to be achieved by 2015. The RBMP recognises that local actions will address the key pressures in the catchment, and those waters in the worst state will be prioritised. Actions to improve ecological quality include a programme of investigative field work and pollution prevention visits to failing waterbodies in urban and rural areas and around failing bathing waters. This will aim to establish the sources of pollutants and resolve issues that threaten bathing water compliance and ecological status. The LFRMS will need to ensure that any flood management measures identified support short term targets and actions as well as enable longer term improvements to be delivered beyond 2015. It is a European requirement that WFD waterbody status is maintained or improved, and the LFRMS should aim to contribute to this requirement.

Measures currently included for consideration for the draft LFRMS are not necessarily site specific. It has, therefore, not been possible to undertake an assessment of effects on WFD waterbody status. As the Strategy is delivered, for example, via action plans, the measures will be further specified and at this point it will be necessary to ensure the measures do not jeopardise the meeting of WFD objectives and do not affect WFD waterbody status. WFD assessment will, therefore, be undertaken at lower tier levels of Strategy delivery.

7.3 HABITATS REGULATIONS ASSESSMENT

The draft LFRMS has been subject to the first stage of HRA which is screening for likely significant effects. The HRA Report identifies the European designated sites in and around Neath Port Talbot, as these are the sites which could potentially be affected by delivery of the Strategy. Through consideration of the characteristics of these designated sites, including the features for which they are designated and their sensitivities, alongside the potential effects that could arise due to the measures in the LFRMS, it was possible to conclude that at this stage the LFRMS will have no likely significant effects on European site integrity. However, the HRA recommended measures will be amended to ensure that effects on European designated sites are considered as the measures are further defined and implemented. These are:-

- Measure 1.3.5 - 'Approval and implementation of SuDS drainage systems by the SuDS Approving and Adopting Body', should be amended to include the phrase *'subject to consideration of the requirements of the Habitats Regulations in relation to likely significant effects on qualifying features of European sites, taking into account in combination as well as individual project effects'*.
- Measure 1.3.6 - 'Provision of advice and guidance on appropriate land use management', should be amended to include the phrase *'subject to consideration of the requirements of the Habitats Regulations in relation to likely significant effects on qualifying features of European sites, taking into account in combination as well as individual project effects''*.

The remaining measures in the LFRMS are considered to be statements of policy or intent that will not adversely impact on any of the sites identified. It is, therefore, concluded that the LFRMS will at this stage have no adverse effect on European site integrity. No further HRA is required at this stage.

8. ACTION PLAN AND NEXT STEPS

8.1 HOW WE PLAN TO PROCEED WITH THE STRATEGY

The Strategy will direct a partnership response in; resolving flood problems in areas of known risk; dealing with potential flood risk sites, and lead the reviewing of Indicative Flood Risk Areas. This will be carried out by a Neath Port Talbot Flood Risk Partnership that will be set up.

The Strategy has identified all risk areas and all the different sources of the flood problems. Any area may be at risk from not just one prime cause but a number of different modes of flooding, and these again have been identified.

Those with a responsibility for managing flood risk have been made aware of their responsibilities, and are committed, as part of this Strategy, in participating in the joint on-going risk management, with the LLFA, Neath Port Talbot CBC.

The Action Plan will deliver the Strategy by:-

1. Reviewing Indicative Flood Risk Areas;
2. Defining what actions are to be implemented;
3. Sifting out the costs and benefits of the actions and describing the funding streams;
4. Assessing the flood risk for the purpose of the strategy;
5. Producing a reviewing timetable;
6. Demonstrating how the Strategy contributes to the wider environmental objectives;
7. Delivering the objectives of the Water Framework directive and its targets;
8. Incorporating the Strategic Environmental Assessment's aims into all activities;
9. Enhancing habitats in line with the Habitats Regulations Assessment; and
10. Discharging the duties associated with Sustainable Urban Drainage as defined in the Flood and Water Management Act 2010.

8.2 PRIORITISATION OF IDENTIFIED KEY ACTIONS

Measures in the Strategy will inform the basis for the development of Key Actions for this Action Plan, subject to costs, effectiveness, time, etc.

- 8.2.1** The key actions identified in sections 8.3 will not progress at the same time, therefore, it is necessary to prioritise these actions. Those actions that need to be implemented immediately are set out in the 'Next Steps and what Measures are to be Implemented' at section 8.5.

8.3 KEY ACTIONS

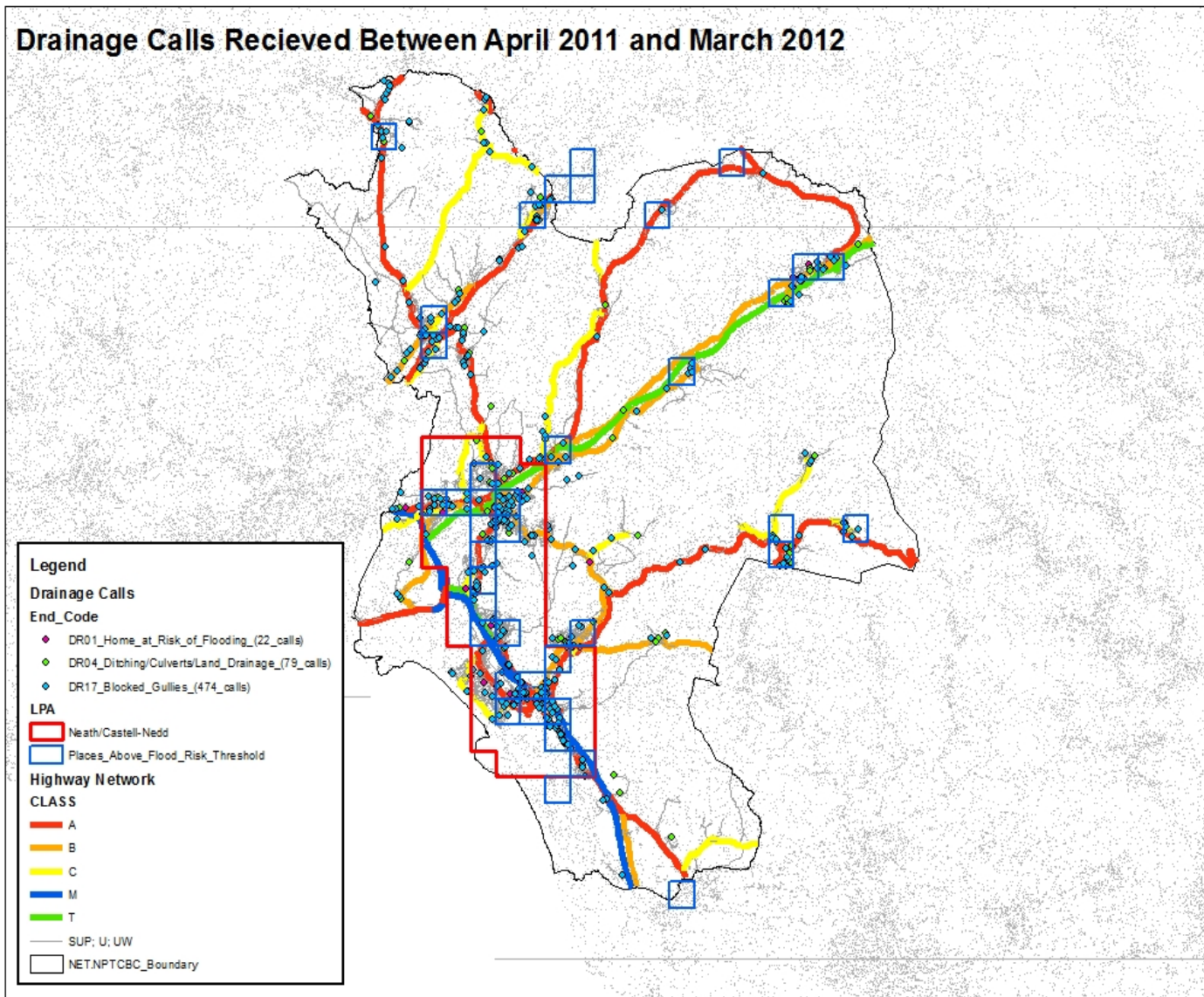
8.3.1 Reviewing Indicative Flood Risk Areas

Information has been received from a number of partner organisations regarding flood risk. This will be used to review the indicative flood area map and information and any consequential changes will be implemented in line with the adopted threshold criteria.

ACTION - LLFA with their flood risk partners to review the indicative flood area map and information and amend as necessary.

The reporting and recording of relevant incidents as previously indicated will be followed in accordance with the requirements set out on the INSPIRE Directive (see section 5.8.6 for further information), utilising the information listed in **ANNEX 1**. An example of the current recording system is illustrated in **Figure 8-1** which sets out and logs the drainage calls received between April 2011 and March 2012. Assistance in co-ordinated actions and funding will be given.

Figure 8-1 – Drainage Calls



ACTIONS - LLFA to record and disseminate information on flooding events in accordance with the INSPIRE Directive (2007/2/EC).

-LLFA to continue to report and record relevant flooding incidents set out in ANNEX 1.

A method for flood event data collection and management is shown in **Figure A1-1 of ANNEX 1** which is a simple, spreadsheet system created to record details of flooding in the area. This figure illustrates a typical spreadsheet.

The operation of the Council's "Service First" contact call centre, which is the first point of contact in the event of a complaint or query from a member of the general public, is continually being monitored and constantly under review with the object of improving the service.

ACTION - LLFA to monitor and review operation of contact call centre with the object of improving the service.

8.3.2 Defining what measures are to be implemented as a priority

The preliminary assessment report has been used to inform the next stages of the process in the PFRA area, the preparation of the flood hazard map by the end of June 2013. The hazard maps show the likely extent, depth, direction, speed of flow and probability of possible flood events and their consequences. The flood management plans to be prepared by 2015, will set out what the management objectives are, the measures proposed to achieve these objectives and how the measures can be implemented within the PFRA area. The information collated for this initial high level review has been used to develop SEA documentation for the next part of the process.

ACTIONS - LLFA to assimilate the information contained within the flood hazard plans and amend Indicative Flood Risk Plans accordingly.

- The Flood Management Plans to be prepared by 2015.

Outside the general indicative flood risk area studies, specific schemes have already been identified for which Project Appraisal Reports have been completed and consequently have been accorded the highest priority. A schedule of these schemes in alphabetical order appears as **ANNEX 8 – Flood Alleviation Schemes**.

ACTION - LLFA with their flood risk management partners to review the list of priority schemes.

In considering how and when the Actions are to be implemented the LLFA will take into account its own priorities and objectives to ensure these Actions are realistic in terms of both the financial and physical resources available and that they are achievable.

ACTIONS - LLFA to assess its own priorities and objectives to ensure these Measures are realistic in terms of available resources and achievability.

- Known "at-risk" areas will have been given a priority rating so that the areas at greatest perceived risk will be managed progressively to reduce the flood risk with appropriate levels of funding.

The LLFA will set up a Working Group comprising all deliverers to meet, probably quarterly, in order to review the strategy and to co-ordinate the various programmes of routine activity necessary to achieve the strategy's desired outcomes.

ACTION - LLFA will lead in directing a partnership response in: resolving flood problems in areas of known risk; dealing with potential flood risk sites, and the review of Indicative Flood Risk Areas.

- LLFA to investigate significant flood events within its area and to identify the responsible Flood Risk Management Authorities and ascertaining the consequential action.

Where flood surgeries or community flood recovery groups are established, communities will be invited to appoint a Flood Champion in their area, who will be the point of contact for all flood related matters. These Champions can be co-opted onto those other groups progressing flood issues, as well as leading communities during incidents and coordinating maintenance works if feasible. Joint flood surgeries and forums can be held by the communities. The Champions will assist in the gathering of all information on the flood incident.

ACTION - LLFA to instigate communications at local level through Community/Town Councils by the appointment of local Flood Champions.

8.3.3 Sifting out the costs and benefits of the measures and describing the funding streams

The known “at-risk” areas will have been given a priority rating so that the areas at greatest perceived risk will be managed progressively to reduce the flood risk. Funding will be provided from any and all possible sources available to the Flood Management Authorities and others.

8.3.4. Assessing the flood risk for the purpose of the strategy

The Strategy has been prepared after consultation with stakeholders, businesses and the public. Careful consideration has been given to the comments received and where relevant, the Strategy reflects those views and opinions. Stakeholders will receive a copy of the Strategy and the NPT website will be populated with every updated version for access by all.

ACTIONS - Stakeholders will receive a copy of the Strategy and the NPT website will be populated with every updated version for access by all.

- **Flood Risk Management Authorities and stakeholders will work in a more co-ordinated manner to reduce flood risk.**

8.3.5 Producing a reviewing timetable

A review of the information contained within this report will be undertaken by 22 June 2017 and every six years thereafter. The periodic review of priorities will take into consideration Flood Risk Regulations.

ACTION - LLFA to review the contents of this Strategy by 22 June 2017 and every six years thereafter.

8.3.6 Demonstrating how the Strategy contributes to the wider environmental objectives

ACTION - LLFA to consider the significant number of opportunities for enhancement of the measures in order to maximise the environmental benefits gained set out in the SEA

8.3.7 Delivering the objectives of the Water Framework Directive and its targets

The LFRMS will need to ensure that any flood management measures identified support short term targets and actions as well as enable longer term improvements to be delivered beyond 2015.

Measures currently included in the LFRMS are not necessarily site specific. It has, therefore, not been possible to undertake an assessment of effects on WFD waterbody status. As the Strategy is delivered, for example, via action plans, the measures will be further specified.

8.3.8 Incorporating the Strategic Environmental Assessment’s aims into all activities

ACTIONS - LLFA to consider the possible minor adverse effect on biodiversity when planning and executing necessary maintenance works to watercourses.

- **LLFA and their flood risk management partners to consider the possibilities of achieving multiple benefits in undertaking flood prevention measures.**

8.3.9 Enhancing habitats in line with the Habitats Regulations Assessment

ACTION - to amend Measures 1.3.5 (SuDS) and 1.3.6 (advice and guidance in land use management).

8.3.10 Discharging the duties associated with Sustainable Urban Drainage as defined in the Flood and Water Management Act 2010

SuDS will be an essential means of achieving sustainable development across the area. Source control measures will be the primary means of supporting overall water management through better surface water management. The basic philosophy of source control is to emulate the natural pre-urbanisation situation where water is held close to where it falls rather than directed over impermeable surfaces and into drainage systems. Methods such as ground infiltration can reduce loading on surface water sewers, and provide underground recharge possibilities. See also section 8.4, SuDS Approval Body below.

ACTIONS - Planning decisions will be based on the premise of flood risk reduction and will accord with the latest guidelines.

- SuDS will be an essential means of achieving sustainable development across the area.
- Each Flood Risk Management Authority's risk reduction measures will be supported by source control to emulate the natural pre-urbanisation situation.

8.4 ACTIONS FROM KEY RESPONSIBILITIES

In order to continue to fulfil its role as Lead Local Flood Authority under the **Flood and Water Management Act** and the **Flood Risk Regulations**, there are a number of key responsibilities that NPTCBC is required to undertake:-

1. **Investigating flood incidents** – LLFAs have a duty to investigate and record details of significant flood events within their area. This duty includes identifying which authorities have flood risk management functions and what they have done or intend to do with respect to the incident, notifying Risk Management Authorities where necessary and publishing the results of any investigations carried out.

For actions see section 8.3.2 above.

2. **Asset Register** – LLFAs have a duty to maintain a register of structures or features which are considered to have an effect on flood risk, including as a minimum, details on ownership and condition. The register must be available for inspection and the Welsh Government is able to make regulations about the content of the register and records.

A typical spreadsheet system used for recording the location and condition of culverted watercourses is shown in **Figure A2-1**. The County Borough Council's highway and land drainage assets are scheduled and there is a direct link to a location plan giving salient details about the assets – see **Figure A2-2** as an example.

ACTION - LLFA to maintain a register of structures or features which are considered to have an effect on flood risk, including details on ownership and condition.

3. **SuDS Approving Body** – LLFAs are designated the SuDS Approving Body (SAB) for any new drainage system, and, therefore, must approve, adopt and maintain any new sustainable drainage systems (SuDS) within their area when this function commences (expected April 2014).

ACTION - From April 2014 (or from an alternatively designated date) the LLFA will be the SuDS Approving Body (SAB) for any new drainage system.

4. **Local Strategy for Flood Risk Management** – LLFAs are required to develop, maintain, apply and monitor a local strategy for flood risk management in their area. The local strategy will build upon information such as national risk assessments and use consistent risk based approaches across different Local Authority areas and catchments. Further guidance on this aspect was issued by WG in November 2011 in its documents ‘**National Strategy for Flood and Coastal Erosion Risk Management in Wales**’ and ‘**Local Flood Risk Management Strategies – Local Strategy**’ (Reference 5 and 7 respectively) and built upon by LLFAs during the twelve months following the publication of these reports.

ACTION - LLFA to develop, maintain, apply and monitor a local strategy for flood risk management in its area.

5. **Works powers** – LLFAs have powers to undertake works to manage flood risk from surface runoff and groundwater, consistent with the local flood risk management strategy for the area.

ACTION - LLFA to undertake works to manage flood risk from surface runoff and groundwater.

6. **Designation powers** – LLFAs, as well as Natural Resources Wales, have powers to designate structures and features that affect flooding or coastal erosion in order to safeguard assets that are relied upon for flood or coastal erosion risk management.

ACTION - LLFA to designate structures and features that affect flooding or coastal erosion.

8.5 NEXT STEPS AND WHAT MEASURES ARE TO BE IMPLEMENTED FIRST

8.5.1 The known “at risk” areas will be given a priority rating so that the areas at greatest perceived risk will be managed progressively to reduce that risk. Funding will be provided from any and all possible sources available to the Flood Management Authorities and others. This funding may affect the prioritisation, but generally the costs and benefits will be a major consideration.

8.5.2 A Multi Agency Flood Recovery Group will operate for a suitable period after a significant flooding event where established by the JRU.

8.5.3 Those actions selected from the above list of ‘Actions’, that merit consideration for immediate implementation i.e. the ‘Next Steps’ are set out below for discussion at the initial meeting of the Working Group:-

By establishing the Working Group the following actions will have been deemed to be underway:-

- LLFA will lead in directing a partnership response in: resolving flood problems in areas of known risk; dealing with potential flood risk sites, and the review of Indicative Flood Risk Areas.
- LLFA will set up a Working Group comprising all deliverers to meet regularly in order to review the strategy and to co-ordinate the various programmes of routine activity necessary to achieve the strategy’s desired outcomes.
- LLFA to investigate significant flood events within its area and to identify the responsible Flood Risk Management Authorities and ascertaining the consequential action.
- Flood Risk Management Authorities and stakeholders will work in a more co-ordinated manner to reduce flood risk.

Additional imminent actions for consideration:-

- LLFA to assimilate the information contained within the flood hazard plans and amend Indicative Flood Risk Plans accordingly.
- Planning decisions will be based on the premise of flood risk reduction and will accord with the latest guidelines.

8.6 HOW AND WHEN THE STRATEGY IS TO BE REVIEWED

Monitoring and updating this Strategy is necessary and, will be carried out annually to ensure new information is included and to ensure current legislation is applied. The strategy review frequency may vary in the longer term but never less than the minimum recommended frequency. The amendments to the Strategy will be reviewed by the Joint Resilience Forum, and other appropriate political processes, as well as available to the public.

The annual review can include relevant case studies that illustrate successful activities to share best practice with partners. The review will be able to report on the reduction in numbers of people at risk of flooding, on areas of enhanced or new habitat. It will be able, in later years, to demonstrate progress against the Water Framework Directive targets that are relative to flood risk and the benefits delivered for money spent.

9. ANNEXES

ANNEX 1 – FLOOD INCIDENT RECORDING

(A) TEMPLATE

In order to obtain consistent and accurate records of local flooding in Neath Port Talbot CBC, stakeholders need as much information as possible from individuals and Community/Town Councils.

The Authority is currently adapting an incident reporting system to ensure consistent records of reports, whether made through the internet or social media, via a phone call or by email. It is hoped to have a flood incident recording template set up in the near future. The Authority would request that if you become aware of a flood in your area, you kindly provide us with the following information:-

- Your name and contact details
- Date of the flood
- Location of the flood (map reference or precise address)
- How long did the flood last?
- How deep was the water at its worst?
- Where did the water come from (if known)? e.g. overflowing ditch
- Weather preceding the flood – including amount of rainfall if known
- Did water get into domestic/commercial properties? If so, which ones?
- What damage or problem did the flooding cause? e.g. blocked road into village for 2 hours or flooded all downstairs rooms
- Was any action taken at the time to reduce the flood risk? e.g. use of flood gates at front door
- Any other relevant information

Photographs of the flood and its effects are very useful, so please provide these wherever possible.

(B) INCIDENT RECORDING SPREADSHEET

A method for flood event data collection and management is shown overleaf in Figure A1-1 of this Annex which is a simple, spreadsheet system created to record details of flooding in the area. This figure illustrates a typical spreadsheet.

Table A1.1 – Flooding Records

Neath Port Talbot County Borough Council
Preliminary Flood Risk Assessment

| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q |
|-----|--------|--------------------------------|-------------|------------|-------------|-----------------------------|------|--------|--------|---------|----------|-----------|---------------------|-------|---------------|-------------|
| REF | CODE | DESCRIPTION | DATE_OPENED | DATE_CLOSE | NO. OF_DAYS | LOCATION | AREA | X | Y | LINEAGE | F_SOURCE | XY_ORIGIN | TYPE | SEWER | TYPE_FLOODING | FLOODING_TY |
| 1 | 362202 | DR43 Manhole Covers - Adopted | 14/10/2010 | 14/10/2010 | | 0 A4067 Allwenn Pontardawe | LLW | 272464 | 203693 | 10K OS | | | Drainage Calls 2010 | | | |
| 2 | 372645 | DR42 General Flooding | 10/06/2010 | | | 0 A4067 Godre R Graig | LLW | 274539 | 205993 | 10K OS | | | Drainage Calls 2010 | | | |
| 3 | 371993 | DR42 General Flooding | 20/06/2010 | | | 3 A4067 Godre R Graig | LLW | 274173 | 205105 | 10K OS | | | Drainage Calls 2010 | | | |
| 4 | 374774 | DR43 Manhole Covers - Adopted | 12/10/2010 | | | 2 A4067 Godre R Graig | LLW | 274277 | 205930 | 10K OS | | | Drainage Calls 2010 | | | |
| 5 | 371830 | DR43 Manhole Covers - Adopted | 06/08/2010 | | | 17 A4067 Pontardawe | LLW | 273966 | 205438 | 10K OS | | | Drainage Calls 2010 | | | |
| 6 | 371830 | DR43 Manhole Covers - Adopted | 06/08/2010 | | | 17 A4067 Pontardawe | LLW | 273966 | 205438 | 10K OS | | | Drainage Calls 2010 | | | |
| 7 | 395044 | DR04 Ditching/Culvert/Land Dra | 22/11/2010 | | | 3 Abernart Road Cwngors A | LLW | 270493 | 210708 | 10K OS | | | Drainage Calls 2010 | | | |
| 8 | 346533 | DR04 Ditching/Culvert/Land Dra | 12/05/2010 | | | 79 Allwenn Hill Allwenn Pon | LLW | 272593 | 203643 | 10K OS | | | Drainage Calls 2010 | | | |
| 9 | 397224 | DR42 General Flooding | 26/11/2010 | | | 0 Allwenn Hill Allwenn Pon | LLW | 272593 | 203643 | 10K OS | | | Drainage Calls 2010 | | | |
| 10 | 376394 | DR17 Blocked gully - Adopted | 02/09/2010 | | | 4 Allwenn Pontardawe | LLW | 272593 | 203618 | 10K OS | | | Drainage Calls 2010 | | | |
| 11 | 367413 | DR11 Gully cover - Adopted | 20/07/2010 | | | 1 Altycham Drive Pontarda | LLW | 272164 | 204695 | 10K OS | | | Drainage Calls 2010 | | | |
| 12 | 390589 | DR17 Blocked gully - Adopted | 26/10/2010 | | | 1 Altycham Drive Pontarda | LLW | 272164 | 204673 | 10K OS | | | Drainage Calls 2010 | | | |
| 13 | 375565 | DR42 General Flooding | 23/08/2010 | | | 9 Altycham Drive Pontarda | LLW | 276725 | 205972 | 10K OS | | | Drainage Calls 2010 | | | |
| 14 | 393930 | DR04 Ditching/Culvert/Land Dra | 14/11/2010 | | | 7 Ashwood Lane Gellinudd | LLW | 273759 | 204122 | 10K OS | | | Drainage Calls 2010 | | | |
| 15 | 395242 | DR17 Blocked gully - Adopted | 21/06/2010 | | | 36 Barry Road Lower Brynamm | LLW | 270474 | 212875 | 10K OS | | | Drainage Calls 2010 | | | |
| 16 | 362012 | DR17 Blocked gully - Adopted | 09/09/2010 | | | 5 Barry Road Lower Brynamm | LLW | 270465 | 212881 | 10K OS | | | Drainage Calls 2010 | | | |
| 17 | 362361 | DR42 General Flooding | 21/09/2010 | | | 29 Belhesda Road Ynysmeudwy | LLW | 273565 | 205494 | 10K OS | | | Drainage Calls 2010 | | | |
| 18 | 392512 | DR17 Blocked gully - Adopted | 04/11/2010 | | | 4 Belhesda Road Ynysmeudwy | LLW | 273597 | 205508 | 10K OS | | | Drainage Calls 2010 | | | |
| 19 | 395963 | DR42 General Flooding | 19/11/2010 | | | 3 Belhesda Road Ynysmeudwy | LLW | 273511 | 205527 | 10K OS | | | Drainage Calls 2010 | | | |
| 20 | 368217 | DR04 Ditching/Culvert/Land Dra | 22/07/2010 | | | 30 Birchfield Road Pontarda | LLW | 272638 | 204657 | 10K OS | | | Drainage Calls 2010 | | | |
| 21 | 390463 | DR42 General Flooding | 26/10/2010 | | | 1 Brecon Road Pontardawe | LLW | 272513 | 204413 | 10K OS | | | Drainage Calls 2010 | | | |
| 22 | 367650 | DR04 Ditching/Culvert/Land Dra | 21/07/2010 | | | 9 Bryonywyr Pontardawe | LLW | 272330 | 204520 | 10K OS | | | Drainage Calls 2010 | | | |
| 23 | 366403 | DR17 Blocked gully - Adopted | 16/07/2010 | | | 10 Brookfield Chyd Road G | LLW | 270700 | 211603 | 10K OS | | | Drainage Calls 2010 | | | |
| 24 | 395606 | DR17 Blocked gully - Adopted | 18/11/2010 | | | 1 Bryn Road Cwmllynfell | LLW | 274695 | 212629 | 10K OS | | | Drainage Calls 2010 | | | |
| 25 | 379225 | DR17 Blocked gully - Adopted | 06/09/2010 | | | 2 Brynmonging Allwenn Pont | LLW | 273225 | 204233 | 10K OS | | | Drainage Calls 2010 | | | |
| 26 | 398715 | DR17 Blocked gully - Adopted | 01/04/2010 | | | 14 Cain Llan Road Rhydyfro | LLW | 271696 | 204905 | 10K OS | | | Drainage Calls 2010 | | | |
| 27 | 393900 | DR04 Ditching/Culvert/Land Dra | 08/11/2010 | | | 0 Church Road Clybebyll | LLW | 274360 | 204653 | 10K OS | | | Drainage Calls 2010 | | | |
| 28 | 367946 | DR01 Home at risk of flooding | 22/07/2010 | | | 0 Cilhenne Cottage Wernidd | LLW | 272666 | 202598 | 10K OS | | | Drainage Calls 2010 | | | |
| 29 | 363616 | DR17 Manhole Covers - Adopted | 27/09/2010 | | | 21 Chlanaerwyn Road Chlman | LLW | 274166 | 205918 | 10K OS | | | Drainage Calls 2010 | | | |
| 30 | 363534 | DR17 Blocked gully - Adopted | 02/07/2010 | | | 6 Commercial Street Ystaly | LLW | 276749 | 206692 | 10K OS | | | Drainage Calls 2010 | | | |
| 31 | 362295 | DR17 Blocked gully - Adopted | 09/11/2010 | | | 6 Coedffaldau Coedffaldau | LLW | 274469 | 211968 | 10K OS | | | Drainage Calls 2010 | | | |
| 32 | 390654 | DR17 Blocked gully - Adopted | 27/10/2010 | | | 1 Cwch Farm Coedffaldau R | LLW | 274594 | 211298 | 10K OS | | | Drainage Calls 2010 | | | |
| 33 | 339641 | DR17 Blocked gully - Adopted | 07/04/2010 | | | 7 Cwch Farm Coedffaldau R | LLW | 274610 | 211233 | 10K OS | | | Drainage Calls 2010 | | | |
| 34 | 395638 | DR17 Blocked gully - Adopted | 18/11/2010 | | | 1 Cwch Farm Coedffaldau R | LLW | 274611 | 211254 | 10K OS | | | Drainage Calls 2010 | | | |
| 35 | 345124 | DR04 Ditching/Culvert/Land Dra | 27/04/2010 | | | 3 Danygraig Road Trebanos | LLW | 271204 | 202899 | 10K OS | | | Drainage Calls 2010 | | | |
| 36 | 344688 | DR04 Ditching/Culvert/Land Dra | 27/04/2010 | | | 3 Danygraig Road Trebanos | LLW | 271197 | 202894 | 10K OS | | | Drainage Calls 2010 | | | |
| 37 | 360395 | DR17 Blocked gully - Adopted | 10/09/2010 | | | 4 Davies Road Pontardawe | LLW | 272950 | 202624 | 10K OS | | | Drainage Calls 2010 | | | |
| 38 | 394515 | DR42 General Flooding | 29/09/2010 | | | 15 Darwen Deg Rhydyfro | LLW | 271900 | 204951 | 10K OS | | | Drainage Calls 2010 | | | |
| 39 | 376460 | DR04 Ditching/Culvert/Land Dra | 29/09/2010 | | | 771843 204993 10K OS | LLW | 271843 | 204993 | 10K OS | | | Drainage Calls 2010 | | | |
| 40 | 394503 | DR42 General Flooding | 16/11/2010 | | | 0 Glandyff Glandyff | LLW | 270656 | 209458 | 10K OS | | | Drainage Calls 2010 | | | |
| 41 | 365480 | DR04 Ditching/Culvert/Land Dra | 16/11/2010 | | | 0 Glandyff Glandyff | LLW | 271629 | 204246 | 10K OS | | | Drainage Calls 2010 | | | |
| 42 | 365480 | DR04 Ditching/Culvert/Land Dra | 16/11/2010 | | | 7 Glyntee Villas Gellipon | LLW | 271763 | 204423 | 10K OS | | | Drainage Calls 2010 | | | |
| 43 | 395232 | DR17 Blocked gully - Adopted | 06/04/2010 | | | 7 Gough Road Ystalyfera S | LLW | 276584 | 208669 | 10K OS | | | Drainage Calls 2010 | | | |
| 44 | 379540 | DR01 Home at risk of flooding | 26/06/2010 | | | 5 Graig Cottage Graig Road | LLW | 274310 | 194234 | 10K OS | | | Drainage Calls 2010 | | | |
| 45 | 393108 | DR04 Ditching/Culvert/Land Dra | 09/11/2010 | | | 3 Graig Road | LLW | 270128 | 212128 | 10K OS | | | Drainage Calls 2010 | | | |
| 46 | 395403 | DR04 Ditching/Culvert/Land Dra | 18/11/2010 | | | 5 Graig Road | LLW | 270103 | 212151 | 10K OS | | | Drainage Calls 2010 | | | |
| 47 | 392485 | DR42 General Flooding | 21/09/2010 | | | 6 Graig Road Gwan Cae Gur | LLW | 270147 | 212110 | 10K OS | | | Drainage Calls 2010 | | | |
| 48 | 360506 | DR17 Blocked gully - Adopted | 25/06/2010 | | | 34 Green Acre Llanguicke Ro | LLW | 272594 | 204903 | 10K OS | | | Drainage Calls 2010 | | | |
| 49 | 369026 | DR17 Blocked gully - Adopted | 27/07/2010 | | | 70 Green Acre Llanguicke Ro | LLW | 272596 | 204997 | 10K OS | | | Drainage Calls 2010 | | | |
| 50 | 393846 | DR17 Blocked gully - Adopted | 11/11/2010 | | | 4 Green Road Gwan Cae Gur | LLW | 270238 | 211673 | 10K OS | | | Drainage Calls 2010 | | | |

ANNEX 2 – DETAILS OF KNOWN FLOOD DEFENCE ASSETS OF (1) NEATH PORT TALBOT COUNTY BOROUGH (2) NATURAL RESOURCES WALES AND (3) OTHER RIPARIAN OWNERS

As a requirement of Section 21 of the Flood and Water Management Act 2010, the LLFA has a duty to maintain a register of structures or features which in the opinion of the Authority, are likely to have a significant effect on a flood risk in the area. These features will be held on the register with a clear indication which of the following bodies is responsible for their maintenance and operation:-

(1) NEATH PORT TALBOT COUNTY BOROUGH

A typical spreadsheet system used for recording the location and condition of culverted watercourses is shown overleaf in Figure A2-1. The County Borough Council's highway and land drainage assets are scheduled and there is a direct link to a location plan giving salient details about the assets – see Figure A2-2 as an example.

(2) NATURAL RESOURCES WALES

Natural Resources Wales has a National Flood and Coastal Defence Database {NFCDD}. This database has been built up over the years, recording all flood defence assets on main rivers and the coast; these include NRW assets, Local Authority assets and those in private ownership. Shortly this database will be superseded by a new system entitled 'Asset Information Management system {AIMS}. The information in NFCDD is available to the public by applying to NRW Customer Services who will arrange for a meeting with a Flood Risk Management Officer to access the system at a convenient office, and present the pertinent information to the applicant.

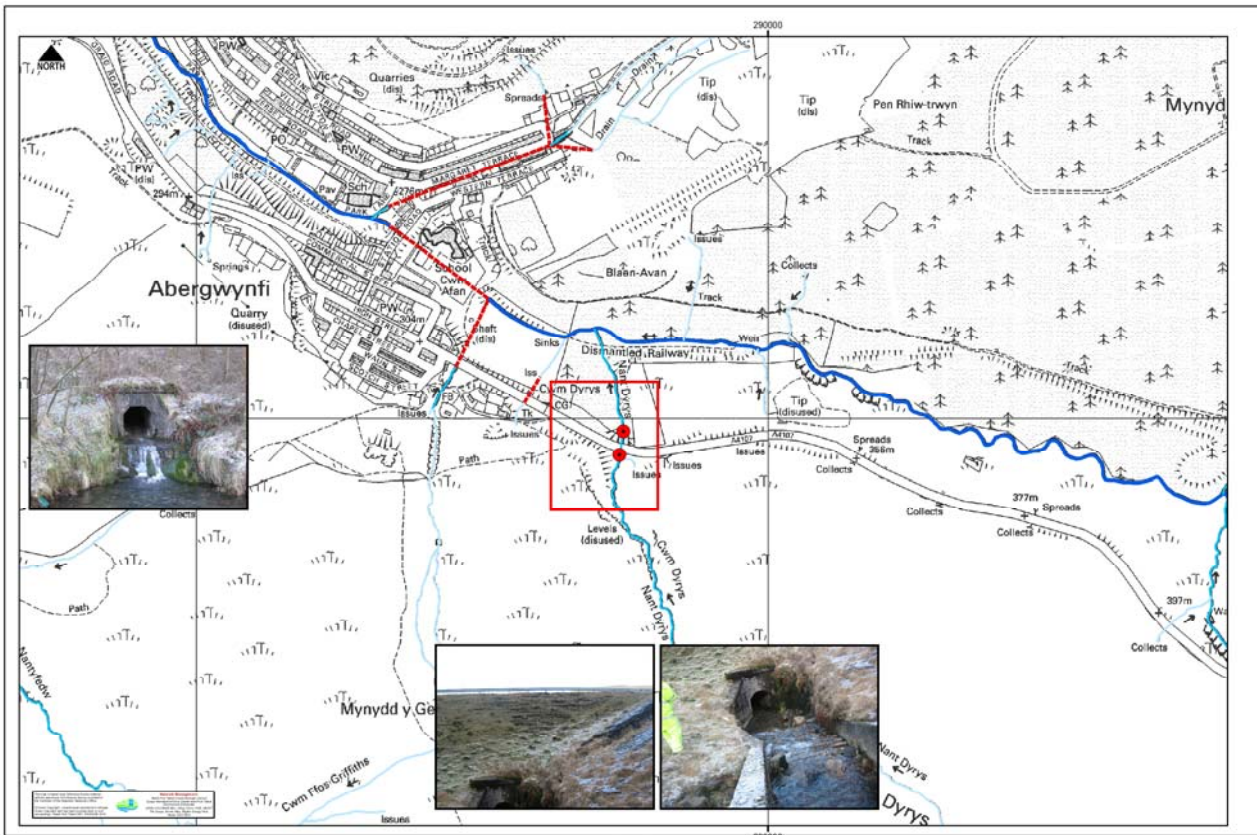
(3) OTHER RIPARIAN OWNERS

Neath Port Talbot CBC have records of their own assets on non main river watercourses, plus recognised riparian owner assets, and also have some records of assets, the ownership of which is not clear. These records are available to be seen by application to the Council so that an appropriate viewing meeting can be arranged.

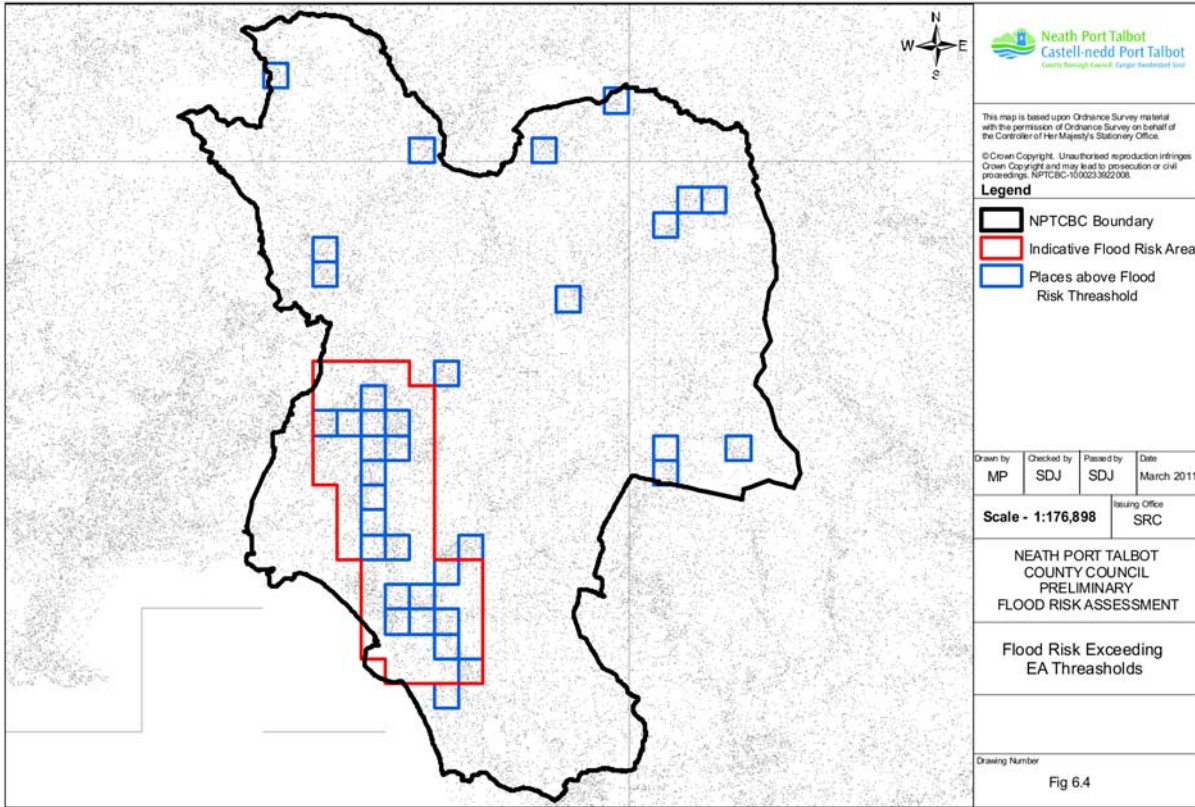
Figure A2-1 – Culvert Database

| CULVERT/ INTAKE STRUCTURES WITHIN THE COUNTY BOROUGH | Location | Area | Frequency | Situation | Original ID Number |
|---|------------------|-------------|-----------|-----------------------|--------------------|
| 105 Graig Rd | HIGHWAYS/PRIVATE | LLIW | URGENTLY | Highways/Private Land | |
| A4107 (above Graig Rd, Abergwnfi - | HIGHWAYS | PORT TALBOT | YEARLY | Highways | |
| A4107 (above no's 40 and 41, High St Abergwynfi) | HIGHWAYS | PORT TALBOT | YEARLY | Highways | ID 250 |
| A4107 (near to no. 5 Cwm Ifan Bach, Port Talbot) | HIGHWAYS | PORT TALBOT | QUARTERLY | Highways | |
| A4107 (near to Western Logs, Port Talbot) | HIGHWAYS | PORT TALBOT | QUARTERLY | Highways | |
| A4107 (Bwlch Mountain Rd) | HIGHWAYS | PORT TALBOT | MONTHLY | | |
| A4109 aberdulais | HIGHWAYS | NEATH | MONTHLY | Private Land | ID 23 |
| A4109 Aberdulais (Tir Isaf Farm) | HIGHWAYS | NEATH | MONTHLY | Private Land | |
| A4109 Crynant - (adj to no. 13 | HIGHWAYS | NEATH | MONTHLY | Highways | ID 237 |
| A4109 Crynant - (Main Rd - adj to no. 123) | HIGHWAYS | NEATH | QUARTERLY | Highways | ID 258 |
| A4109 Crynant - (main Rd - between no. 100 and The Gradon Public House | HIGHWAYS | NEATH | MONTHLY | Highways | ID 257 |
| A4109 Crynant - (main Rd - property known as Cynlais House) | HIGHWAYS | NEATH | QUARTERLY | Highways | ID 123 & |
| A4109 Crynant - (opp no. 24 Pen y Bont) | HIGHWAYS/PRIVATE | NEATH | MONTHLY | Highways/Private Land | ID 331 |
| A4109 Crynant - (opp | HIGHWAYS | NEATH | QUARTERLY | Highways | ID 236 |
| A4109 Intervalley Rd | HIGHWAYS | NEATH | MONTHLY | | |
| A4109 Intervalley Rd (| HIGHWAYS | NEATH | QUARTERLY | Highways | ID 229 |
| A4109 near Cefn Coed Museum | HIGHWAYS | NEATH | MONTHLY | Private Land | |
| | HIGHWAYS | NEATH | YEARLY | Highways | |
| A465 opposite Chain Road, Glynneath | HIGHWAYS | NEATH | WEEKLY | | |
| | HIGHWAYS | NEATH | WEEKLY | | |
| | UO | LLIW | MONTHLY | Council/Private Land | ID 385 |
| Addoldy House near near of Min y Coed Glynneath SA11 5RY | UO | NEATH | MONTHLY | Council/Private Land | |
| Addoldy Road (above Forest Lodge) | UO | NEATH | MONTHLY | Private Land | |
| Ael-y-Fro, pontardawe (rear of no. 12 &11) | UO | LLIW | MONTHLY | Council Land | |
| Afan Terrace/Aneddfan, Cwmafan (between no. 29 Aneddfan and no. 1 Afan Terrace) | UO | PORT TALBOT | MONTHLY | Council Highways | |
| A4107 Afan Valley Rd, Cwmafan | HIGHWAYS | PORT TALBOT | | | |
| Alltwen (opp no. 2 Gwyn St) | HIGHWAYS | LLIW | MONTHLY | Private Land | ID 37 |
| Alltwen 150m | HIGHWAYS | LLIW | QUARTERLY | Private Land | ID 38 |

Figure A2-2 – an example of a plan linked to the culvert database



ANNEX 3 – AREAS SUSCEPTIBLE TO SURFACE WATER FLOODING



ANNEX 4 - MAIN FLOOD EVENTS (EXTRACT FROM NEATH PORT TALBOT COUNTY BOROUGH COUNCIL'S PRELIMINARY FLOOD RISK ASSESSMENT)

The following 3 tables set out the main historical flooding events where the catchments are defined in the CFMP:-

Table A4.1 Tawe Catchment

| Tawe Catchment | | | Consequences |
|--------------------|-------------------|--|---|
| Pontardawe | 1979 | Tawe and Upper Clydach | Industrial estate, Herbert Street and the Confluence of the Upper Clydach. |
| Pontardawe | October 1998 | River Tawe. Non Main River (canal breach). | On the 23rd October 1998, following heavy rainfall, water levels rose in the Swansea Canal in Pontardawe as it overfilled and caused the banks to fail under the extra pressure exerted on them. The resulting breach allowed the water in the Canal to escape and this caused serious and extensive flooding in the village. Some 30 residential properties, units on the nearby Industrial Estate including the Health Centre, together with the commercial centre of the village were affected by over 1.0m of floodwater and silt. |
| Ynysmeudwy Village | 4th February 2004 | River Flooding | On the 3rd and 4th of February 2004, sustained, heavy rain stretching across Wales brought many rivers into flood condition. At the height of the downpour on the 4th February, there were 51 flood warnings in operation. A damaging flood tore through the village of Ynysmeudwy smashing rocks and trees through houses and swamping homes with ankle deep mud. The ground floors of 5 properties were submerged under 5'.0" – 6'.0" of water from the adjacent River Cwmdu (not a main river). The flood was the result of an embankment breach some 4.5 km north of Ynysmeudwy. The River Cwmdu was culverted through the embankment at this location and the embankment failed when the culvert became blocked with silt and debris. The culvert has since been removed and a timber bridge erected across the river. |
| Trebanos | 2008 | Unnamed Watercourse above Pheasant Road | Blockage on culverted watercourse at intake (land drainage) caused extensive highway flooding and damage and inundation of one property. |

Table A4.2 Neath Catchment

| Neath Catchment | | | Consequences |
|-------------------------------|--------------------------------|---|--|
| Neath | August 1768 | River Neath | Quote from the British Hydrological Society's website "and the torrents poured from the mountains swept away men, women, cattle (and), ruined the crops, and laid under water the little town of Neath". |
| Neath | September 1909 | Unknown | "25year high rainfall - streets were completely flooded, town and much damage was done". |
| Neath | 6 December 1910 | Tidal | Observer at Neath noted "Heavy gale in conjunction with a high tide. The lower part of the town was flooded". |
| Glyn Neath | 1911 | River Neath | "Great Damage done by floods". |
| Neath | December 1979 | River Neath | Understood to be the highest rainfall event on record in the Neath catchment. |
| Aberdulais | 22 -24 October 1998 | River Neath (Overtopping of natural banks. Debris reduced flow under aqueduct). | 29 properties at Canal Side and Railway Tavern, CalorGas Depot, 1 residential property and B4434 bridge. |
| Aberdulais | 22 - 24 October 1998 | River Dulais | Dulais Rock Public House (kitchen) and the National Trust Heritage Centre. |
| Canal Side, Aberdulais | 23 October 1998 | Main river | 25 properties were flooded by rises in the Tennant canal caused by floodwaters from the River Neath overflowing into the canal. |
| Rheola Ponds | 22-24 October '98 | Surface water drainage | A465 dual carriageway flooded. |
| Jersey Marine | July 2007 | Highway run-off | Ashleigh Terrace in Jersey Marine suffered extensive flooding from highway run-off. |
| Neath | July 2007 | Highway and surface water run-off | Incidents related to inefficiencies in combined public sewers, the most notable being in the Victoria Road, Rockingham Terrace areas of Briton Ferry . There were similar problems in the Milland Road Industrial Estate where businesses were affected by highway flooding. At Old Road in Skewen a combination of sewage flooding and watercourse flooding caused inundation of three properties. |
| Nant Gwrach | July 2007 | Highway run-off | Highway outlets to the Nant Gwrach (a critical watercourse enmained by EA) buried under silt and stone, causing a back up of flow in the highway system inundating private gardens during intense rainfall. |
| County Borough wide | July / August / September 2008 | Highway Run-off / Highway drainage issues / culverted watercourses / intake grids | Numerous problems at Briton Ferry, Tonmawr, Cimla, Milland Road Industrial Estate, Baglan, A483 route into Swansea cycleways . |

Table A4.3 Afan Catchment

| Afan Catchment | | | Consequences |
|--|-------------------|---------------------|---|
| Aberavon | 28 September 1909 | Afan (assumed) | Town devastated by more than 1.5m depth of flooding - 200 people made homeless. |
| Glyncorrwg | 15 October 1909 | Afan Corrwg | Four cottages washed away & property damaged. |
| Glyncorrwg | 28 September 1909 | Afan Corrwg | River rose 2m in an hour, considerable damage to property. Main girder bridge gave way killing one man. |
| Glyncorrwg | Oct 1910 | Afan Corrwg | Seven cottages washed away and mine railway undermined in several places. |
| Croeserw / Cymmer | July 2007 | Surface Flooding | Croeserw / Cymmer areas suffered surface flooding allegedly caused principally by Deforestation. |
| Baglan – Heol y Nant area and at Pentwyn Road | 2010 | Unnamed Watercourse | Blockage causing surcharge at existing chamber on 1000mm diameter surface water culvert known as the Pentwyn Culvert. Inundation of 5 properties and highway flooding. Also extensive flooding to highway infrastructure in the Pentwyn Road area during heavy rainfall. |

ANNEX 5 – PRELIMINARY ASSESSMENT SPREADSHEET ANNEX 1 – RECORDS OF PAST FLOODS AND THEIR SIGNIFICANT CONSEQUENCES

ANNEX 1 of the Preliminary Flood Risk Assessment can be viewed using the following hyperlink:

http://www.npt.gov.uk/PDF/PFRA_Annex_1.pdf

ANNEX 6 – PRELIMINARY ASSESSMENT SPREADSHEET ANNEX 2 – RECORDS OF FUTURE FLOODS AND THEIR CONSEQUENCES

ANNEX 2 of the Preliminary Flood Risk Assessment can be viewed using the following hyperlink:

http://www.npt.gov.uk/PDF/PFRA_Annex_2.pdf

ANNEX 7 – NEATH PORT TALBOT COUNTY BOROUGH COUNCIL PRIORITY RATING SYSTEM

Neath Port Talbot CBC prioritisation of potential flood alleviation schemes is based on the summation of the Rating and Adjustment Factor, taking into consideration the following aspects:-

- 1) The type and location of the incident; and
- 2) The incident frequency

1) The type and location of the incident

| <u>RATING</u> | <u>DESCRIPTION</u> |
|----------------------|---|
| 1 | Flooding inside Buildings and jointly Highway Safety |
| 2 | Flooding outside but adjacent to buildings |
| 3 | Flooding of Highways and foot-ways / culvert problems |
| 4 | Maintenance costs |
| 5 | Watercourse Bank Stability |
| 6 | Flooding of garden areas / wet gardens |
| 7 | Flooding of communal areas |
| 8 | Flooding of fields |
| 9 | Landscaping Improvement |

2) The incident frequency

| <u>ADJUSTMENT FACTOR</u> | <u>DESCRIPTION</u> |
|---------------------------------|---|
| 0 | Problem has been reported more than once in the last twelve months. |
| 1 | Problem has been reported once in the last twelve months. |
| 2 | Problem has been reported once in the last two years. |
| 3 | No problems reported within the last two years. |
| 4 | Problem being monitored. |

ANNEX 8 – IDENTIFIED FLOOD ALEVIATION SCHEMES

SITE SPECIFIC FLOOD RISK CONCERNS WITH COMPLETED PROJECT APPRAISALS

Table A8.1 Local information derived from Project Appraisal Scheme reporting

| Project Name | Cause of Flooding | Cost/ Benefit ratio | Timescale | No. Affected | | Comments |
|--|--|---------------------------|------------|--------------|----------|--|
| | | | | Props | Business | |
| 1. Caegroes Terrace, Cadoxton | Flooding events occur when the culvert becomes blocked with silt and debris in high rainfall. | - | Short Term | 5 | - | Flooding causes severe disruption of main route to Neath and access to A465 trunk Road. |
| 2. Caenant Terrace, Skewen, Neath | Inability of ex storm drainage system to cope with flows from intense and sustained rainfall. | 5.7 : 1 | Sort Term | 33 | - | Watercourse known locally as Caenant Brook. |
| 3. Dan-y-Coed, Tonmawr, Neath | Structural integrity and inability of a number of culverts to carry watercourses and issues. | - | Short Term | 96 | 3* | Properties erected between issues, above culverts and receiving River Pelenna. * Includes a Community Centre. |
| 4. Day's Garage A474 Neath Abbey Road | Inability of culverts to carry flows effectively due to obstructions downstream and above discharge point. | 2.6 : 1 | Short Term | 12 | - | Obstructions slow the rate of flow and as a result widespread siltation has occurred at and immediately above culverts. A series of linked ponds with linking culverts all exhibit signs of heavy siltation. |
| 5. Depot Road, Cwmavon | Inability of 2 culverts to cope following blockage of watercourses. | 6.6 : 1 | Short Term | 15 | 2 | Flows down W end of Depot Road and into School Terrace, flooding properties. History of flooding over past 20 years, affecting the highway, houses and commercial premises. |
| 6. Drummau Road / Ellens Row Skewen | Inability of watercourse in culvert to cope with prolonged and intensive rainfall. | 3.6 :1 | Short Term | 31 | 6 | Risk to properties increased by steep topography which heightens concerns about flows escaping from ex drainage system. |

| Project Name | Cause of Flooding | Cost/ Benefit ratio | Timescale | No. Affected | | Comments |
|---|--|---------------------------|------------|--------------|----------|--|
| | | | | Props | Business | |
| 7. Gellinudd area, Alltwen, Pontardawe | 4 watercourses, partly in open ditch and culvert under roads, accesses and property are unable to cope with run-off from storm events. | 1.9 : 1 | Short Term | 41 | 1** | The Ashwood Drive area also suffers from more general flooding from small watercourse under Drive. ** Flooding also affects highways and restricts access to Gellinudd Hospital. |
| 8. Graig Road, Trebanos | Concentration of fast land drainage run-off down Graig Road. | 2.3 :1 | Short Term | 11 | - | At upper end of Graig Road flows retained within high earth banks. Ex drainage arrangement can only cope with minor storms. |
| 9. Grandison Brook, Briton Ferry | Inability of Grandison Brook with all but minor storms. | 2.0 : 1 | Short Term | 22 | 2 | Problem centered on culverted section at upstream approach to, and across Pantyrheol Road i.e. open watercourse immediately before culvert. |
| 10. Heol Crwys, Cwmavon | Inability of culverted section of the Nant Cwm Mawr watercourse to cope with storm events. | 12.0 : 1 | Short Term | 33 | 1 | Maintenance of the culvert and problematic manhole structure is difficult due to access and H&S considerations. |
| 11. Pentwyn Baglan Area of Port Talbot | Flooding from watercourse above Pentwyn Estate due to obstruction of debris gathering in culverted section. | 25.0 : 1 | Short Term | 5 | -*** | Watercourse known as Baglan Brook and discharges into M4 drainage. Essential for DCWW pumps to operate continually at Seaway Parade Surface Water Pumping Station. Latest flooding event 08.10 *** Highways significantly affected. |
| 12. Rock Street Lancaster Close, Glynneath | Significant flooding events in Winter '07 and Autumn '10 | - | Short Term | 4 | - | Area high on list of EA "Community Risk Register" with increased flood risk from ordinary watercourse. Area highlighted in map at Fig 6-5 as an area of potential future flooding. |

ANNEX 9 – RESERVOIRS AND LARGE PONDS

A list of reservoirs and large ponds together with their Ordnance Survey co-ordinates is as follows:-

1. Eglwys Nunydd Reservoir (near Margam Crematorium) - OS 279421, 185093
2. Glyncorwg Ponds - OS 286906, 198122
3. Tonmawr 'settling' ponds - OS 279992, 197145
4. Gnoll Country Park Ponds (reservoir) - OS 276524, 197439
5. Mosshouse Wood Reservoir - OS 275713, 198078
6. Cefn Cwrt Reservoir - OS 275310, 193936
7. Smallwood Road Reservoir - OS 275713, 192061
8. Bwlch Road Reservoir (Covered) - OS 276450, 192553
9. Forest Lodge Reservoir, Bryn - OS 278639, 191642
10. Ty'n Y Graig fishponds, Crynant - OS 278934, 204262
11. Walters Arena ponds - OS 285949, 208687
12. Opencast lagoons above Seven Sisters - OS 281946, 207638
13. Cwm Clydach Ponds - OS 273974, 198831
14. Opencast Lagoons above Tairgwaith - OS 272199, 212326
15. Oil Refinery at Llandarcy - OS 271432, 196549

10. REFERENCES

1. Welsh Government Document Technical Advice Note (TAN) 15: Development and Flood Risk: July 2004
2. Neath Port Talbot County Borough Council “Strategic Flood Consequences Assessment”
3. Defra (2010) Publication “Selecting and reviewing Flood Risk Areas for local sources of flooding : Guidance to Lead Local Flood Authorities”
<http://www.defra.gov.uk/environment/flooding/documents/research/flood-riskmethod>
4. Neath Port Talbot County Borough Council Lead Flood Authority “Preliminary Flood Risk Assessment” March 2011
5. Welsh Government “National Strategy for Flood and Coastal Erosion Risk Management in Wales” November 2011
6. Defra (March 2005) Publication “Making Space for Water – Taking forward a new Government Strategy for Flood and Coastal Erosion Risk Management in England”
7. Welsh Government Local Flood Risk Management Strategies – Local Strategy November 2011
8. Neath Port Talbot County Borough Council Local Flood Risk Management Strategy – Strategic Environmental Assessment Environmental Report
9. Neath Port Talbot County Borough Council Local Flood Risk Management Strategy – Habitats Regulations Appraisal Stage 1 – Screening
10. European Commission Directive 2007/2/EC “Infrastructure for Spatial Information in the European Community” (INSPIRE entered into force on the 15th May 2007)

11. GLOSSARY OF TERMS

A

Act – a Bill approved by the House of Commons and the House of Lords and has the Royal Assent.

Assets – structures used to manage flood risk.

B

Bill – a written proposal for a new law or a proposal to change an existing law discussed and voted upon by member of a legislative assembly.

Building Regulations – The UK Building Regulations are rules of a statutory nature to set standards for the design and construction of buildings. Primarily to ensure the safety and health for people in and around those buildings, but also for the purposes of energy conservation, sustainability and access to and about other buildings.

C

Catchment – An area in which the rainfall drains to a single watercourse.

CFMP – Catchment Flood Management Plans – provide an overview of the flood risk across each river catchment and estuary. They recommend ways of managing those risks now and in the future.

Climate Change – changes in the climate over time, it can be due to natural variability or due to human activity.

Coastal erosion – erosion or wearing away of the coastline, usually due to wind or wave action.

Coastal erosion risk – measurement of the significance in regards to likelihood and impact, of potential coastal erosion.

Coastal flooding – flooding caused by coastal defences being unable to contain the normal predicted high tides, or high tides that have combined with a storm surge.

Culvert – a covered channel that carries water or cabling under a road or railway, or through an embankment.

COMAH – Control of Major Accident Hazards.

D

Defences – a structure that is used to reduce the likelihood of floodwater or coastal erosion.

E

NRW/EA – Natural Resources Wales - executive non-departmental public body responsible to the Welsh Government.

F

FCERM – Flood and Coastal Erosion Risk Management.

Flood – where land not normally covered by water becomes covered by water.

Flood and Water Management Act 2010 – provides legislation for the management act of risks associated with flooding and coastal erosion. It reinforces the need to manage flooding holistically and in a sustainable manner.

Flood risk – probability of flooding occurring and the consequences when flooding happens.

Flood risk management – deals with the probability and consequences of flooding and seeks to change these factors to reduce the flood risk to people, property and the environment.

Flood Risk Management Wales – The Regional Flood and Coastal Committee (RFCC) for Wales.

G

Groundwater – water flowing or collecting under the ground in the soil or in pores and crevices in rock.

Groundwater flooding – occurs when water levels in the ground rise above the natural surface.

H

I

IDB – Internal Drainage Boards – An operating authority which specialises in areas of special drainage need in England and Wales with powers to undertake work to secure clean water drainage and water level management within drainage districts. The area is determined by water catchment areas within a given region.

J

Joint Resilience Unit – supports the delivery of civil preparedness and business continuity services within the authorities, working closely with the emergency services, NRW, and other relevant bodies in the event of flood emergencies.

K

L

LLFA – Lead Local Flooding Authority – (Local Authority) the County Council or County Borough Council for the area.

Local flood risk – Defined in Flood and Water Management Act 2010 as flood risk from - surface runoff, groundwater, and ordinary watercourses.

Local Flood Risk Management Strategy – LFRMS - See section 10 of Flood and Water Management 2010. Strategy plans how local flood risks will be managed. To be undertaken by the LLFA.

M

Main River - a watercourse shown as such on a main river map and includes any structure or appliance for controlling or regulating the flow of water into, in or out of the channel. The EA has responsibility and powers for this.

N

O

Ordinary watercourses – a watercourse that does not form part of a main river.

P

PFRA – Preliminary Flood Risk Assessment

Q

R

Recovery – the process of restoring something to its normal or improved state within a community after the occurrence of a flooding incident.

Reservoir – a large tank or natural or artificial lake used for collecting and storing water for human consumption or agricultural use, hydroelectric power or to control water flow.

Risk assessment – process of identifying potentially significant flooding events by assessing their likelihood and impacts.

Risk management – activities or strategies carried out to analyse, assess and reduce the flood risk in an area.

Risk Management Authority – According to the Flood and Water Management Act 2010 the Welsh Risk Management Authority is the Environment Agency.

River flooding – flooding that occurs when the water level in a channel overwhelms the maximum capacity of that channel.

S

SuDS – Sustainable Drainage Systems – reduce excess water build-up by mimicking natural drainage processes and patterns.

Surface water flooding – surface water runoff exceeds the capacity of the drainage systems to remove it, causing flooding.

T

U

V

W

Watercourse – Defined in the Land Drainage Act as; all rivers and streams and all ditches, drains, cuts, culverts, dikes, sluices, sewers and passages, through which water flows.

WFD – Water Framework Directive.

X

Y

Z
