Members' Library Service Request Form

Date of Document	29/04/16
Originator	David Northcott
Originator's Ref (if any)	
Document Title	Local Flood Risk Management Plan

Please indicate if access to the document is to be "unrestricted" or "restricted", with regard to the terms of the Local Government (Access to Information) Act 1985.

Unrestricted	☐	Restricted	☐

If the document is "restricted", please state on what grounds (click on grey area for drop-down menu):

For Publication

Please indicate which committee this document should be recorded into (click on grey area for drop-down menu):

Cabinet

Additional information:

Appendix 3 referred to in report to Cabinet, 10 May 2016, entitled Local Flood Risk Management Plan

Authorised By	Monica Paterson
Designation	Depute Chief Executive
Date	29/04/16

For Office Use Only:	
Library Reference	47/16
Date Received	29/04/16
Bulletin	Apr 2016

Annex 2: Local Plan District roles & responsibilities

1. Roles and responsibilities for flood risk management planning

Individuals are the first line of defence against flooding. However, public bodies have responsibilities too and are working together to reduce the impacts of flooding in Scotland. Responsibility for flood risk management planning falls in the main to SEPA, local authorities and Scottish Water. However, individuals have a personal responsibility to protect themselves and their property.

Some of the key roles are outlined below and more information is available from the SEPA website.

Your responsibilities

Organisations and individuals have responsibilities to protect themselves from flooding. Being prepared by knowing what to do and who to contact if flooding happens can help you reduce the damage and disruption flooding can have on your life.

The first step to being prepared is signing up to Floodline (http://www.sepa.org.uk/environment/water/flooding/floodline/) so you can receive messages to let you know where and when flooding is likely to happen. Other useful tools and advice on how to be prepared are available on the Floodline (http://www.floodlinescotland.org.uk/) website including a quick guide on whom to contact in the event of a flood. You can also check how your area could be affected by flooding by looking at SEPA's flood maps. (http://www.sepa.org.uk/environment/water/flooding/flood-maps/)

SEPA

SEPA is Scotland's national flood forecasting, flood warning and strategic flood risk management authority. SEPA have a statutory duty to produce Scotland's Flood Risk Management Strategies. SEPA work closely with other organisations responsible for managing flood risk through a network of partnerships and stakeholder groups to ensure that a nationally consistent approach to flood risk management is adopted. SEPA also has a responsibility to identify where in Scotland there is the potential for natural flood management techniques to be introduced. Natural flood management is the use of the natural features of the land to store and slow down the flow of water. In running Floodline, SEPA provide live flooding information and advice on how to prepare for, or cope, with the impacts of flooding 24 hours a day, seven days a week. To help forecast for flooding SEPA work closely with the Met Office (http://www.metoffice.gov.uk/).

To raise awareness of flooding at a national level SEPA runs education initiatives, community engagement programmes and an annual campaign to promote the useful

advice and information available through Floodline. SEPA work in partnership with local authorities, Neighbourhood Watch Scotland, Ready Scotland and others to share our resources and help to promote preparedness and understanding of how flood risk is managed.

Local authorities

Local authorities work together for flood risk management planning purposes through a single lead authority which has the responsibility to produce a Local Flood Risk Management Plan. Local authorities have worked collaboratively in the manner described above to develop these.

It is the responsibility of your local authority to implement its flood risk management actions agreed within the Flood Risk Management Strategy, assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. You can help your local authority to manage flooding by letting them know if debris is blocking watercourses or if flood defences are tampered with.

During severe flooding, local authorities will work in partnership with the Emergency and Health Services, SEPA, Met Office, Scottish Water, Voluntary Organisations and other agencies to coordinate the response to the incident. Local authority responsibilities may include activating flood defence systems (where appropriate), road traffic management – closures and diversions, assisting with warning and alerting arrangements, contributing to media and public information strategies, establishing emergency rest centres for the care and welfare of persons evacuated or affected, coordinating the longer term recovery measures for rehabilitation of the community and restoration of the environment. Local authorities may provide sandbags and other flood prevention controls, though there is no requirement for local authorities to do this.

The City of Edinburgh Council was responsible for the development and publishing of this Plan.

Other local authorities who are responsible authorities within the Forth Estuary Local Plan District are:

- Clackmannanshire Council
- East Dunbartonshire Council
- East Lothian Council
- Falkirk Council
- Fife Council
- Midlothian Council

- North Lanarkshire Council
- Perth & Kinross Council
- Scottish Borders Council
- South Lanarkshire Council
- Stirling Council
- West Lothian Council

Scottish Water

Scottish Water is a responsible authority for flood risk management and is working closely with SEPA, local authorities and other responsible authorities to coordinate plans to manage flood risk.

Scottish Water has the public drainage duty and is responsible for foul drainage and the drainage of rainwater run-off from roofs and any paved ground surface from the boundary of properties. Additionally, Scottish Water helps to protect homes from flooding caused by sewers either overflowing or becoming blocked. Scottish Water is not responsible for private pipework or guttering within the property boundary. To find out more about waste water flooding visit the Scottish Water website (http://www.scottishwater.co.uk/you-and-your-home/your-home/flooding-information)

Other organisations

- The **Scottish Government** oversees the implementation of the Flood Risk Management (Scotland) Act 2009 which requires the production of Flood Risk Management Strategies and Local Flood Risk Management Plans. Scottish Ministers are responsible for setting the policy framework for how organisations collectively manage flooding in Scotland. Scottish Government has also approved the Flood Risk Management Strategy.
- **Scottish Natural Heritage** has provided general and local advice in the development of the Flood Risk Management Strategy for the Forth Estuary Local Plan District. Flooding is seen as a natural process that can maintain the features of interest at many designated sites, so Scottish Natural Heritage helps to ensure that any changes to patterns of flooding do not adversely affect the environment. Scottish Natural Heritage also provides advice on the impact of Flood Protection Schemes and other land use development on designated sites and species.
- **Forestry Commission Scotland** was designated in 2012 as a responsible authority for flood risk management planning purposes and has engaged in the development of the Flood Risk Management Strategies through national and local advisory groups. This reflects the widely held view that forestry can play a significant role in managing flooding.

- During the preparation of the first flood risk management plans **Network Rail** and **Transport Scotland** have undertaken works to address flooding at a number of frequently flooded sites. Further engagement is planned with SEPA and local authorities to identify areas of future work. There is the opportunity for further works to be undertaken during the first flood risk management planning cycle although locations for these works are yet to be confirmed.
- **Edinburgh Airport** has constructed flood protection measures within the airport boundary and operates a site protection plan.
- **Utility companies** have undertaken site specific flood risk studies for their primary assets and have management plans in place to mitigate the effects of flooding to their assets and also minimise the impacts on customers.
- The **Met Office** provides a wide range of forecasts and weather warnings. SEPA and the Met Office work together through the Scottish Flood Forecasting Service (http://www.sepa.org.uk/environment/water/flooding/forecasting-flooding/).
- The **emergency services** provide emergency relief when flooding occurs and can coordinate evacuations. You should call the emergency services on 999 if you are concerned about your safety or the safety of others and act immediately on any advice provided.
- **Historic Scotland** considers flooding as part of their regular site assessments. As such, flooding is considered as one of the many factors which inform the development and delivery of its management and maintenance programmes.
- The **Coal Authority** is a consultee for planning applications in defined areas within East Lothian local authority area.
- **Marine Scotland** is a consultee for planning applications, studies etc. in defined areas around East Lothian's coastline.
- The **National Health Service** is constructing flood protection measures at the Edinburgh Royal Infirmary in Little France, Edinburgh.
- **National Trust for Scotland** is the Reservoir Manager under the Reservoirs (Scotland) Act 2011 for Mire Loch located to the West of St Abbs Head. The Loch is the only reservoir located in Potentially Vulnerable Area 10/26 Berwickshire Coast, currently assessed under Reservoir (Scotland) Act 2011. As required under the act the National Trust for Scotland will fulfil their duties as Reservoir Manager, ensuring the appropriate management of the reservoir which will mitigate the risk of an uncontrolled release of water from the Loch which may result in flooding.
- **Forth Ports** operate at six locations within the Forth Estuary Local Plan district: Leith, Grangemouth, Rosyth, Kirkcaldy, Methil and Burntisland. Within and around the Forth Estuary, Forth Ports is also responsible for the management of navigable waters including dredging. Tidal levels within each port are monitored locally and in the case of Leith, Grangemouth. Methil and Rosyth and live updates are available.

Forth Ports receive flood warnings from SEPA and has the ability to discharge water. Forth Ports impounds the Water of Leith, as this is necessary to undertake its routine business. In the case of Leith, Forth Ports operates the dock gates and the overflow culvert in an appropriate manner. It retains the water at a given level and monitors water levels (having access to telemetry and receive flood alerts) and weather forecasts. Forth Ports then draw the water level down if necessary. It should also be noted that, should flooding occur, this would have an impact on the docks, therefore, it is in the interest of Forth Ports, to manage the situation appropriately. Forth Ports dredges the area of the harbour under its control for the requirements of ship movements.

Annex 3: Consultation and engagement

A full public consultation was held during the development of the Forth Estuary Flood Risk Management Strategy and the Plan. The consultation held in 2015 was a joint exercise between SEPA and the lead authority. The purpose of the consultation was to seek views from everyone – from individuals and businesses at risk to flooding, from interested community groups as well as from those organisations with an interest in how flood risk is managed and delivered.

The Forth Estuary Consultation was viewed on 3,737 occasions and comments were made by 22 respondents. Of those that left comments the majority were broadly in agreement with the information presented and the actions promoted to address the issues[10]. The views and representations of the respondents were taken into account in developing and finalising this Plan.

As detailed in Chapter 1 of the Plan, following the consultation on the Flood Risk Management Strategies which closed on 2 June 2015, there has not been any further formal communications or engagement in relation to this Plan.

The following councils presented the findings of their consultation to elected members as follows:

City of Edinburgh Council

The City of Edinburgh Council presented the findings of the consultation to their elected members on 25 August 2015 as detailed here:http://www.edinburgh.gov.uk/meetings/meeting/3735/transport_and_environment_committee under item 7.5.

East Lothian Council

East Lothian Council presented the findings of the consultation in a Flood Risk Management update report to their elected members on 1 December 2015 as detailed here:
http://www.eastlothian.gov.uk/meetings/meeting/5672/members_library_service under items 31-33.

Falkirk Council

Falkirk Council presented the findings of the consultation in a Flood Risk Management update report to their elected members on 16 December 2015 as detailed here:
https://www.falkirk.gov.uk/coins/submissiondocuments.asp?submissionid=11730 under Part 3.

[10] Public Consultation for Forth Estuary Local Plan District Number 10 Digest, City of Edinburgh Council (July 2015)

Fife Council

Fife Council presented the findings of the consultation to their elected members on 23 June 2015 as detailed here: http://www.fifedirect.org.uk/publications/index.cfm?fuseaction=publication.pop&pubid=00D35649-0D6A-6C03-88A22B9F288F29A8 under item No. 17.

North Lanarkshire Council

North Lanarkshire Council presented the findings of the consultation in a Planning and Transportation Committee update to their elected members on 23 September 2015 as detailed here: https://mars.northlanarkshire.gov.uk/egenda/images/att81747.pdf under Part 4.

Perth and Kinross

Perth and Kinross Council presented the findings of the consultation in a Flood Risk Management update report to their elected members on 9 September 2015 as detailed here: http://www.pkc.gov.uk/CHttpHandler.ashx?id=32972&p=0

West Lothian Council

During the 2015 consultation West Lothian Council informed all Local Members, advised all Community Councils and met with and advised the relevant Council Departments through a local Flood Group set up to discuss the flood risk management processes. West Lothian Council presented the findings of the consultation to their elected members on 10 March 2015 as detailed here: http://coins.westlothian.gov.uk/coins/viewSelectedDocument.asp?c=P62AFQDX2U0G81Z3 under Part 2.

Further consultation has been undertaken by the following councils:

City of Edinburgh Council

Since June 2015, the Council has held two Public Information Open Days for the Water of Leith Flood Prevention Scheme Phase 2. These were held at Roseburn Primary School, one on 19 August 2015 and most recently on 13 January 2016. The City of Edinburgh Council has also held Stakeholder Engagement Group meetings, which were on 27 October 2015, 26 January 2016 and 25 May 2016.

There have also been many regular meetings with individual residents, businesses and local communities such as the Friends of Roseburn Park. The Contractor for the works, McLaughlin and Harvey, have also commenced their public stakeholder management duties which include the requirement to keep all interested parties advised of the works.

East Lothian Council

Public Consultation is to be undertaken at various stages of the Musselburgh Flood Protection Scheme. This is likely to be in the form of Public Information Open Days and Stakeholder Engagement Group meetings.

Annex 4: Links to other plans, policies, strategies and legislative requirements

1. Links to other plans, policies, strategies and legislative requirements

Responsible Authority	Details of Plan	Hyperlink or web access
SEPA	The river basin management plan for the Scotland river basin district: 2015–2027	https://www.sepa.org.uk/media/163445/the-river-basin-management-plan-for-the-scotland-river-basin-district-2015-2027.pdf
SEPA	FRM Strategy Forth Estuary Local Plan District, December 2015	http://apps.sepa.org.uk/FRMStrategies/forth-estuary.html
SEPA	FRM Strategies for Scotland Environmental Report, December 2015	http://www.gov.scot/Topics/Environment/environmental-assessment/sea/SEAG
SEPA	Land use planning guidance	http://www.sepa.org.uk/environment/land/planning/
City of Edinburgh Council	A Strategic Environmental Assessment Screening Report Case title: Forth Estuary Local Flood Risk Management Plan (Local FRM Plan) Case ID:SEA\01138	http://www.gov.scot/Topics/Environment/environmental-assessment/sea/SEAG
City of Edinburgh Council	Forth Estuary Local FRM Plan SEA Screening Report and Responses	http://www.gov.scot/Topics/Environment/environmental-assessment/sea/SEAG
City of Edinburgh Council	Local Development Plan	http://www.edinburgh.gov.uk/info/20069/local_plans_and_guidelines/64/local_plans
City of Edinburgh Council	Strategic Development Plan	http://www.edinburgh.gov.uk/info/20013/planning_and_building/1311/strat

Responsible Authority	Details of Plan	Hyperlink or web access
		egic_development_plan
Clackmannanshire Council	Local Development Plan	http://www.clacksweb.org.uk/property/developmentplanupdate/
East Lothian Council	Local Development Plan	http://www.eastlothian.gov.uk/info/204/statutory_development_plans/231/statutory_development_plans
East Lothian Council	Shoreline Management Plan	http://www.eastlothian.gov.uk/smp
Falkirk Council	Local Development Plan	http://www.falkirk.gov.uk/services/planning-building/planning-policy/local-development-plan/
Falkirk Council	National Planning Framework 3	(http://www.gov.scot/Publications/2014/06/3539/0)
Fife Council	TAYPlan and SESPlan are the soon to be adopted Strategic Development Plans	http://www.fifedirect.org.uk/topics/index.cfm?fuseaction=service.display&p2sid=BA85256B-C559-16FB-C2D8A09D3FEB7E83&themeid=2B482E89-1CC4-E06A-52FBA69F838F4D24
Fife Council	Local Development Plan due to be adopted in 2016	http://www.fifedirect.org.uk/topics/index.cfm?fuseaction=service.display&p2sid=BA85256B-C559-16FB-C2D8A09D3FEB7E83&themeid=2B482E89-1CC4-E06A-52FBA69F838F4D24
Fife Council	Adopted St Andrews & East Fife Local Plan	http://fife-consult.objective.co.uk/portal/local_view_fusion/eflp/eflp
Fife Council	Adopted Mid Fife Local Plan	http://fife-consult.objective.co.uk/portal/local_view_fusion/mid_fife_local_plan/mflp
Fife Council	Adopted Dunfermline & West Fife Local Plan	http://fife-consult.objective.co.uk/portal/local_view_fusion/dunfermline__west_fife_local_plan/wflp
Fife Council	South East Scotland and Tay Strategic Transport Plans	http://www.sestran.gov.uk/ http://www.tactran.gov.uk/
Fife Council	Shoreline Management Plan	http://www.fifedirect.org.uk/minisites/index.cfm?fuseaction=page.display&pageid=C040877C-B767-3F71-8454BE5167C5BC58&siteID=C03E446A-0241-A6A5-

Responsible Authority	Details of Plan	Hyperlink or web access
		7462DD169B215841
North Lanarkshire Council	Glasgow and Clyde Valley City Deal	http://www.northlanarkshire.gov.uk/index.aspx?articleid=31901
North Lanarkshire Council	Local Development Plan	http://www.northlanarkshire.gov.uk/index.aspx?articleid=16016
North Lanarkshire Council	Strategic Development Plan	http://www.clydeplan-sdpa.gov.uk/sdp/approved-strategic-development-plan-may-2012
Midlothian Council	Local Development Plan and Strategic Development Plan	www.Midlothian.gov.uk
Perth and Kinross Council	Local Development Plan	http://www.pkc.gov.uk/developmentplan
Perth and Kinross Council	Local Development Plan	http://www.pkc.gov.uk/CHttpHandler.ashx?id=23633&p=0
Perth and Kinross Council	Strategic Development Plan	http://www.tayplan-sdpa.gov.uk/system/files_force/publications/Approved_TAYplanSDP_June2012_0.pdf?download=1
Perth and Kinross Council	Strategic Development Plan (TAYPlan Website)	http://www.tayplan-sdpa.gov.uk/strategic_development_plan
Scottish Borders Council	Local and Statutory Development Plans	http://www.scotborders.gov.uk/info/178/local_and_statutory_development_plans
Scottish Borders Council	Harbour Road, Eyemouth Development Framework.	http://www.scotborders.gov.uk/directory_record/32521/harbour_road_eyemouth_development_framework
Scottish Water	General Guidance on Flooding	https://www.scottishwater.co.uk/you-and-your-home/your-home/flooding-information
West Lothian Council	West Lothian Local Plan 2009	http://www.westlothian.gov.uk/WLLP
West Lothian	West Lothian Local	http://www.westlothian.gov.uk/LDP -

Responsible Authority	Details of Plan	Hyperlink or web access
Council	Development Plan (at consultation stage at the moment and will replace 2009 Local Plan)	
West Lothian Council	Strategic Development Plan	http://www.sesplan.gov.uk/assets/assets/files/docs/290813/SESplan%20Strategic%20Development%20Plan%20Approved%2027%20June%202013.pdf –

2. S18 Schedule of Clearance and Repair

The following are links for each local authority to access schedules of clearance and repair under Section 18 of the Flood Risk Management (Scotland) Act 2009:

Local Authority	Method of public access to the S18 Schedule	Hyperlink ,web access or contact details
The City of Edinburgh Council	Council website	http://www.edinburgh.gov.uk/info/20045/flooding
Clackmannanshire Council	Council website	http://www.jbamap.co.uk/ClacksAssetRegister/
East Lothian Council	By request via e-mail enquiries	customerservices@eastlothian.gov.uk
Falkirk Council	By request via telephone and email enquiries	Requests to inspect records can be made by telephoning, 01324 506070 or by emailing: contact.centre@falkirk.gov.uk
Fife Council	Council website	http://www.fifedirect.org.uk/topics/index.cfm?fuseaction=page.display&p2sid=618DD563-ABBC-ECA5-1675450324EED528&themeid=81E299FB-1BCF-4994-8C8A-233463B738F6

Local Authority	Method of public access to the S18 Schedule	Hyperlink ,web access or contact details
Midlothian Council	By request via enquiries on our public Website	http://www.Midlothian.gov.uk enquiries@midlothian.gov.uk
North Lanarkshire Council	By request via enquiries	Available for inspection From Roads & Transportation at Fleming House, 2 Tryst Road, Cumbernauld G67 1JW
Scottish Borders Council	Council website	http://www.scotborders.gov.uk/info/1228/emergencies-flooding
Perth and Kinross Council	Council website	http://www.pkc.gov.uk/CHttpHandler.ashx?id=22028&p=0
West Lothian	By request via enquiries	Flood Risk Management Team, Guildyhaugh Depot, Blackburn Road, Bathgate , EH48 2EB Tel: 01506 776591

3. Integrated Catchment Studies

As discussed in Section 1.7.3 of this Plan, Scottish Water are working in partnership with local authorities to develop Integrated Catchment Studies across the Forth Estuary Local Plan District. The following summaries each local authority's input, in partnership with Scottish Water, to Integrated Catchment Studies within the Forth Estuary Local Plan District:

The City of Edinburgh Council, East Lothian Council and Midlothian Council
Scottish Water is leading on an Integrated Catchment Study (ICS) for The City of Edinburgh, East Lothian and Midlothian Councils and this is progressing well. The local authorities will interact with Scottish Water as the ICS will inform the Surface Water Management Plan that the local authorities will produce. Scottish Water recently presented the findings to date to these local authorities as part of their validation exercise. It was concluded that the results presented accurately reflected flooding as understood by these authorities at present. Scottish Water has now entered the pre-optioneering phase of this study.

Clackmannanshire Council
Clackmannanshire Council has no current integrated catchment studies within the boundary of The Forth Estuary Local Plan District.

East Dunbartonshire Council
East Dunbartonshire Council has no current integrated catchment studies within the boundary of The Forth Estuary Local Plan District.

Falkirk Council
Integrated catchment studies are being progressed collaboratively with Scottish Water covering the sewer catchment area of Bo'ness Waste Water Treatment Works (WWTW), Dalderse and Kinniel Kerse WWTW. A further smaller study following the same principle is being undertaken in parallel for Slamannan WWTW catchment. The outputs of these studies will inform the surface water management planning process and inform the overall Falkirk Council Surface Water Management Plan.

Fife Council
Scottish Water, in partnership with Fife Council, is undertaking two Integrated Catchment Studies, Dunfermline and Ironmill Bay, and Levenmouth. The outputs of these studies will inform the surface water management planning process within the Fife Council area.

North Lanarkshire Council
North Lanarkshire Council is working in partnership with Scottish Water to undertake an Integrated Catchment Study which will cover Cumbernauld (East). An initial scoping meeting has taken place for the Dunnswood Sewer Catchment serving Cumbernauld (East). The Dunnswood Integrated Catchment Study is one of the top 15 prioritised studies put forward for inclusion in the Scottish Water Business Plan (2015-2021) to support surface water management planning.

Perth and Kinross Council.
Perth and Kinross Council has no current integrated catchment studies within the boundary of The Forth Estuary Local Plan District.

Scottish Borders Council
There are no integrated catchment studies scheduled for PVA 10/26 Berwickshire Coast during the first flood risk management planning cycle 2016 – 2022.

Stirling Council
Stirling Council has no current integrated catchment studies within the boundary of The Forth Estuary Local Plan District.

South Lanarkshire Council
South Lanarkshire Council has no current integrated catchment studies within the boundary of The Forth Estuary Local Plan District.

West Lothian Council
Two of the 15 Scottish Water priority areas for Integrated Catchment studies in the 2015 – 2021 programme, are in West Lothian Councils area, namely, Linlithgow and Bathgate catchments. Scottish Water are leading the studies in partnership with West Lothian Council. The overall aim of the Integrated Catchment Studies is to understand the interactions between all drainage pathways and flooding mechanisms in order for solutions to be identified and appraised to reduce overall flood risk. The Integrated Catchment Studies at Linlithgow and Bathgate are confirmed as actions in West Lothian Council's Surface Water Management Plan.

4. Surface water management planning

As discussed in Section 1.7.4 of this Plan, Surface water flooding is experienced in all Plan areas and therefore there is a need for Surface Water Management Planning. The following summarises the work being planned/carried out by local authorities, in partnership with Scottish Water and SEPA, on Surface Water Management Planning within the Forth Estuary Local Plan District:

The City of Edinburgh Council, East Lothian Council and Midlothian Council As discussed in Section 1.7.3 of this Plan Scottish Water is leading on an Integrated Catchment Study (ICS) for The City of Edinburgh, East Lothian and Midlothian Councils and this is progressing well. The local authorities will interact with Scottish Water as the ICS will inform the Surface Water Management Plan that the local authorities will produce.

To ensure that a meaningful SWMP is prepared it is intended to wait until the ICS is complete and to draw on the valuable lessons learned and areas of good practice identified in progressing this study. The local authorities will lead on the development of surface water management plans for their area in partnership with Scottish Water and SEPA and other relevant authorities where required. This will include agreeing the most sustainable actions to manage surface water and coordinating the implementation of these actions. The data for SWMP depends on the completion of the Edinburgh / Lothians ICS. Therefore The City of Edinburgh Council and East Lothian Council's work on SWMP for their respective areas will start towards the end of the cycle (2021). Midlothian Council have yet to commence a SWMP for the county, however Midlothian Council intend to progress the SWMP in the first half of the current six year Cycle.

Clackmannanshire Council
Clackmannanshire Council has no Surface Water Management Planning Actions to deliver within the boundary of The Forth Estuary Local Plan District.

Falkirk Council

Integrated catchment studies are being progressed collaboratively with Scottish Water covering the sewer catchment area of Bo'ness WWTW, Dalderse and Kinniel Kerse WWTW. A further smaller study following the same principle is being undertaken in parallel for Slamannan WWTW catchment. The outputs of these studies will inform the surface water management planning process and inform the overall Falkirk Council Surface Water Management Plan. The Surface Water Management Plan will be led by Falkirk Council but involve collaborative working with Scottish Water, SEPA and other relevant authorities where required. This will include agreeing the most sustainable actions to manage surface water and coordinating the implementation of these actions.

East Dunbartonshire Council

East Dunbartonshire Council has no Surface Water Management Planning Actions to deliver within the boundary of The Forth Estuary Local Plan District.

Fife Council

Development of two surface water management plans are planned in Fife during the current flood risk management cycle which will cover 4 PVA's. Two Integrated Catchment Studies are being undertaken in partnership with Scottish Water. Fife Council will interact with Scottish Water as the ICS will inform the Surface Water Management Plans that the local authority will produce. Fife Council will lead on the development of surface water management plans for their area in partnership with Scottish Water and SEPA and other relevant authorities where required. This will include agreeing the most sustainable actions to manage surface water and coordinating the implementation of these actions.

North Lanarkshire Council

North Lanarkshire Council will be starting work on a Surface Water Management Plan for Cumbernauld (East) in the first cycle (2016-2022) of the Local Flood Risk Management Plan. This will be supported by an Integrated Catchment Study led by Scottish Water working in partnership with North Lanarkshire Council that will also be undertaken in the first cycle. The indicative delivery period for the Cumbernauld (East) Surface Water Management Plan is 2016 to 2027. The Surface Water Management Plan will be led by North Lanarkshire Council but involve collaborative working with Scottish Water, SEPA and other relevant authorities where required. This will include agreeing the most sustainable actions to manage surface water and coordinating the implementation of these actions.

Perth and Kinross

Following the Milnathort Surface Water Investigation report by consultants Atkins in 2011, Perth and Kinross Council's surface water management plan for Milnathort will be implemented through a surface water flood protection scheme in Milnathort. The scheme will involve new drainage measures, underground storage and pumping

stations to provide a 1 in 100 year standard of protection against surface water flooding and will include an additional allowance for climate change. Outline design will commence in 2016/17 with the scheme set to be implemented by 2018/19, subject to funding. Perth and Kinross Council will coordinate all activity to implement the scheme with SEPA and Scottish Water.

Scottish Borders Council
There is no formal Surface Water Management Plan scheduled to be undertaken in PVA 10/26 Berwickshire Coast during the first flood risk management planning cycle 2016 – 2022.

Stirling Council
Stirling Council has no Surface Water Management Planning Actions to deliver within the boundary of The Forth Estuary Local Plan District.

South Lanarkshire Council
South Lanarkshire Council has no Surface Water Management Planning Actions to deliver within the boundary of The Forth Estuary Local Plan District.

West Lothian Council
Four surface water management plan priority areas have been identified in SEPA's catchment characterisation reports within the area administered by West Lothian Council. This is based on the number of residential and business properties estimated to be at risk of flooding. These priority areas are Bathgate, Broxburn, Linlithgow and Livingston.

The Surface Water Management Plan was prepared by and on behalf of the West Lothian Council by independent consultants, Mott MacDonald, in liaison with and managed by officers from the Flood Risk Management team. It was prepared in accordance with guidance published by the Scottish Advisory and Implementation Forum for Flooding (SAIFF) which includes representatives from the Scottish Government, local authorities, SEPA and Scottish Water. Works have been identified in the SWMP but no timescale can be set for these works until a funding process is agreed. It is likely these works will be implemented in a later planning cycle.

Annex 5: Land use planning

The following information has been extracted from the Forth Estuary Flood Risk Managing Strategy[11].

Flood risk management actions from national planning policies

1. **Avoid development in medium to high risk areas**
    a. **Planning authorities** work in partnership undertaking catchment-wide Strategic Flood Risk Assessments to inform their development plan allocations in line with SEPA's guidance and Land Use Vulnerability.
    b. **Planning authorities and SEPA** require the submission of flood risk assessments that accord with SEPA's *Technical Flood Risk Guidance for Stakeholders*, to support planning applications where there is a potential flood risk. The flood risk assessment should be used to demonstrate as far as possible that the development will be safe for its lifetime, without increasing flood risk elsewhere and, where possible, takes opportunities to reduce flood risk overall.
    c. **SEPA** ensures that its flood risk advice to planning authorities is clear and appropriate. SEPA, in consultation with planning authorities, undertakes an annual assessment of planning advice and its contribution to flood risk.
    d. **SEPA and planning authorities** engage at an early stage of the development plan process to agree appropriate forms of development to help inform the preparation and implementation of Strategic Flood Risk Assessments.
2. **Reduce impacts to existing buildings**
    a. **SEPA, planning authorities and local communities** are required to engage at an early stage of the development plan process to agree the best long term land uses for areas where relocation, abandonment and/or change of use have been identified to deliver sustainable flood risk management. Where possible, new land uses should aim to achieve multiple benefits for local communities such as the creation of blue / green infrastructure and increased resilience to climate change.
3. **Protect and enhance natural features that have a positive impact on reducing overall flood risk**
    a. **SEPA, planning authorities** are required to engage early in the development plan process to identify opportunities for the restoration and protection of natural features which help manage flood risk. Opportunities

[11] Forth Estuary Flood Risk Management Strategy, SEPA (December 2015). Found at (http://apps.sepa.org.uk/FRMStrategies/forth-estuary.html)

should be maximised to achieve multiple benefits such as the development of green / blue infrastructure and improved place making. Areas of land that may contribute to flood management should be identified

4. **New developments are designed to ensure that surface water drainage does not increase flood risk on or off site**
    a. **SEPA** prepares guidance for planning authorities and developers on the use of surface water hazard maps for land use planning purposes.
    b. **Planning authorities** support the implementation of Surface Water Management Plans, developed by the local authorities, through development plan allocations and policies. Surface Water Management Plans should take account of development opportunities that could contribute to the reduction of surface water flood risk.
    c. **SEPA** engages at an early stage of the development plan process to progress exemplar projects that demonstrate the potential for land use planning to mitigate surface water flooding and contribute to wider environmental benefits.
5. **New development is resilient to predicted future changes in climate**
    a. **Planning authorities** ensure that climate change is considered in Strategic Flood Risk Assessments and Flood Risk Assessments, based upon the best scientific evidence and the information requirements of planners to make informed decisions.

Annex 6: Supporting information

The following information has been extracted from the Forth Estuary Flood Risk Management Strategy[12].

1. **Sources of flooding described in the strategy**
   The Flood Risk Management Strategy addresses the risk of flooding from rivers, the coast and surface water. The risk of flooding from rivers is usually due to rainfall causing a river to rise above bank level spreading out and inundating adjacent areas. Coastal flooding is where the risk is from the sea. Sea levels can change in response to tidal cycles or atmospheric conditions. Over the longer term sea levels and coastal flood risk may change due to climate change. Surface water flooding happens when rainwater does not drain away through the normal drainage systems or soak into the ground, but lies on or flows over the ground instead. There can be interactions between these sources of flooding, but for the purposes of this strategy they are dealt with independently.

   The following aspects of flooding have not been incorporated into the strategy:
   - **Groundwater** is generally a contributing factor to flooding rather than the primary source. It is caused by water rising up from underlying rocks or flowing from springs.
   - **Reservoir breaches** have been assessed under separate legislation (Reservoirs (Scotland) Act 2011). Further information and maps can be found on SEPA's website.
   - The Flood Risk Management (Scotland) Act 2009 does not require SEPA or responsible authorities to assess or manage **coastal erosion**. However, SEPA has included consideration of erosion in the Flood Risk Management Strategies by identifying areas that are likely to be susceptible to erosion and where erosion can exacerbate flood risk. As part of considering where actions might deliver multiple benefits, we have looked to see where the focus of coastal flood risk management studies coincides with areas of high susceptibility to coastal erosion. Subsequent detailed studies and scheme design will need to consider coastal erosion in these areas.
   - **Coastal flood modelling.** The information on coastal flooding used to set objectives and identify actions is based on SEPA modelling using simplified coastal processes and flooding mechanisms at work during a storm. Wave overtopping cannot be accurately modelled at a national scale due to the importance of local factors such as prevailing wind conditions, the depth and profile of the near-shore sea bed or the influence of any existing defences or management structures. As a result, coastal

[12] Forth Estuary Flood Risk Management Strategy, SEPA (December 2015). Found at (http://apps.sepa.org.uk/FRMStrategies/forth-estuary.html)

flood risk may be underestimated in some areas. Conversely, in locations with wide and flat floodplains, the modelling may overestimate flood risk. To address this, in a number of locations where more detailed local models were available they have been incorporated into the development of the Flood Risk Management Strategies. Where wave overtopping has been specifically identified as a concern – but where no further detailed modelling is available – particular compensation has been made in the selecting actions to address coastal flood risk.

2. Commonly used terms

Below are explanatory notes for commonly used terms in the strategy. A glossary of terms is also available.

- **Reference to flood risk.** During the development of the strategy flood risk has been assessed over a range of likelihoods. For consistency in reporting information within the strategies, unless otherwise stated, all references to properties or other receptors being 'at risk of flooding' refer to a medium likelihood flood (up to a 1 in 200 chance of flooding in any given year). By exception, references will be made to high or low risk flooding, which should be taken to mean a 1 in 10 chance/likelihood or 1 in 1000 chance/likelihood of flooding in any given year respectively.

Chance / likelihood of flooding	
High	1 in 10 year
Medium	1 in 200 year
Low	1 in 1000 year

- **Annual Average Damages** have been used to assess the potential economic impact of flooding within an area. Depending on its size or severity each flood will cause a different amount of damage to a given area. Annual Average Damages are the theoretical average economic damages caused by flooding when considered over a very long period of time. It does not mean that damage will occur every year: in many years there will be no damages, in some years minor damages and in a few years major damages may occur.
  High likelihood events, which occur more regularly, contribute proportionally more to Annual Average Damages than rarer events. Within the Flood Risk Management Strategies Annual Average Damages incorporate economic damages to the following receptors: residential properties, non-residential properties, vehicles, emergency services, agriculture and roads. They have been calculated based on the principles set out in the Flood Hazard Research Centre Multi-Coloured Handbook (2010).
- **History of flooding.** The history of flooding sections of this document report floods that have occurred up to July 2015.

3. Flood risk management planning process

Flood risk management in Scotland aims to manage flooding in a sustainable way. Sustainable flood risk management considers where floods are likely to occur in the future and takes action to reduce their impact without moving the problem elsewhere. It considers all sources of flooding, whether from rivers, the sea or from surface water. It delivers actions that will meet the needs of present and future generations whilst also protecting and enhancing the environment.

The sustainable approach to managing flood risk works on a six year planning cycle, progressing through the key stages outlined below.

3.1. Identifying priority areas at significant flood risk

The first step to delivering a risk-based, sustainable and plan-led approach to flood risk management was SEPA's National Flood Risk Assessment, which was published in 2011. The assessment considered the likelihood of flooding from rivers, groundwater and the sea, as well as flooding caused when heavy rainfall is unable to enter drainage systems or the river network. The likelihood of flooding was examined alongside the estimated impact on people, the economy, cultural heritage and the environment. It significantly improved our understanding of the causes and consequences of flooding, and identified areas most vulnerable to floods.

Based on the National Flood Risk Assessment, SEPA identified areas where flooding was considered to be nationally significant. These areas are based on catchment units as it is within the context of the wider catchment that flooding can be best understood and managed. These nationally significant catchments are referred to as Potentially Vulnerable Areas. In Scotland, 243 Potentially Vulnerable Areas were identified. They are estimated to contain 92% of the total number of properties at risk.

A small number of Candidate Potentially Vulnerable Areas were identified after the National Flood Risk Assessment in light of new information that warranted further assessment and appraisal. They are included in the flood risk management planning process. The National Flood Risk Assessment will be updated to inform each subsequent planning cycle.

3.2. Improving the understanding of flooding

SEPA developed flood hazard and flood risk maps between 2012 and 2014. These maps improved our understanding of flooding and helped inform the subsequent selection of actions to manage flood risk in Potentially Vulnerable Areas. The flood hazard maps show information such as the extent of flooding, water level, as well as depth and velocity where appropriate. The flood risk maps provide detail on the impacts on people, the economy, cultural heritage and the environment.

In 2012 SEPA also developed an assessment of the potential for natural flood management. The assessment produced the first national source of information on where natural flood management actions would be most effective within Scotland. Flood hazard and flood risk maps and the assessment of the potential for natural flood management can be viewed on the SEPA website www.sepa.org.uk.

3.3. Identifying objectives and selecting actions

The objectives and actions to manage flooding will provide the long-term vision and practical steps for delivering flood risk management in Scotland.

Working collaboratively with local partnerships, SEPA has agreed the objectives for addressing the main flooding impacts. Actions that could deliver these agreed objectives have been appraised for their costs and benefits to ensure the right combinations are identified and prioritised. The actions considered in the development of this strategy include structural actions (such as building floodwalls, restoring flood plains, or clearance and repair works to rivers) and non-structural actions (such as flood warning, land use planning or improving our emergency response). Structural and non-structural actions should be used together to manage flood risk effectively.

An assessment of the potential for natural flood management was used to help identify opportunities for using the land and coast to slow down and store water. Natural flood management actions were recommended in areas where they could contribute to the management of flood risk. In such instances these actions were put forward as part of flood protection or natural flood management studies.

Annex 7: Acknowledgements

The information described in this Annex relates to the Figures and Maps that have been generated by SEPA and have been reproduced in this Local Flood Risk Management Plan from the Forth Estuary Flood Risk Management Strategy.
The Forth Estuary Local Plan District Partners gratefully acknowledges the cooperation and input that various parties have provided, including inter alia, the following organisations:

SEPA
Local authorities acknowledge the inclusion of text generated by SEPA in preparation of the Forth Estuary Flood Risk Management Strategy. Figures and Maps produced by SEPA for the Forth Estuary Flood Risk Management Strategy have been reproduced in the Forth Estuary Local Flood Risk Management Plan with authorisation from SEPA under SEPA Licence number 100016991 (2015).

Ordnance Survey
These reproduced maps are based upon Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown Copyright. Any unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. SEPA Licence number 100016991 (2015). City of Edinburgh Council Licence number 100023420 (2016).

The Centre for Ecology and Hydrology
Some features of these reproduced maps are based upon digital spatial data licensed from the Centre for Ecology and Hydrology © NERC (CEH) and third party licensors.

The Met Office
Data provided by The Met Office has been used by SEPA under licence in some areas of flood risk information production. ©Crown Copyright (2015), the Met Office.

The James Hutton Institute
Data provided to SEPA under license from the James Hutton Institute has been applied in production of flood risk management information. Copyright © The James Hutton Institute and third party licensors.

British Geological Survey
Flood risk information has been derived by SEPA from BGS digital data under license. British Geological Survey ©NERC

Local authorities
Lead authorities acknowledge the provision of flood models and other supporting data and information from local authorities in Scotland and their collaboration in the production of flood risk management information.

Scottish Water
Local authorities acknowledge the inclusion of surface water flooding data generated by Scottish Water in preparation of flood risk information.

Annex 8: Glossary

The following information has been extracted from the Forth Estuary Flood Risk Managing Strategy[13].

Term	Definition
Accretion	Accumulation of sediment.
Actions	Actions describe where and how flood risk will be managed. These actions have been set by SEPA and agreed with flood risk management authorities following consultation. Selection of actions to deliver the agreed objectives has been based on a detailed assessment and comparison of economic, social and environmental criteria.
Annual Average Damages (AAD)	Depending on its size or severity each flood will cause a different amount of damage to a given area. Annual Average Damages are the theoretical average economic damages caused by flooding when considered over a very long period of time. It does not mean that damage will occur every year: in many years there will be no damages, in some years minor damages and in a few years major damages may occur. High likelihood events, which occur more regularly, contribute proportionally more to AADs than rarer events. Within the Flood Risk Management Strategies AADs incorporate economic damages to the following receptors: residential properties, non-residential properties, vehicles, emergency services, agriculture and roads. They have been calculated based on the principles set out in the Flood Hazard Research Centre Multi-Coloured Handbook (2010).
Appraisal	Appraisal is the process of defining objectives, examining options and weighing up the costs, benefits, risks and uncertainties before a decision is made. The FRM Strategy appraisal method is designed to set objectives and identify the most sustainable combination of actions to tackle flooding from rivers, sea and surface water.
Appraisal baseline	Defines the existing level of flood risk under the current flood risk management regime.
Awareness raising	Public awareness, participation and community support are essential components of sustainable flood risk management. SEPA and the responsible authorities have a duty to raise public awareness of flood risk. This is undertaken both individually and collaboratively by a range of organisations. Improved awareness of flood risk and actions that prepare individuals, homes and businesses for flooding can reduce the overall impact.
Bathing waters	Bathing waters are classed as protected areas under Annex IV of the Water Framework Directive (WFD). There are 84 designated bathing waters in Scotland. [14]

[13] Forth Estuary Flood Risk Management Strategy, SEPA (December 2015). Found at (http://apps.sepa.org.uk/FRMStrategies/forth-estuary.html)

Benefit cost ratio (BCR)	A benefit cost ratio summarises the overall value for money of an action or project. It is expressed as the ratio of benefits to costs (both expressed as present value monetary values). A ratio of greater than 1:1 indicates that the economic benefits associated with an action are greater than the economic costs of implementation; therefore this is taken as the threshold of economic viability. It should be acknowledged that it is not always possible to accurately estimate economic values for all elements of benefit, and BCR is just one a number of techniques used in appraisal.
Blue infrastructure	Blue infrastructure is often complementary to 'green infrastructure' and includes sustainable drainage systems, swales (shallow, broad and vegetated channels designed to store and/or convey runoff and remove pollutants[15]), wetlands, rivers, canals (and their banks) and other watercourses[16]
Candidate Potentially Vulnerable Area (PVAc)	Candidate PVAs are those areas identified after the National Flood Risk Assessment (2011), as a result of new information, where the impact of flooding is potentially sufficient to justify further assessment and appraisal. They will be considered for inclusion as new PVAs in the next flood risk management planning cycle.
Catchment	All the land drained by a river and its tributaries.
Category 1 and 2 Responders (Cat 1 / 2)	Category 1 and 2 Responders are defined as part of the Civil Contingencies Act 2004 which seeks to minimise disruption in the event of an emergency. Category 1 Responders are 'core' responders: local authorities, police, fire and rescue services, ambulance service, NHS health boards, SEPA and the Maritime and Coastguard Agency. Category 2 Responders are key co-operating responders in support of Category 1 Responders. These include gas and electricity companies, rail and air transport operators, harbour authorities, telecommunications providers, Scottish Water, the Health and Safety Executive and NHS National Services Scotland[17].
Channel improvement	Where work has been carried out on a river channel allowing an increase in the volume of water it can carry.
Characterisation	Provides a description of the natural characteristics of catchments, coastlines and urban areas in terms of hydrology, geomorphology, topography and land use. It also includes the characterisation of existing levels of flood risk and existing flood risk management activity.
Coastal flooding	Flooding that results from high sea levels or a combination of high sea levels and stormy conditions. The term coastal flooding is used under the Flood Risk Management (Scotland) Act 2009, but in some areas it is also referred to as tidal flooding and covers areas such as estuaries and river channels

[14] http://apps.sepa.org.uk/bathingwaters/ accessed 14/10/2015 last updated 2015
[15] http://www.susdrain.org/delivering-suds/using-suds/suds-components/swales-and-conveyance-channels/swales.html accessed 12/10/2015 last updated 2012
[16] http://www.gov.scot/Resource/Doc/362219/0122541.pdf accessed 12/10/2015 last updated 2011
[17] http://www.legislation.gov.uk/ukpga/2004/36/schedule/1 accessed 12/10/2015 last updated 2004

	that are influenced by tidal flows.
Combined sewer	Combined sewers transport sewage from homes and industry as well as carrying surface water runoff from gutters, drains and some highways. Heavy or prolonged rainfall can rapidly increase the flow in a combined sewer until the amount of water exceeds sewer capacity.
Combined sewer (overflow) (CSO)	Combined sewer overflows are purposely designed structures to ensure any excess water from sewerage systems is discharged in a controlled way and at a specific managed location.
Community facility	Within the FRM Strategies this term includes: Emergency Services (Police, Fire, Ambulance, Coastguard, Mountain Rescue) Educational Buildings (crèche, nursery, primary, secondary, further, higher and special education premises) Healthcare facilities: hospitals, health centres and residential care homes
Community flood action groups	Community flood action groups are community based resilience groups which, on behalf of local residents and business, help to prepare for and minimise the effects of flooding. They reflect the interests of their local communities and may differ in composition and remit. There are over 60 groups already established in Scotland. The Scottish Flood Forum provides support for both new and existing groups.
Confluence	Where two or more rivers meet.
Conveyance	Conveyance is a measure of the carrying capacity of a watercourse. Increasing conveyance enables flow to pass more rapidly and reducing conveyance slows flow down. Both actions can be effective in managing flood risk depending on local conditions.
Cultural heritage site	Historic Environment Scotland maintains lists of buildings of special architectural or historic interest; these buildings are referred to as 'listed buildings'. The highest level of designation is a World Heritage Site. Other designations included in this assessment are scheduled monuments, gardens and designed landscapes, and battlefields.
Culvert	A pipe, channel or tunnel used for the conveyance of a watercourse or surface drainage water under a road, railway, canal or other obstacle.
Damages	Flood damages are categorised as direct or indirect i.e. as a result of the flood water itself, or subsequent knock on effects. Damage to buildings and contents caused by flood water are an example of direct damages, whilst loss of industrial production, travel disruption or stress and anxiety are indirect. Some damages can be quantified in monetary terms, and others can only be described. The potential damages avoided by implementation of a flood risk management action are commonly referred to as the benefits of that action. When comparing the effectiveness of different actions, it is useful to consider estimated damages

	and damages avoided across the lifespan of the action. Within the FRM Strategies, a 100 year appraisal period has been used as standard. This allows costs, damages and benefits across this time frame to be compared in present value terms. See also 'Annual Average Damages'
Demountable defences	A temporary flood barrier is one that is only installed when the need arises, that is, when flooding is forecast. A demountable flood defence is a particular type of temporary defence that requires built-in parts and therefore can only be deployed in one specific location.[18]
Deposition	A natural process leading to an accumulation of sediment on a river bed, floodplain or coastline.
Economic impact	An assessment of the economic value of the positive and negative effects of flooding and / or the actions taken to manage floods.
Embankment	Flood embankments are engineered earthfill structures designed to contain high river levels or protect against coastal flooding. They are commonly grass-covered, but may need additional protection against erosion by swiftly flowing water, waves or overtopping.
Emergency plans / response	Emergency response plans are applicable for all types of flooding. They set out the steps to be taken during flooding in order to maximise safety and minimise impacts where possible. Under the Civil Contingencies Act, Category 1 Responders have a duty to maintain emergency plans. Emergency plans may also be prepared by individuals, businesses, organisations or communities.
Environmental impact	A change in the environment as a result of an action or activity. Impacts can be positive or negative and may vary in significance, scale and duration.
Environmental Impact Assessment (EIA)	Environmental Impact Assessment (EIA) is a process which identifies the potential environmental impacts, both negative and positive, of a proposal.
Environmental sites / environmental designated areas/ environmentally designated sites	Areas formally designated for environmental importance, such as Sites of Special Scientific Interest (SSSI), Special Protection Area (SPA) or Special Areas of Conservation (SAC).
Episodic erosion	Erosion induced by a single event, such as a storm.
Erosion	A natural process leading to the removal of sediment from a river bed, bank or floodplain or coastline.
Estuarine surge attenuation	A reduction in the wave energy caused by storm surge. Breakwaters (barriers built out into the sea to protect a coast or harbour from the force of waves) or habitats such as saltmarsh

[18] http://evidence.environment-agency.gov.uk/FCERM/en/FluvialDesignGuide/Chapter9.aspx?pagenum=10 accessed 12/10/2015 last update 07/03/2012

	can slow down and reduce the inland impact of storm surges (the rising of the sea due to wind and atmospheric pressure changes associated with storms), thereby reducing coastal flood risk.
Estuary	A coastal body of water usually found where a river meets the sea; the part of the river that is affected by tides.
Fault (fault line)	A break or fracture in the earth's crust as a result of the displacement of one side with respect to the other. In Scotland the Great Glen Fault is a major geological fault line cutting diagonally across the Highlands from Fort William to Inverness.
Flash flood	A flood that occurs a short period of time after high intensity rainfall or a sudden snow melt. A sudden increase in the level and velocity of the water body is often characteristic of these events, leaving a short time for warning or actions.
Flashy watercourse	A 'flashy' river or watercourse has a short lag time (the delay between peak rainfall intensity and peak river discharge), high peak discharge, and quickly returns to average flow. Rivers with these characteristics can be prone to flooding and leave a short time for warning or actions.
Flood	In the terms of the FRM Act, 'flood' means a temporary covering by water, from any source, of land not normally covered by water. This does not include a flood solely from a sewerage system, as a result of normal weather or infrastructure drainage. A flood can cause significant adverse impacts on people, property and the environment. drainage.
Flood bund	A constructed retaining wall, embankment or dyke designed to protect against flooding to a specified standard of protection.
Flood defence	Infrastructure, such as flood walls, embankments or flood storage intended to protect an area against flooding to a specified standard of protection.
Flood extent	The area that has been affected by flooding, or is at risk of floodi from one or more sources for a particular likelihood.
Flood forecasting	SEPA operates a network of over 250 rainfall, river and coastal monitoring stations throughout Scotland that generate data 24 hours a day. This hydrological information is combined with meteorological information from the Met Office. A team of experts then predict the likelihood and timing of river, coastal and surface water flooding. This joint initiative between SEPA and the Met Office forms the Scottish Flood Forecasting Service.
Flood frequency	The probability that a particular size/severity of flood will occur in a given year (see likelihood).
Flood gate	An adjustable, sometimes temporary, barrier used as a flood defence to control the flow of water within a water system or during a flood. Flood gates can also be part of operational flood defences or protect individual buildings or sites.
Flood guard	Flood guards cover a variety of types of door and window barriers that can be fitted to individual properties and operated by the owners / occupiers prior to a flood event. They act as a

	physical barrier to water entering the property and can provide protection against frequent and relatively shallow flooding.
Flood hazard	In terms of the FRM Act, hazard refers to the characteristics (extent, depth, velocity) of a flood.
Flood hazard map	Flood hazard maps are required by the FRM Act to show information that describes the nature of a flood in terms of the source, extent, water level or depth and, where appropriate, velocity of water. Flood hazard and risk maps are referred to collectively as flood maps and are available on the SEPA website.
Flood Prevention Scheme / Flood Protection Scheme (FPS)	A flood protection scheme, as defined by the FRM Act, is a scheme by a local authority for the management of flood risk within the authority area. This includes defence measures (flood prevention schemes) formerly promoted under the Flood Prevention (Scotland) Act 1961.
Flood protection study	Flood protection studies aim to refine understanding of the hazard and risk associated with flooding in a particular area, catchment or coastline. They will involve detailed assessment of flood hazard and / or risk and may develop options for managing flood risk.
Flood protection works	Flood protection works can include the same flood defence measures that would make up a formal Flood Protection Scheme but without the legal process, protections and requirements that would come by delivering the works as a scheme.
Flood risk	A measure of the combination of the likelihood of flooding occurring and the associated impacts on people, the economy and the environment.
Flood Risk Assessment (FRA)	Flood Risk Assessments are detailed studies of an area where flood risk may be present. These are often used to inform planning decisions, may help to develop flood schemes and have also contributed to the National Flood Risk Assessment.
Flood Risk Management (Scotland) Act 2009 (FRM Act)	The flood risk management legislation for Scotland. It transposes the EC Floods Directive into Scots Law and aims to reduce the adverse consequences of flooding on communities, the environment, cultural heritage and economic activity.
Flood risk management cycle	Under the FRM Act flood risk management planning is undertaken in six year cycles. The first planning cycle is 2015 – 2021. The first delivery cycle is lagged by approximately 6 months and is from 2016 -2022.
Flood Prevention (Scotland) Act 1961	The Flood Prevention (Scotland) Act 1961 gave local authorities discretionary powers to make and build flood prevention schemes. It was superseded by the Flood Risk Management (Scotland) Act 2009.
Flood Risk Management Local Advisory Groups	FRM Local Advisory Groups are stakeholder groups convened to advise SEPA and lead local authorities in the preparation of Flood Risk Management Plans. SEPA and lead local authorities must have regard to the advice they provide.

Flood Risk Management Plans (FRM Plans)	A term used in the FRM Act. FRM Plans set out the actions that will be taken to reduce flood risk in a Local Plan District. They comprise Flood Risk Management Strategies, developed by SEPA, and Local Flood Risk Management Plans produced by lead local authorities.
Flood Risk Management Strategy (FRM Strategy)	Sets out a long-term vision for the overall reduction of flood risk. They contain a summary of flood risk in each Local Plan District, together with information on catchment characteristics and a summary of objectives and actions for Potentially Vulnerable Areas.
Flood risk map	Complements the flood hazard maps published on the SEPA website providing detail on the impacts of flooding on people, the economy and the environment. Flood hazard and risk maps are referred to collectively as flood maps and are available on the SEPA website.
Flood wall	A flood defence feature used to defend an area from flood water to a specified standard of protection.
Flood Warning area (FWA)	A Flood Warning area is where SEPA operates a formal Flood Monitoring Scheme to issue targeted Flood Warning messages for properties located in the area.[19]
Flood warning scheme	A flood warning scheme is the network of monitoring on a coastal stretch or river, which provides SEPA with the ability to issue Flood Warnings.
Floods Directive	European Directive 2007/60/EC on the Assessment and Management of Flood Risks builds on and is closely related to the Water Framework Directive (see river basin management planning). It was transposed into Scots Law by the Flood Risk Management (Scotland) Act 2009. The Directive requires Member States to assess if all watercourses and coastlines are at risk from flooding, to map the flood extent, assets and humans at risk in these areas and to take adequate and coordinated actions to reduce this flood risk[20].
Floodplain	Area of land that borders a watercourse, an estuary or the sea, over which water flows in time of flood, or would naturally flow but for the presence of flood defences and other structures where they exist.
Floodplain storage	Floodplains naturally store water during high flows. Storage can be increased through natural or man-made features to increase flood depth or slow flows in order to reduce flooding elsewhere.
Gabion	A metal cage filled with rocks often used in river bank protection.

[20] http://ec.europa.eu/environment/water/flood_risk/ accessed 12/10/2015 last updated 17/09/2015

Green infrastructure	The European Commission defines green infrastructure as "the use of ecosystems, green spaces and water in strategic land use planning to deliver environmental and quality of life benefits. It includes parks, open spaces, playing fields, woodlands, wetlands, road verges, allotments and private gardens. Green infrastructure can contribute to climate change mitigation and adaptation, natural disaster risk mitigation, protection against flooding and erosion as well as biodiversity conservation." See also 'blue infrastructure'[21]
Groundwater flooding	This type of flooding is caused by water rising up from underlying rocks or flowing from springs. In Scotland groundwater is generally a contributing factor to flooding rather than the primary source.
Integrated catchment study (ICS)	In urban areas, the causes of flooding are complex because of the interactions between rivers, surface water drainage and combined sewer systems and tidal waters. Scottish Water works with SEPA and local authorities to assess these interactions through detailed studies.
Land use planning (LUP)	The process undertaken by public authorities to identify, evaluate and decide on different options for the use of land, including consideration of long term economic, social and environmental objectives and the implications for different communities and interest groups.
Lead local authority	A local authority responsible for leading the production, consultation, publication and review of a Local Flood Risk Management Plan.
Likelihood of flooding	The chance of flooding occurring. High likelihood: A flood is likely to occur in the defined area on average once in every ten years (1:10). Or a 10% chance of happening in any one year. Medium likelihood: A flood is likely to occur in the defined area on average once in every two hundred years (1:200). Or a 0.5% chance of happening in any one year. Low likelihood: A flood is likely to occur in the defined area on average once in every thousand years (1:1000). Or a 0.1% chance of happening in any one year.
Local Flood Risk Management Plans (Local FRM Plan)	Local Flood Risk Management Plans, produced by lead local authorities, will take forward the objectives and actions set out in Flood Risk Management Strategies. They will provide detail on the funding, timeline of delivery, arrangements and co-ordination of actions at the local level during each six year FRM planning cycle.
Local Nature Reserve (LNR)	A Local Nature Reserve is a protected area of land designated by a local authority because of its local special natural interest and / or educational value. Local authorities select and

[21] http://www.gov.scot/Resource/Doc/362219/0122541.pdf accessed 12/10/2015 last updated 2011

	designate local nature reserves using their powers under the National Parks and Access to the Countryside Act 1949[22].
Local Plan District	Geographical areas for the purposes of flood risk management planning. There are 14 Local Plan Districts in Scotland.
Local Plan District Partnerships	Each LPD has established a local partnership comprised of local authorities, SEPA, Scottish Water and others as appropriate. These partnerships are distinct from the FRM Local Advisory Groups and they retain clear responsibility for delivery of the FRM actions set out in the Local Flood Risk Management Plans. It is the local partnership that makes decisions and supports the delivery of these plans.
Maintenance	Sections 18 and 59 of the Flood Risk Management (Scotland) Act 2009 put duties of watercourse inspection, clearance and repair on local authorities. In addition, local authorities may also be responsible for maintenance of existing flood protection schemes or defences.
Montane habitat	This habitat encompasses a range of natural or near-natural vegetation occurring in the montane zone, lying above or beyond the natural tree-line.
National Flood Management Advisory Group (NFMAG)	The National Flood Management Advisory Group provides advice and support to SEPA and, where required, Scottish Water, local authorities and other responsible authorities on the production of FRM Strategies and Local FRM Plans.
National Flood Risk Assessment (NFRA)	A national analysis of flood risk from all sources of flooding which also considers climate change impacts. Completed in December 2011 this provides the information required to undertake a strategic approach to flood management that identifies areas at flood risk that require further appraisal. The NFRA will be reviewed and updated for the second cycle of FRM Planning by December 2018.
Natural flood management (NFM)	A set of flood management techniques that aim to work with natural processes (or nature) to manage flood risk.
Non-residential properties	Properties that are not used for people to live in, such as shops or other public, commercial or industrial buildings.
Objectives	Objectives provide a common goal and shared ambition for managing floods. These objectives have been set by SEPA and agreed with flood risk management authorities following consultation. They were identified through an assessment of the underlying evidence of the causes and impacts of flooding.
One in 200 year flood	See 'likelihood of flooding' and 'return period'.
Planning policies	Current national planning policies, Scottish Planning Policy and accompanying Planning Advice notes restrict development within the floodplain and limit exposure of new receptors to flood risk. In addition to national policies, local planning policies

[22] http://www.snh.gov.uk/protecting-scotlands-nature/protected-areas/local-designations/lnr/ accessed 12/10/2015 last updated 12/07/2015

	may place further requirements within their area of operation to restrict inappropriate development and prevent unacceptable risk.
Potentially Vulnerable Areas (PVA)	Catchments identified as being at risk of flooding and where the impact of flooding is sufficient to justify further assessment and appraisal. There were 243 PVAs identified by SEPA in the National Flood Risk Assessment and these are the focus of the first FRM planning cycle.
Property level protection	Property level protection includes flood gates, sandbags and other temporary barriers that can be used to prevent water from entering individual properties during a flood.
Property level protection scheme	Some responsible authorities may have a formal scheme to provide, install and maintain property level protection for properties.
Ramsar sites	Ramsar sites are wetlands of international importance designated under the Ramsar Convention.
Receptor	Refers to the entity that may be impacted by flooding (a person, property, infrastructure or habitat). The vulnerability of a receptor can be reduced by increasing its resilience to flooding.
Residual risk	The risk that remains after risk management and mitigation. This may include risk due to very severe (above design standard) storms or risks from unforeseen hazards.
Resilience	The ability of an individual, community or system to recover from flooding.
Responsible authority	Designated under the FRM (Scotland) Act 2009 and associated legislation as local authorities, Scottish Water and, from 21 December 2013, the National Park Authorities and Forestry Commission Scotland. Responsible authorities, along with SEPA and Scottish Ministers, have specific duties in relation to their flood risk related functions.
Return period	A measure of the rarity of a flood event. It is the statistical average length of time separating flood events of a similar size. (see likelihood)
Revetment	Sloping structures placed on banks or at the foot of cliffs in such a way as to deflect the energy of incoming water.
Riparian	The riparian area is the interface between land and a river or stream. For the purposes of FRM this commonly refers to the riparian owner, which denotes ownership of the land area beside a river or stream.
River basin management planning (RBMP)	The Water Environment and Water Services (Scotland) Act 2003 transposed the European Water Framework Directive into Scots law. The Act created the River Basin Management Planning process to achieve environmental improvements to protect and improve our water environment. It also provided the framework for regulations to control the negative impacts of all activities likely to have an impact on the water environment.
Runoff reduction	Actions within a catchment or sub-catchment to reduce the amount of runoff during rainfall events. This can include

	intercepting rainfall, storing water, diverting flows or encouraging infiltration.
Scottish Advisory and Implementation Forum for Flooding (SAIFF)	The stakeholder forum on flooding set up by the Scottish Government to ensure legislative and policy aims are met and to provide a platform for sharing expertise and developing common aspirations and approaches to reducing the impact of flooding on Scotland's communities, environment, cultural heritage and economy.
Scottish Water Investment Period	Scottish Water's investment programme is set out in their business plan 2015-2021, which can be found on their website (https://www.scottishwater.co.uk/about-us/publications/strategic-projections).
Sediment balance	Within a river where erosion and deposition processes are equal over the medium to long-term resulting in channel dimensions (width, depth, slope) that are relatively stable.
Sediment management	Sediment management covers a wide range of activities that includes anything from the small scale removal of dry gravels to the dredging of whole river channels and the reintroduction of removed sediment into the water environment. Historically, sediment management has been carried out for several reasons, including reducing flood risk, reducing bank erosion, for use as aggregate and to improve land drainage.
Self help	Self help actions can be undertaken by any individuals, businesses, organisations or communities at risk of flooding. They are applicable to all sources, frequency and scales of flooding. They focus on awareness raising and understanding of flood risk.
Sewer flooding (and other artificial drainage system flooding)	Flooding as a result of the sewer or other artificial drainage system (e.g. road drainage) capacity being exceeded by rainfall runoff or when the drainage system cannot discharge water at the outfall due to high water levels (river and sea levels) in receiving waters.
Site protection plans	Site protection plans are developed to identify whether normal operation of a facility can be maintained during a flood. This may be due to existing protection or resilience of the facility or the network.
Shoreline Management Plan (SMP)	A Shoreline Management Plan is a large scale assessment of the coastal flood and erosion risks to people and the developed, historic and natural environment. It sets out a long-term framework for the management of these risks in a sustainable manner.
Site of Special Scientific Interest (SSSI)	Sites of Special Scientific Interest are protected by law under the Nature Conservation (Scotland) Act 2004 to conserve their plants, animals and habitats, rocks and landforms[23].
Source of flooding	The type of flooding. This can be coastal, river, surface water or groundwater.
Special Area of	Special Areas of Conservation are strictly protected sites

[23] http://www.snh.gov.uk/protecting-scotlands-nature/protected-areas/national-designations/sssis/ accessed 12/10/2015 last updated 21/01/2015

Conservation (SAC)	designated under the European Habitats Directive. The Directive requires the establishment of a European network of protected areas which are internationally important for threatened habitats and species[24].
Special Protection Areas (SPA)	Special Protection Areas are strictly protected sites classified in accordance with the European Birds Directive. They are classified for rare and vulnerable birds (as listed in the Directive), and for regularly occurring migratory species[25].
Standard of protection (SoP)	All flood protection structures are designed to be effective up to a specified flood likelihood (Standard of Protection). For events beyond this standard, flooding will occur. The chosen Standard of Protection will determine the required defence height and / or capacity.
Storage area	A feature that can be used to store floodwater, this can be natural in the form of low lying land or manmade such as a reservoir or modified landform.
Strategic Environmental Assessment (SEA)	A process for the early identification and assessment of the likely significant environmental effects, positive and negative, of activities. Often considered before actions are approved or adopted.
Strategic Flood Risk Assessment (SFRA)	A Strategic Flood Risk Assessment is designed for the purposes of specifically informing the Development Plan Process. A SFRA involves the collection, analysis and presentation of all existing and readily available flood risk information (from any source) for the area of interest. It constitutes a strategic overview of flood risk.
Strategic mapping and modelling	Strategic mapping and modelling actions have been identified in locations where SEPA is planning to undertake additional modelling or analysis of catchments and coastlines, working collaboratively with local authorities where appropriate, to improve the national understanding of flood risk.
Surcharge	Watercourses and culverts can carry a limited amount of water. When they can no longer cope, they overflow, or 'surcharge'.
Surface water flooding	Flooding that occurs when rainwater does not drain away through the normal drainage systems or soak into the ground, but lies on or flows over the ground instead[26]
Surface water management plan (SWMP)	A plan that takes an integrated approach to drainage accounting for all aspects of urban drainage systems and produces long term and sustainable actions. The aim is to ensure that during a flood the flows created can be managed in a way that will cause minimum harm to people, buildings, the environment and business.
Surface water	The management of flooding from surface water sewers,

[24] http://www.snh.gov.uk/protecting-scotlands-nature/protected-areas/international-designations/sac/ accessed 12/10/2015 last updated 01/03/2013
[25] http://www.snh.gov.uk/protecting-scotlands-nature/protected-areas/international-designations/spa/ accessed 12/10/2015 last updated 01/03/2013
[26] http://watermaps.environment-agency.gov.uk/wiyby/wiyby.aspx?topic=ufmfsw#x=357683&y=355134&scale=2 accessed 12/10/2015 last updated 12/10/2015

plan/study	drains, small watercourses and ditches that occurs, primarily in urban areas, during heavy rainfall. FRM Strategy actions in this category include: Surface Water Management Plans, Integrated Catchment Studies and assessment of flood risk from sewerage systems (FRM Act Section 16) by Scottish Water. These have been selected as appropriate for each Potentially Vulnerable Area.
Sustainable flood risk management	The sustainable flood risk management approach aims to meet human needs, whilst preserving the environment so that these needs can be met not only in the present, but also for future generations. The delivery of sustainable development is generally recognised to reconcile three pillars of sustainability – environmental, social and economic.
Sustainable drainage systems (SuDS)	A set of techniques designed to slow the flow of water. They can contribute to reducing flood risk by absorbing some of the initial rainfall and then releasing it gradually, thereby reducing the flood peak and helping to mitigate downstream problems. SuDS encourage us to take account of quality, quantity and amenity / biodiversity.
UK Climate Change Projections (UKCP09)	The leading source of climate change information for the UK. It can help users to assess their climate risks and plan how to adapt to a changing climate. The high emissions scenario refers to the SRES A1F1 emission scenario. See Annex 1 of the UKCP09 Climate change projections report for details.[27]
Utility assets	Within the FRM Strategies this refers to electricity sub stations, mineral and fuel extraction sites, telephone assets, television and radio assets.
Voe	A dialect term, common in place names and used to refer to a small bay or creek in Orkney or Shetland.
Vulnerability	A measure of how likely someone or something is to suffer long-term damage as a result of flooding. It is a combination of the likelihood of suffering harm or damage during a flood (susceptibility) and the ability to recover following a flood (resilience).
Wave energy dissipation	Process by which a wave loses its energy.
Wave overtopping	Wave overtopping occurs when water passes over a flood wall or other structure as a result of wave action. Wave overtopping may lead to flooding particularly in exposed coastal locations.

[27] http://ukclimateprojections.metoffice.gov.uk Document © Crown copyright 2009 accessed 01/12/15 last updated 30/04/2012

Annex 9: Habitats Regulations Appraisal

The Local Flood Risk Management Plan, Forth Estuary Local Plan District, was considered in light of the assessment requirements of regulation 48(1) of the Conservation (Natural Habitats, &c) Regulations 1994 (as amended) by City of Edinburgh Council which is the competent authority responsible for adopting the Plan and any assessment of it required by the Regulations.

Following screening out of sites where there were no credible impact pathways from the proposals within the Local Flood Risk Management Plan, a list of European sites potentially affected by the Plan is given below:

- Firth of Forth SPA
- Loch Leven SPA
- Imperial Docks Leith SPA
- Berwickshire and North Northumberland Coast SAC
- Slamannan Plateau SPA
- Blawhorn Moss SAC

Having carried out a 'screening' assessment of the Plan, the competent authority has concluded that 18 actions in the Plan have been assessed as having a likely significant effect on a European site. Therefore, to be in accord with the Local Flood Risk Management Plan, the competent authority must carry out an appropriate assessment to demonstrate that any proposals coming forward will not have an adverse effect on the integrity of any Natura site (SPA or SAC) before any consents or permissions are granted. This may require the inclusion of suitable mitigation during the development of these actions in the first planning cycle.

Scottish Natural Heritage (SNH) was consulted on this conclusion (18/03/16) and has agreed with it (following the adoption of recommended changes).

Annex 10: Contact details of Forth Estuary Local Plan District Partners

For queries on the Forth Estuary Local Flood Risk Management Plan, please contact the relevant responsible authority using the following contact information:

The City of Edinburgh Council
Tel: 0131 200 2000
Email: Customer.Care@Edinburgh.gov.uk

Clackmannanshire Council
Clackmannanshire Council
Customer Services
Kilncraigs, Greenside Street, Alloa, FK10 1EB
Tel: 01259 450000
Email: customerservice@clacks.gov.uk

East Lothian Council Contact Centre
ELC Contact Centre
Penston House
Macmerry Industrial Estate
Macmerry
EH33 1EX
Tel: 01875 824305
Email: customerservices@eastlothian.gov.uk

East Dunbartonshire Council
Email: customerservices@eastdunbartonshirecouncil.gov.uk

Falkirk Council Contact Centre
Tel: 01324 506070
Email: contact.centre@falkirk.gov.uk

Fife Council Contact Centre
Tel: 03451 550000.

Midlothian Council Contact Centre
Tel: 0131 663 7211.
Email: ContactCentre@midlothian.gov.uk

North Lanarkshire Council
Roads & Transportation (Flood Risk Management)
Fleming House
2 Tryst Road
Cumbernauld G67 1JW
Email: roadsflooding@northlan.gov.uk

Perth and Kinross Customer Service Centre
Tel: 01738 475000
Email: enquiries@pkc.gov.uk

Scottish Borders Council
Eyemouth Contact Centre
Old High School Building
Coldingham Road
Eyemouth
TD14 5AN

Duns Library Contact Centre
49 Newtown Street
Duns
TD11 3AU

Council Headquarters
Bowden Road
Newtown St Boswells
TD6 0SA

Scottish Water Customer Contact Centre
Tel: 0800 0778 778

SEPA
Email: frmplanning@sepa.org

South Lanarkshire Council
Tel: 0303 123 1015

Stirling Council
Customer First
5 Port Street,
Stirling, FK8 2EJ
Tel: 01786 404040
Web: http://my.stirling.gov.uk/contact (online form)

West Lothian Council Customer Service Centre
West Lothian Civic Centre
Howden South Road
Livingston
EH54 6FF
Tel: 01506 280000
Email: customer.service@westlothian.gov.uk

Prepared by: ..... Checked by: .....

Aisling Marlow
Graduate Civil Engineer

Lucy Van der Ven
Consultant Engineer

Approved by: .....

Dylan Huws
Associate Director

Rev No	Revision	Comments	Checked by/org	Approved by/org	Date
1	Draft Plan	First Draft Plan	LVV/AECOM	DH/AECOM	11/03/2016
2	Final Draft Plan	Second Draft considering LPD partners comments	LVV/AECOM	DH/AECOM	25/03/2016
3	Committee Draft Plan	Third draft considering second round of comments from LPD partners	DH/AECOM	DH/AECOM	07/04/2016
4	ELC Committee Draft Plan	Forth draft considering third round of comments from East Lothian Council	DH/AECOM	DH/AECOM	28/04/2016

AECOM
2nd Floor, Apex 2,
97 Haymarket Terrace,
Edinburgh EH12 5HD
Telephone: 0131 347 1100
Website: http://www.aecom.com

You can get this document on tape, in Braille, large print and various computer formats if you ask us. Please contact Interpretation and Translation Service (ITS) on 0131 242 8181 and quote reference number 15-1476. ITS can also give information on community language translations. You can get more copies of this document by calling 0131 469 3687.