SEPA
Scottish Environment Protection Agency
Buidheann Dion Àrainneachd na h-Alba

Forth Estuary Local Plan District (LPD 10)

Draft flood risk management plans 2021-2028

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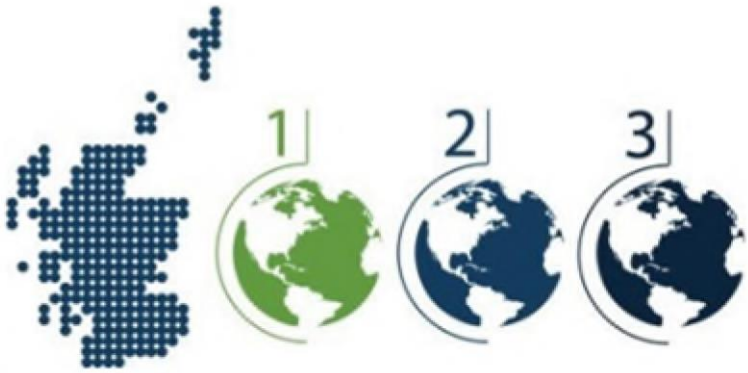
We call this One Planet Prosperity



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Forth Estuary Local Plan District (LPD 10)

Draft flood risk management plans 2022-2028

The Forth Estuary Local Plan District covers around 3,300km² and has a population of approximately 1.4 million people. It spans an area north and south of the Forth Estuary which is mostly low-lying and urbanised, and includes part of Scotland's Central Belt. The Local Plan District has 380km of coastline that includes Fife Ness, the Firth of Forth and the Berwickshire coast. Urban areas include the City of Edinburgh, Dunbar, Dunfermline, Eyemouth, Falkirk, Glenrothes, Kinross, Kirkcaldy and Livingston.

There are large areas of agricultural land, with more natural grasslands and forest to the south and west. A number of lochs and reservoirs are present including Loch Leven and Loch Ore in the north and the Carron Valley Reservoir in the west. Gladhouse Reservoir and the reservoirs of the Pentland Hills are in the south of the Local Plan District. The main rivers include the River Tyne, River Esk, Water of Leith, River Almond, River Leven and River Carron.

There is river, surface water and coastal flood risk. A number of large floods have affected this Local Plan District. In the summer of 2019 heavy rainfall led to a series of surface water floods in towns across the area. In February 2020, heavy rainfall resulted in significant flooding of a number of residential and commercial properties in Kinross from the South Quiech and surface water flooding. Recent flooding occurred in many locations in August 2020 due to high intensity rainfall.

Currently it is estimated that there are around 115,000 people and 65,000 homes and businesses at risk from flooding. This may increase to 160,000 people and 89,000 homes and businesses by the 2080s due to climate change. The expected annual cost of flooding over a long period of time is around £44.4 million.

SEPA lead development of the flood risk management plans for Scotland and delivery of floo d warning services. Local flood risk management planning for the Forth

Estuary Local Plan District is led by Falkirk Council, who are the lead local authority. Other responsible authorities include 11 other local authorities and Scottish Water. They are supported by Scottish Government agencies including Forestry and Land Scotland, Scottish Forestry and Transport Scotland.

Within this Local Plan District, actions are regularly carried out by SEPA and responsible authorities to help prepare communities for potential flooding and reduce the impact of any flooding that does occur.

Actions across the Local Plan District

SEPA and responsible authorities carry out actions in all areas of the Local Plan District which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. The following actions are due to take place over the next six years, and most of these are carried out on an ongoing basis.

	Awareness raising
Action	SEPA the responsible authorities and other organisations such as the Scottish Flood Forum work together to help communities understand the risk of flooding and what actions individuals can take through national and local initiatives. Improved awareness of flood risk and actions that prepare individuals, homes and businesses for flooding can reduce the overall impact of flooding. Local authorities undertake additional awareness raising activities when developing any specific project proposals and will engage with community resilience groups and local communities. Scottish Flood Forum support flood risk communities by raising community awareness, promoting self-help, developing community groups and establish a recovery support programme after a flood.

	Emergency response and plans
Action	Many organisations, including local authorities, the emergency services and SEPA provide an emergency response to flooding. Emergency plans are prepared and maintained under the Civil Contingencies Act 2004 by Category 1 and 2 Responders and are coordinated through regional and local resilience partnerships, often supported by voluntary organisations. They set out the steps to be taken to maximise safety and minimise impacts during flooding. Emergency plans may also be prepared by individuals, businesses, organisations or communities. Scottish Water is a Category 2 responder under the Civil Contingencies Act 2004 and will support regional and local resilience partnerships as required.

	Flood forecasting
Action	The Scottish Flood Forecasting Service is a partnership between SEPA and the Met Office. The service continues to produce a daily, national flood guidance statement, issued to emergency responders, local authorities and other organisations with flood risk management duties. As the flood warning authority for Scotland SEPA continues to provide its flood warning service issuing flood alerts and warnings when required, giving people a better chance of reducing the impact of flooding on their home or business.

	Flood Warning Development Framework
Action	SEPA will publish a new Flood Warning Development Framework by March 2022, which will detail its ambitions and strategic actions to maintain and improve our flood warning service across Scotland. SEPA will continue to develop the Scottish Flood Forecast, a 3 day forecast of flood risk across Scotland and bring together all live information such as flood warnings, river levels and rainfall data into a central hub easily accessible for the public. Working in close partnership with the Met Office through the Scottish Flood Forecasting Service, SEPA will develop its capability in surface water flooding forecasting, focusing initially on the transport sector to support climate-ready infrastructure. SEPA will also undertake a prioritised improvement programme of existing river and coastal flood warning schemes to provide more accurate forecast with improved lead time.

	Guidance development
Action	The Scottish Government and SEPA will develop and update guidance to inform flood risk management projects. This guidance will be produced by June 2022 and will look at how best to adapt to the long-term impacts of climate change and the most appropriate methods of assessing the benefits of flood risk management actions. Technical guidance to support flood risk management partners will also be reviewed and updated by SEPA where required.

	Hazard mapping updates
Action	An understanding of flooding is essential to develop a plan led risk-based approach to flood risk management. SEPA will continue to update their national hazard mapping, which shows the likelihood of flooding in Scotland from different flooding sources. (Flood Maps link) SEPA will continue to develop the hazard mapping viewer to make it easier for the public, partners and stakeholders to access data on the likelihood of flooding.

	Land use planning
Action	National planning policies set out the Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. Under this approach, new development in areas with medium to high likelihood of flooding should generally be avoided. Current national planning policies, the Scottish Planning Policy and accompanying Planning Advice notes restrict development within the floodplain and limit exposure of new receptors to flood risk. Local planning policies may place further requirements within their area of operation to restrict inappropriate development and prevent unacceptable risk. Local authorities, SEPA and Scottish Water all have a role to support sustainable development.

	Maintenance
Action	Local authorities have a duty to assess bodies of water and to carry out clearance and repair works where such works would substantially reduce flood risk. Local authorities are also responsible for the drainage of roads. In addition, local authorities may also be responsible for maintenance of any existing flood protection schemes or works. Scottish Water will continue to undertake risk-based inspection, maintenance and repair on the public sewer network. Asset owners and riparian landowners are responsible for the maintenance and management of their own assets including those which help to reduce flood risk.

	Natural flood management mapping
Action	SEPA will review and update the opportunities mapping for natural flood management. This work will focus on the suburban environment and look at linking blue-green infrastructure with the surrounding natural catchment. Natural flood management seeks to store or slow down flood waters through measures such as the planting of woodlands, wetland creation, river restoration, or the creation of intertidal habitats. In addition to flooding benefits, natural flood management measures can also provide many additional benefits to biodiversity, water quality and recreation.

	National flood risk assessment
Action	Understanding the future impacts of climate change remains a central theme of SEPA's flood risk management activity. SEPA will use the latest UK information on climate change to support an improved understanding of the changes in flood risk across the 21st century. SEPA will use the most suitable data to develop the National Flood Risk Assessment 2024. This assessment will be used to identify future Potentially Vulnerable Areas.

	National surface water mapping
Action	The National Flood Risk Assessment 2018 identified that surface water flooding has the potential to impact more properties in Scotland than any other source of flooding. Over the next six-year cycle SEPA will look to vastly improve its national understanding of surface flood risk by undertaking a wholescale update of the national surface water maps to reflect developments in data and understanding, including the impact of climate change.

	Reservoirs
Action	SEPA will continue to develop its assessment of flood risk from dam failure and use these assessments to direct a proportionate regulatory approach to ensure reservoir safety. Over the next management cycle we will implement further developments of our flood warning capabilities in the unlikely event of reservoir failure.

	Scottish Flood Defence Asset Database
Action	We are in a global climate emergency. The evidence is clear. In Scotland one of the main impacts of climate change will be increased flooding. SEPA will push forward the development of adaptation planning within Scotland. This work will start by reviewing and developing our understand of how and when Scotland's flood defence assets can be adapted to continue to provide vital protection from flooding in the future.

	Self help
Action	Everyone is responsible for protecting themselves and their property from flooding. Property and business owners can take simple steps to reduce damage and disruption to their homes and businesses should flooding happen. This includes preparing a flood plan and flood kit, installing property flood resilience measures, signing up to Floodline, engaging with their local flood group, and ensuring that properties and businesses are insured against flood damage. Responsible authorities and SEPA will continue to develop the understanding of flood risk to communities and promote measures to help individuals and businesses to reduce their risk.

Potentially Vulnerable Areas

Potentially Vulnerable Areas (PVA) were designation in 2018 based on the potential current or future risk from all sources of flooding. This designation was informed by the National Flood Risk Assessment (link). As part of continued analysis of flood risk, the National Flood Risk Assessment and Potentially Vulnerable Areas (PVA) will be reviewed every six years to take on board any new information. There are 30 Potentially Vulnerable Areas (PVA) in this Local Plan District. Following sections provide more information on these areas

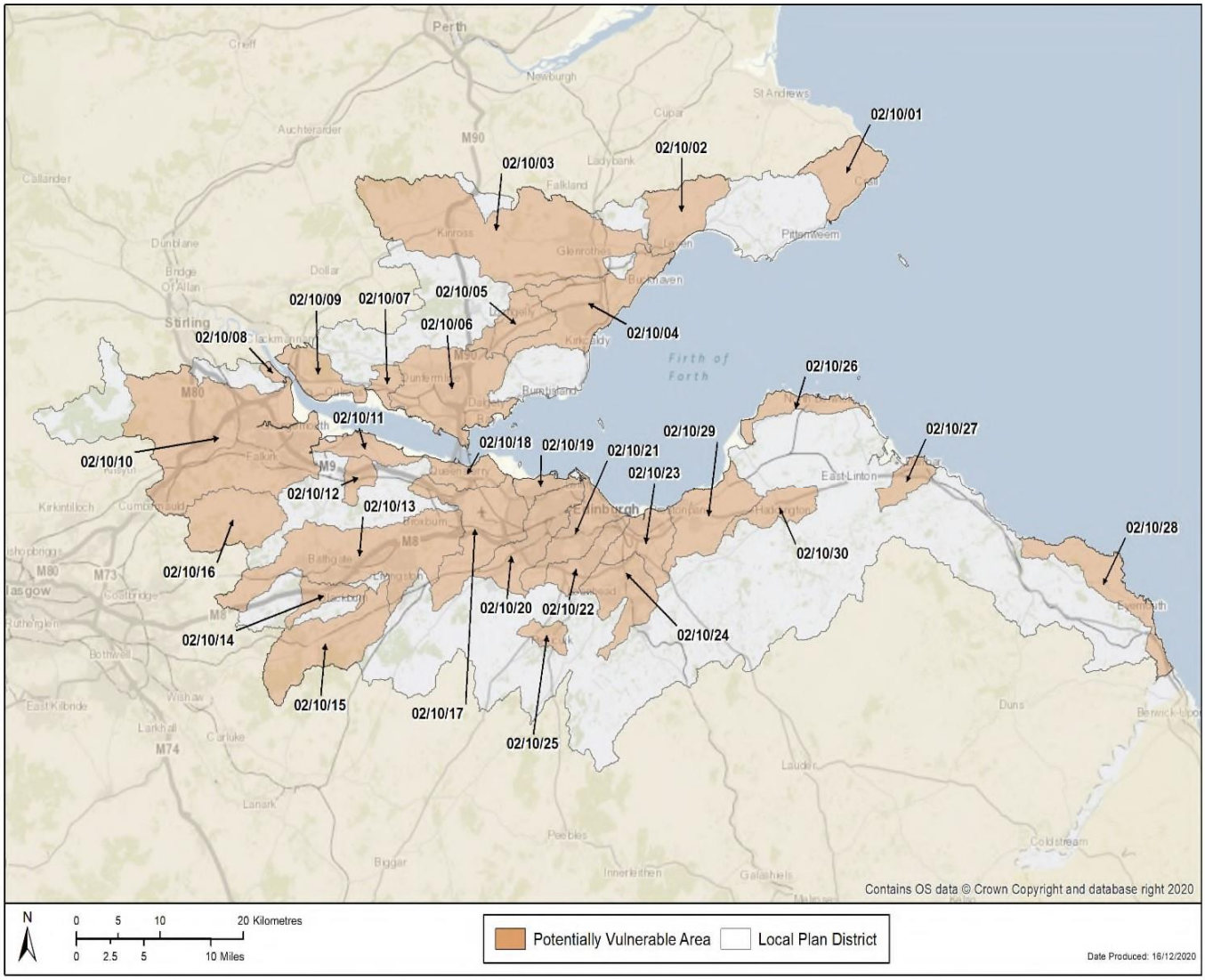

Figure 1. Potentially Vulnerable Areas in Forth Estuary Local Plan District

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Click the blue text to select your area of interest

PVA Ref	PVA NAME	Local authority
02/10/18	South Queensferry	City of Edinburgh
02/10/19	Edinburgh North	City of Edinburgh
02/10/20	Edinburgh, Water of Leith	City of Edinburgh
02/10/21	Edinburgh, Braid Burn	City of Edinburgh
02/10/22	Edinburgh, Niddrie Burn and Burdiehouse	City of Edinburgh, Midlothian
02/10/23	Musselburgh	East Lothian, Midlothian
02/10/24	Dalkeith, Lasswade and Newtongrange	Midlothian
02/10/25	Penicuik	Midlothian
02/10/26	North Berwick	East Lothian
02/10/27	Dunbar and West Barns	East Lothian
02/10/28	Berwickshire Coast	Scottish Borders
02/10/29	Cockenzie, Port Seton, Longniddry and Prestonpans	East Lothian
02/10/30	Haddington	East Lothian

02/10/01 (Crail)

This area is designated as a Potentially Vulnerable Area due to flood risk to Crail. The main source of flood risk is considered to be the Crail Burn. It should be noted that there is currently low confidence in flood risk data for this area.

There is 1 area in this Potentially Vulnerable Area, which has been the focus of further assessment, this is identified below. Further information on the proposed objectives and actions to manage flood risk within this area is provided below.

List of target areas

Crail (target area 216)

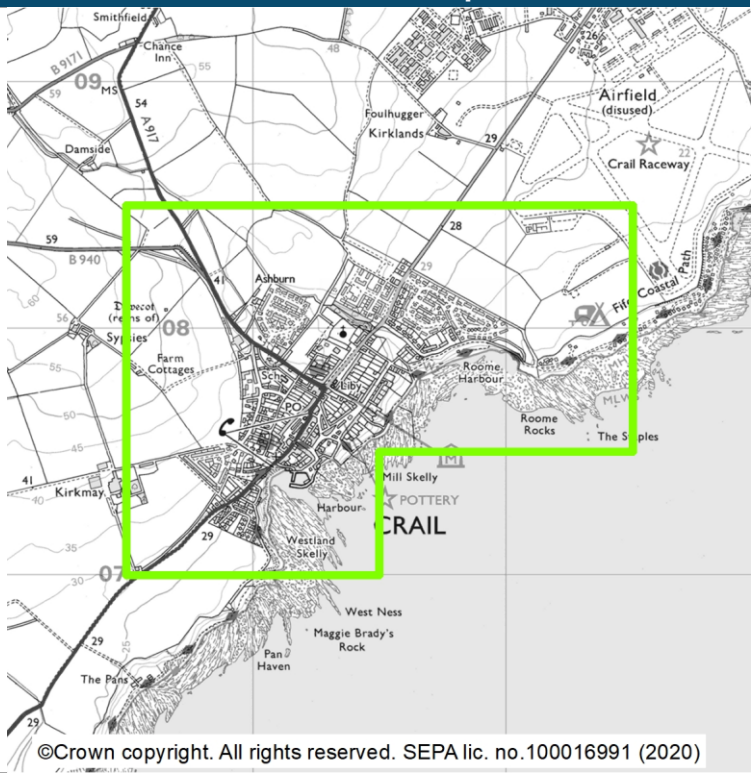
Flood risk management plan datasheet

Crail (target area 216)

Summary

Crail is a town located on the east coast of Scotland in Fife. The main source of flooding in Crail is river flooding from the Crail Burn. There are approximately 320 people and 200 homes and businesses currently at risk from flooding. This is likely to increase to 350 people and 210 properties and businesses by the 2080s due to climate change. It should be noted that there is currently low confidence in the national flood risk data for this area.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for surface water flooding is improved by a sewer flood risk assessment. There are limited records of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2161	Avoid flood risk	Avoid inappropriate development that increases flood risk in Crail
2162	Improve data and understanding	Improve data and understanding of river flooding from the Crail Burn in Crail
2163	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Crail

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

	Strategic mapping improvements (Ref: 21601)
Action	SEPA will continue to update flood maps based on new information.
Action detail	Improvements to SEPA maps are required for Crail to improve representation of flooding caused by bridges and culverts. Any further actions depend on clarification of flood risk in this location.
Coordination	Action delivery lead and coordination will be determined once the action is finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

02/10/02 (Leven and Lower Largo)

This area is designated as a Potentially Vulnerable Area due to flood risk to Leven and Lower Largo. The main source of flooding is surface water, along with river flood risk from the River Leven and other watercourses, sometimes in combination with high tides. There is a history of flooding in this area, with records of flooding to properties, road closures and damage to some infrastructure in Leven.

There are 2 areas in this Potentially Vulnerable Area, which have been the focus of further assessment, these are listed below. Further information on the proposed objectives and actions to manage flood risk within this area is provided below.

List of target areas

Leven	(target area 244)
Lower Largo and Lundin Links	(target area 298)

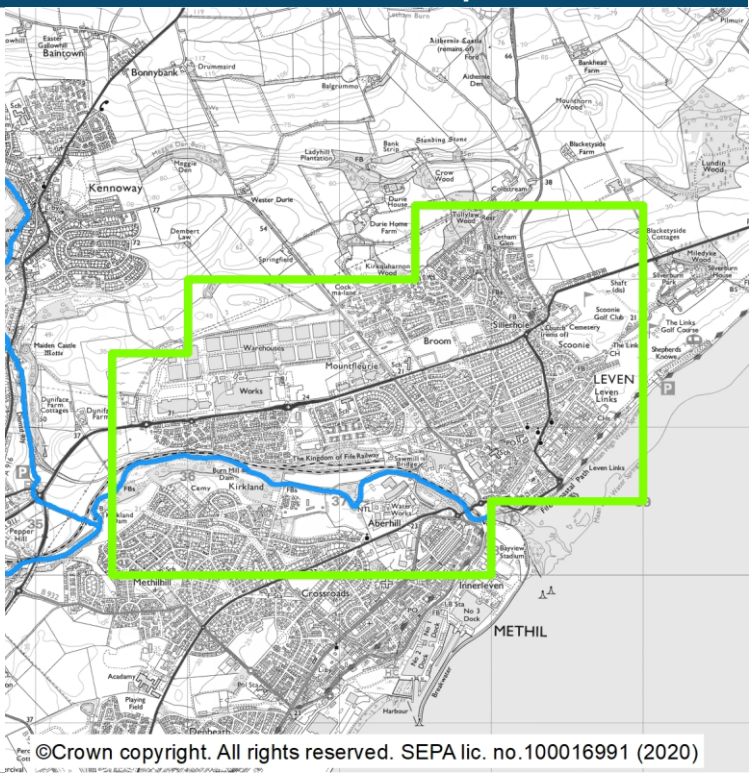
Flood risk management plan datasheet

Leven (target area 244)

Summary

The town of Leven is located on the east coast of Scotland on the mouth of the River Leven. It is in the Fife Council area. The main source of flooding in Leven is from surface water, however there is also a risk from river flooding. There are approximately 1,400 people and 820 homes and businesses currently at risk from flooding. This is likely to increase to 1,700 people and 1,000 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for surface water flooding is improved by the Leven Valley Integrated Catchment Study and a sewer flood risk assessment. There is a long record of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2441	Avoid flood risk	Avoid inappropriate development that increases flood risk in Leven
2442	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Leven
2443	Reduce flood risk	Reduce the risk of river flooding from the River Leven and Scoonie Burn in Leven
2444	Reduce flood risk	Reduce the risk of surface water flooding in Leven

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Flood study (Ref: 24401)
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Action detail	The scheduled cycle 1 flood study considering river flood risk from the River Leven and Scoonie Burn should be completed. The study should include a comprehensive assessment of the potential impacts of climate change and aim to develop a long-term plan to managing flood risk.
Coordination	Action delivery lead is Fife Council and the action will be coordinated with the Leven project.

	Sewer flood risk assessment (Ref: 24402)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Leven Valley sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 24403)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	Development of the surface water management plan should continue based on the findings of the integrated catchment study and the sewer flood risk assessment. Current and long term flood risk should be considered.
Coordination	Action delivery lead is Fife Council in coordination with Scottish Water and other actions in the area.

	Community engagement (Ref: 24404)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Community engagement should be carried out based on the findings of the flood studies in the area.
Coordination	Action delivery lead is Fife Council in coordination with the responsible authorities and the Scottish Flood Forum.

	Flood warning scoping (Ref: 24405)
Action	The potential to provide a new flood warning scheme is to be considered by SEPA. Flood warnings are only effective where it is possible to send a warning message with sufficient time to allow communities to take appropriate actions before flooding occurs.
Action detail	Following completion, the flood study will be reviewed to determine if further flood warning investigation is necessary.
Coordination	Action delivery lead is SEPA and coordination will be determined once the action has been finalised.

	Flood warning maintenance (Ref: 24406)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Forth and Tay coastal flood warning scheme. The scheme should be investigated for improvement and/or recalibration.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

There is potential to work with SEPA's River Basin Management team to improve the physical condition of the water environment.

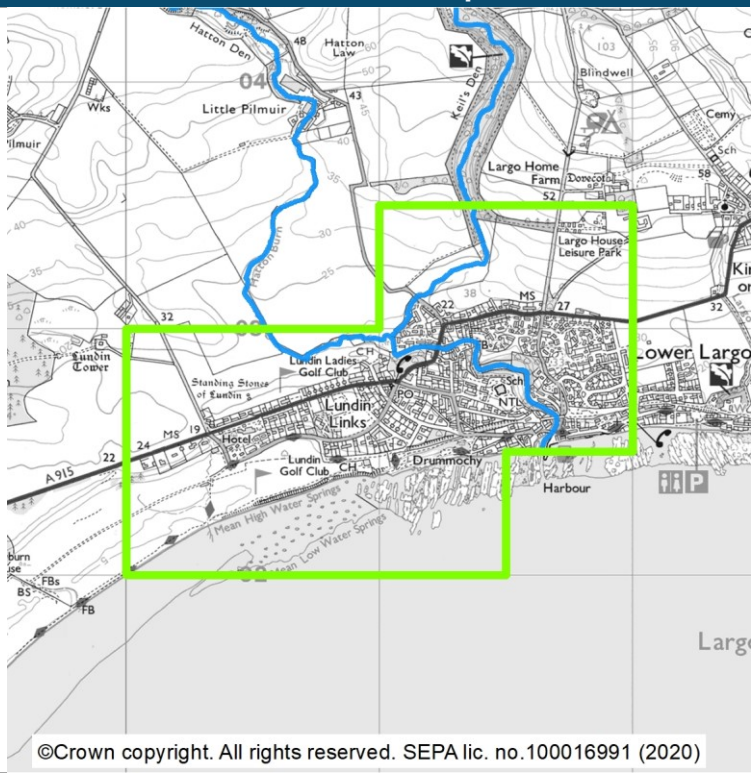
Flood risk management plan datasheet

Lower Largo and Lundin Links (target area 298)

Summary

Lower Largo and Lundin Links are located on the northern shore of the Firth of Forth, within the Fife Council area. The main source of flooding in Lower Largo and Lundin Links is river flooding, however there is also a risk from coastal flooding. There are approximately 140 people and 90 homes and businesses currently at risk from flooding. This is likely to increase to 160 people and 100 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources and this information has highlighted the risk of flooding in this target area. There are limited records of flooding in this area. The first flood recorded in the area occurred in January 2005 when a house in Lower Largo flooded. A notable flood was recorded in March 2018 when the Beast from the East caused waves to overtop the harbour wall, flooding a nearby hotel.
The Dynamic coast project has shown that parts of the shoreline in or adjacent to this target area are subject to erosion at present or are considered likely to erode in the future. Consideration should be given to how erosion might impact flood risk. Any actions taken should aim to support building natural resilience to flooding and not lead to an increase in erosion.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2981	Avoid flood risk	Avoid inappropriate development that increases flood risk in Lower Largo and Lundin Links
2982	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Lower Largo and Lundin Links
2983	Reduce flood risk	Reduce the risk of river and coastal flooding in Lower Largo and Lundin Links

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Strategic mapping improvements (Ref: 29801)
Action	SEPA will continue to update flood maps based on new information.
Action detail	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

	Flood warning maintenance (Ref: 29802)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Forth and Tay coastal flood warning scheme. The scheme should be investigated for improvement and/or recalibration.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

	Flood study (Ref: 29803)
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Action detail	A flood study should be carried out in order to better understand river and coastal flood risk. Should flood risk be confirmed in this location, the study should include high level assessment of actions and scoping of future work.
Coordination	Action delivery lead is Fife Council and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

02/10/03 (Kinross, Milnathort and Glenrothes)

This area is designated as a Potentially Vulnerable Area due to flood risk to Glenrothes, Kinglassie, Kinross, Markinch and Milnathort. The main source of flooding is surface water and river flooding from the River Leven and its tributaries, the South Queich, Gelly Burn and Clash Burn. There is a long history of flooding in this area, with recent flooding caused by surface water and River South Quick in Kinross.

There are 3 areas in this Potentially Vulnerable Area, which have been the focus of further assessment, these are listed below. Further information on the proposed objectives and actions to manage flood risk within this area is provided below.

List of target areas

Glenrothes, Kinglassie and Markinch	(target area 231)
Kinross	(target area 239)
Milnathort	(target area 303)

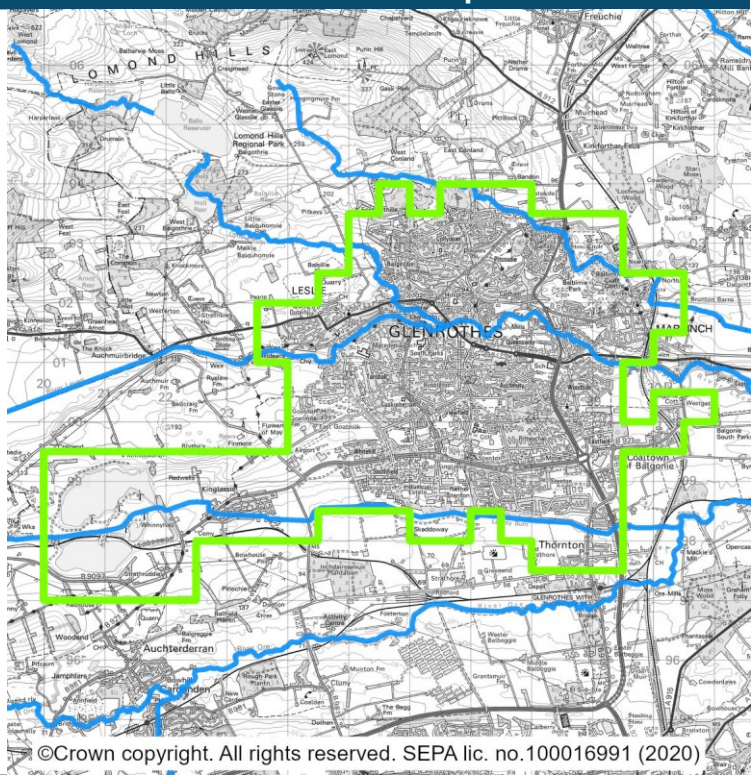
Flood risk management plan datasheet

Glenrothes, Markinch and Kinglassie (target area 231)

Summary

Glenrothes, Markinch and Kinglassie are located in east central Scotland within the Fife Council area. The main source of flooding in Glenrothes and Markinch is surface water and in Kinglassie is the Lochty Burn. There are approximately 1,900 people and 1,200 homes and businesses currently at risk from flooding. This is likely to increase to 2,600 people and 1,700 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for surface water flooding is improved by an integrated catchment study of the Leven Valley and a sewer flood risk assessment of the Leven sewer catchment. There is a long record of flooding in the target area. Recent floods were recorded in February 2020 and in August 2020 when severe rainfall caused disruption to the community, property damage and impacts on the roads network.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2311	Avoid flood risk	Avoid inappropriate development that increases flood risk in Glenrothes and Markinch
2312	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Glenrothes and Markinch
2313	Reduce flood risk	Reduce the risk of surface water flooding in Glenrothes and Markinch
2314	Reduce flood risk	Reduce the risk of river flooding in Kinglassie

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Flood study (Ref: 23101)
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Action detail	Flood study covering Glenrothes, Markinch and Kinglassie looking at river flood risk should be completed, taking into account the results of the integrated catchment study. The study should include modelling of flood risk and high level appraisal of actions.
Coordination	Action delivery lead is Fife Council and coordinated with the Leven project.

	Sewer flood risk assessment (Ref: 23102)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Leven Valley sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 23103)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A surface water management plan for Glenrothes and Markinch should be drawn up following the outcomes of the Levenmouth Integrated Catchment Study to address more local surface water flooding issues.
Coordination	Action delivery lead is Fife Council in coordination with Scottish Water and other actions in the area.

	Community engagement (Ref: 23104)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Community engagement should be carried out based on the findings of the flood studies in the area.
Coordination	Action delivery lead is Fife Council in coordination with the responsible authorities and the Scottish Flood Forum.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

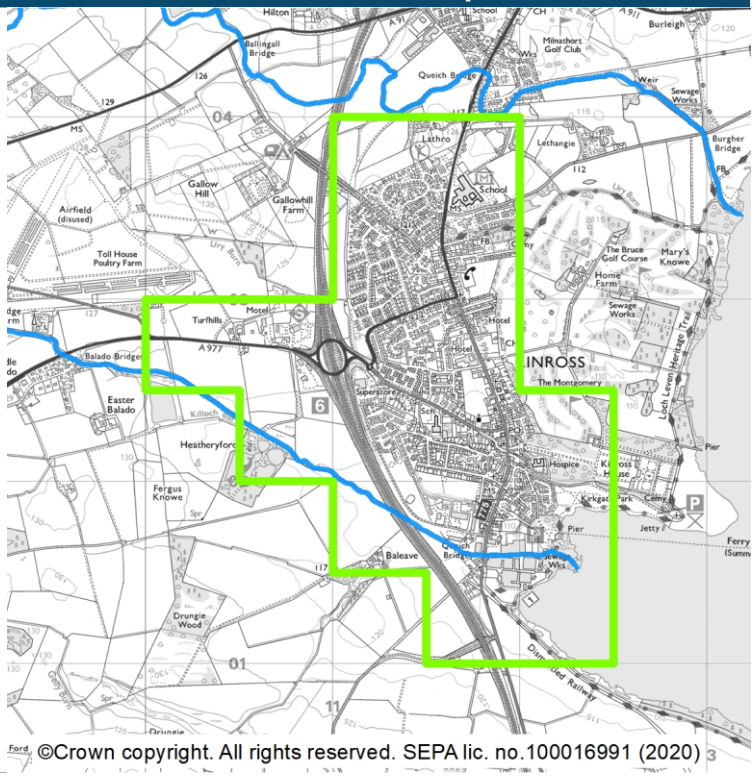
Flood risk management plan datasheet

Kinross (target area 239)

Summary

The town of Kinross is located around 20km south of Perth. The main sources of flooding in Kinross are surface water and river flooding from the South Queich, Gelly Burn and Clash Burn. The local authority has carried out a flood study in this area in support of the proposed flood scheme. The study indicates that 129 homes and 55 businesses are currently at risk of flooding from the Southn Queich, the Gelly Burn and the Clash Burn.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national assessments of flooding from rivers, surface water and coastal sources. The national assessment for river flooding is improved by flood study work supporting the ongoing development of proposals for the South Kinross Flood Protection Scheme. The understanding is also improved for surface water by a sewer flood risk assessment.
There is a long record of flooding in this target area. Flooding occurred in January 1993, January 1999, December 2006, January and August 2008 and November 2009. In February 2020 a number of homes and roads suffered river flooding. Most recently, flooding was recorded on 12 August 2020 when homes flooded as a result of unprecedented rainfall in the area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2391	Avoid flood risk	Avoid inappropriate development that increases flood risk in Kinross
2392	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the South Kinross Flood Protection Scheme
2393	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Kinross
2394	Reduce flood risk	Reduce the risk of river flooding from the South Queich, Gelly Burn and Clash Burn in South Kinross.
2395	Reduce flood risk	Reduce the risk of surface water flooding in Kinross

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Flood protection scheme (Ref: 23901)
Action	The selected preferred approach for managing flood risk is to be designed, including consideration of the long-term impacts of climate change. The flood scheme is to be built once statutory approval has been secured.
Action detail	The development of the outline design for the South Kinross Flood Protection Scheme will continue and will consider long term flood risk and climate change. The development of the proposals will also be informed by community engagement. The scheme will then progress to the statutory process set out under the Flood Risk Management (Scotland) Act 2009. The detailed design will be completed thereafter. Following completion of the detailed design, the proposed scheme will be procured and will progress to construction. As built drawings will be made available to SEPA, for inclusion in the Scottish Flood Defence Asset Database, flood map updates and flood warning scheme updates.
Coordination	The action delivery lead is Perth and Kinross Council. The South Kinross Flood Protection Scheme will be coordinated through the Forth Estuary Local Plan District Partnership. The flood protection scheme will be coordinated with other related actions.

	Community engagement (Ref: 23902)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Community engagement will continue in connection with ongoing projects and activities. This will include engaging with the community on the development of the flood scheme proposals and the surface water management plan. Ongoing Covid-19 restrictions may impact the format of this awareness raising.
Coordination	The action delivery lead is Perth and Kinross Council. Awareness raising and community engagement will take place around any projects and will be coordinated through the Local Plan District Partnership.

	Sewer flood risk assessment (Ref: 23903)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Kinross sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 23904)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	Perth and Kinross Council should develop a surface water management plan for Kinross. This would improve the understanding of surface water flood risk, and in the longer term look at possible action to manage the risk. The results of the sewer flood risk assessment should be considered. Current and long term flood risk should be considered and if climate change impacts are found to be significant, surface water management should include adaptive planning.
Coordination	The action delivery lead is Perth and Kinross Council. Perth and Kinross Council will engage consulting engineers to investigate the surface water flood risk and identify potential options for managing that risk. The plan will be coordinated through the Forth Estuary Local Plan District Partnership and with other related actions. Scottish Water will work with and support surface water management planning through ensuring that best available knowledge and data is used to input into the surface water management plans.

	Maintain flood protection scheme (Ref: 23905)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	Once built, Perth and Kinross Council should implement an inspection and maintenance regime for the South Kinross Flood Protection Scheme.
Coordination	The action delivery lead is Perth and Kinross Council. Perth and Kinross Council's Roads Maintenance Partnership will maintain any new flood protection scheme through a programme of inspections carried out in accordance with the recommendations set out in the scheme maintenance manuals. Maintenance works will be coordinated with SEPA, SNH, landowners and other stakeholders as required. The maintenance of the flood scheme will also be coordinated with related actions.

	Community resilience group (Ref: 23906)
Action	The group of community volunteers work to prepare and put in practice their Community Resilience Plan and be supported by the local authority.
Action detail	Perth and Kinross Council will continue to liaise with the Kinross Flood Resilience Group.
Coordination	The action delivery lead is the community. Perth and Kinross Council will continue to coordinate with the Kinross Flood Resilience Group on a priority needs basis where resources allow.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

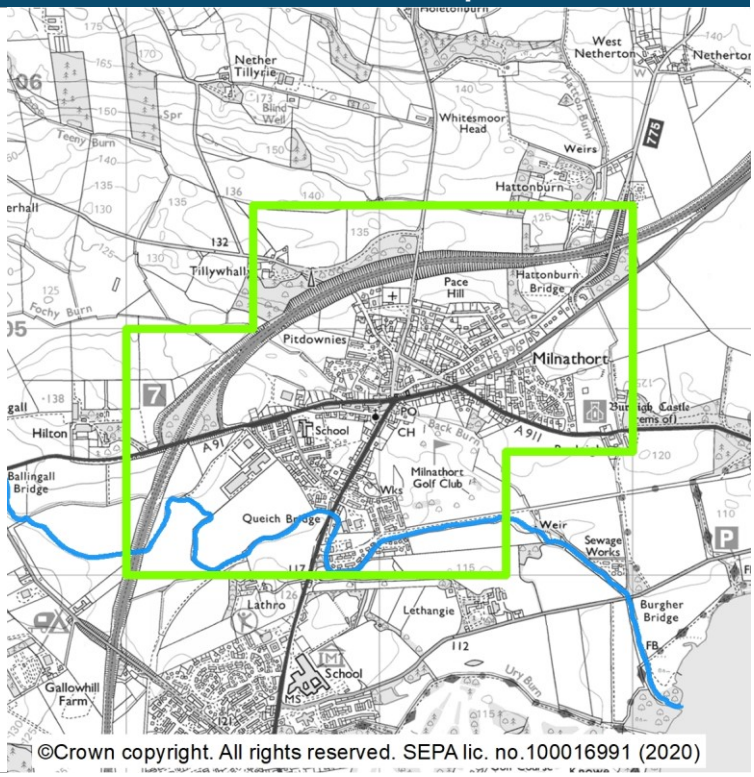
Flood risk management plan datasheet

Milnathort (target area 303)

Summary

Milnathort is a small town in Perth and Kinross located just north of Kinross. The main source of flooding in Milnathort is river flooding, however there is also a risk of surface water flooding. There are approximately 200 people and 130 properties currently at risk from flooding. This is likely to increase to 300 people and 180 properties by the 2080s due to climate change. A flood protection scheme is in place in the area, protecting homes and businesses to a 1 in 100 year standard of protection.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national assessments of flooding from rivers, surface water and coastal sources. The national assessment for surface water is improved by an on-going surface water management plan, a sewer flood risk assessment and flood study work in support of a proposed surface water flood protection scheme. National understanding of river flooding is improved by flood study work carried out for the existing Milnathort Flood Protection Scheme on the Back Burn.

There is a long record of flooding in this area. The Back Burn flooded in January 1993, affecting properties in the town centre. In December 2006 a prolonged period of heavy rainfall caused flooding to houses and a local pub, necessitating residents to be evacuated from their homes. The most recent significant flood was recorded in July 2013 when surface water flooded a number of homes and businesses. Since then, smaller scale surface water flooding occurred in 2020 but this did not cause any damage to properties.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
3031	Avoid flood risk	Avoid inappropriate development that increases flood risk in Milnathort
3032	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the flood protection schemes in Milnathort
3033	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Milnathort
3034	Reduce flood risk	Reduce the risk of surface water in Milnathort.

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Flood protection scheme (Ref: 30301)
Action	The selected preferred approach for managing flood risk is to be designed, including consideration of the long-term impacts of climate change. The flood scheme is to be built once statutory approval has been secured.
Action detail	The development of the outline design for the Milnathort Surface Water Flood Protection Scheme will continue and will consider long term flood risk and climate change. The development of the proposals will be informed by community engagement. The scheme will then progress to the statutory process set out under the Flood Risk Management (Scotland) Act. The detailed design will be completed thereafter. Following completion of the detailed design, the proposed scheme will be procured and will progress to construction. As built drawings will be made available to SEPA, for inclusion in the Scottish Flood Defence Asset Database, flood map updates and flood warning scheme updates.
Coordination	The action delivery lead is Perth and Kinross Council. The Milnathort Surface Water Flood Protection Scheme will continue to be coordinated through the Tay Local Plan District Partnership. The flood protection scheme will be coordinated with other related actions.

	Maintain flood protection scheme (Ref: 30302)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	Maintenance of the existing Milnathort Flood Protection Schemes (on the Back Burn) should continue in accordance with the inspection and maintenance regime. Maintenance of the new Milnathort Surface Water Flood Protection Scheme should commence once construction of the scheme is complete.
Coordination	The action delivery lead is Perth and Kinross Council. Perth and Kinross Council's Roads Maintenance Partnership will maintain any existing flood protection scheme through a programme of inspections carried out in accordance with the recommendations set out in the scheme maintenance manuals. Maintenance works will be coordinated with SEPA, SNH, landowners and other stakeholders as required. The maintenance of the flood scheme will also be coordinated with related actions.

	Sewer flood risk assessment (Ref: 30303)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Milnathort sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 30304)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	Development and implementation of a surface water management plan for Milnathort should continue as planned. This is being coordinated with the development of the proposed Milnathort Surface Water Flood Protection Scheme. Current and long term flood risk is being considered and, if climate change impacts are found to be significant, the plan will consider how the area can adapt to increased flood risk in the future.
Coordination	The action delivery lead is Perth and Kinross Council. Perth and Kinross Council has engaged consulting engineers to investigate the surface water flood risk and identify potential options for managing that risk. The plan will be coordinated through the Forth Estuary Local Plan District Partnership and with other related actions. Scottish Water will work with and support surface water management planning through ensuring that best available knowledge and data is used to input into the surface water management plans.

	Community engagement (Ref: 30305)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Community engagement will continue in connection with ongoing projects and activities. This will include engaging with the community on recent work to reduce the risk of flooding, the development of the surface water flood scheme proposals and the surface water management plan. Ongoing Covid-19 restrictions may impact the format of this awareness raising.
Coordination	The action delivery lead is Perth and Kinross Council. Awareness raising and community engagement will take place around any projects and will be coordinated through the Local Plan District Partnership.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

	Adaptation plan (Ref: 30306)
Action	Information on climate change is to be used to develop an adaptation plan to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	An adaptation plan will be developed to cover existing flood protection schemes in the Perth and Kinross Council area. The plan will aim to monitor the impacts of climate change on flood risk, including the impact on existing flood schemes, and to develop a long-term flood risk management approach.
Coordination	The action delivery lead is Perth and Kinross Council. The adaptation plan will be coordinated through the Local Plan District Partnership and with other related actions.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

02/10/04 (Kirkcaldy)

This area is designated as a Potentially Vulnerable Area due to flood risk in Buckhaven, East Wemyss, Kirkcaldy and Methil from river, coastal and surface water. There is a long history of flooding in this area, with recent coastal flooding causing flooding of roads and parking and damage to the sea wall.

There are 3 areas in this Potentially Vulnerable Area, which have been the focus of further assessment, these are listed below. Further information on the proposed objectives and actions to manage flood risk within this area is provided below.

List of target areas

East Wemyss	(target area 226)
Kirkcaldy	(target area 240)
Methil and Buckhaven	(target area 302)

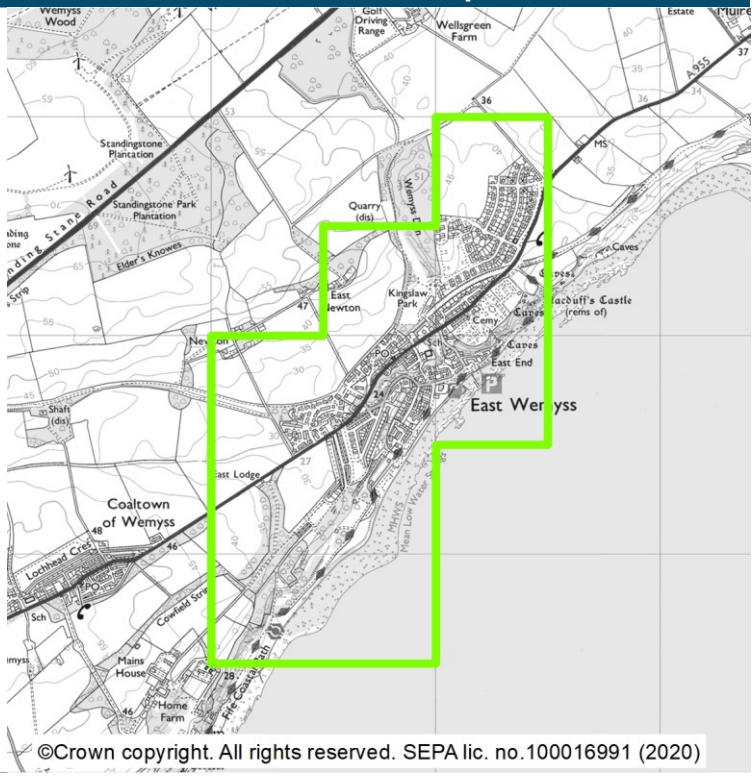
Flood risk management plan datasheet

East Wemyss (target area 226)

Summary

The village of East Wemyss is located on the northern shore of the Firth of Forth in the Fife Council area. The main source of flooding in East Wemyss is river flooding, however there is also a risk from coastal flooding. There are approximately 120 people and 60 homes and businesses currently at risk from flooding. This is estimated to increase to 150 people and 80 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for surface water flooding is improved by a sewer flood risk assessment. The national level assessment of coastal and river flooding is the main source of flood risk information in this area. There are periodic records of flooding in this area. A notable flood occurred in October 2012 when river flooding inundated roads, houses, businesses and agricultural land. More recently in October 2019 heavy rain flooded roads.

The Dynamic coast project has shown that parts of the shoreline in or adjacent to this target area are subject to erosion at present or are considered likely to erode in the future. Consideration should be given to how erosion might impact flood risk. Any actions taken should aim to support building natural resilience to flooding and not lead to an increase in erosion.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2261	Avoid flood risk	Avoid inappropriate development that increases flood risk in East Wemyss
2262	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of coastal defences along the coast at East Wemyss
2263	Improve data and understanding	Improve data and understanding of coastal defences scheme in East Wemyss
2264	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in East Wemyss
2265	Reduce flood risk	Reduce the risk of river flooding in East Wemyss

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Flood study (Ref: 22601)
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Action detail	The cycle 1 flood study should be completed as planned. The study is to include flood modelling and high level appraisal of actions. Current and long term flood risk should be considered and the outputs used to inform the development of an adaptation plan.
Coordination	Action delivery lead is Fife Council and coordination will be determined once the actions have been finalised.

	Strategic mapping improvements (Ref: 22602)
Action	SEPA will continue to update flood maps based on new information.
Action detail	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

	Community engagement (Ref: 22603)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Community engagement should be carried out based on the findings of the flood studies in the area.
Coordination	Action delivery lead is Fife Council in coordination with the responsible authorities and the Scottish Flood Forum.

	Flood defence maintenance (Ref: 22604)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	Fife Council should continue to maintain the existing coastal defences in their ownership.
Coordination	Action delivery lead is Fife Council and coordination will be determined once the actions have been finalised.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

	Adaptation plan (Ref: 22605)
Action	Information on climate change is to be used to develop an adaptation plan to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A climate change adaptation plan should be developed in relation to management of the existing defences owned by Fife Council. This is proposed as a long-term action covering the Fife Council area.
Coordination	Action delivery lead is Fife Council and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

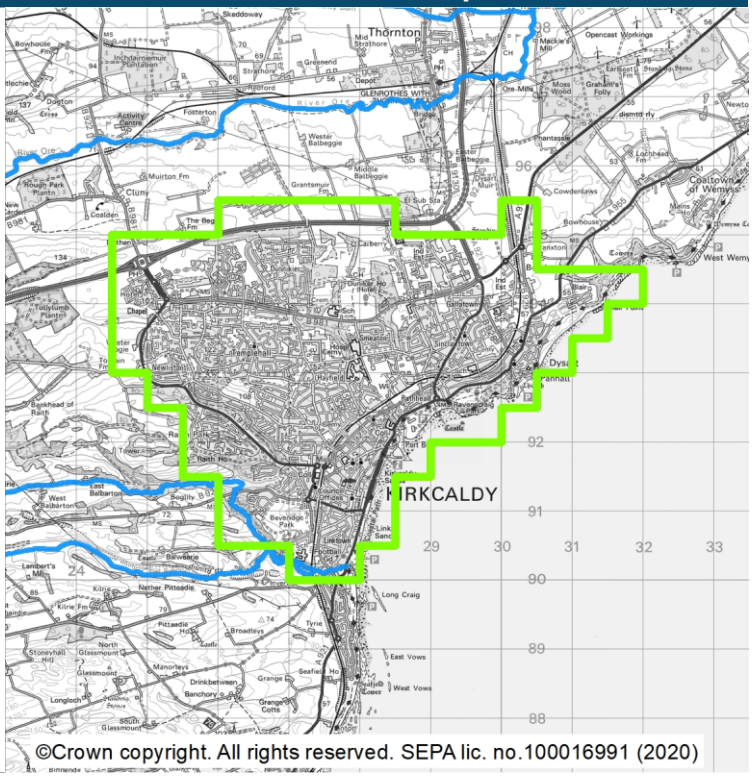
Flood risk management plan datasheet

Kirkcaldy (target area 240)

Summary

Kirkcaldy is located on the northern shore of the Firth of Forth within the Fife Council area. The main source of flooding is from surface water, however there is also risk of river and coastal flooding. There are approximately 1,900 people and 1,310 homes and businesses currently at risk from flooding. This is estimated to increase to 3,200 people and 2,000 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for river and coastal flooding is improved by the Linktown (Kirkcaldy) Flood Study completed in 2019. The national level assessment for surface water flooding is improved by a sewer flood risk assessment. There is a long record of flooding in this area with many floods recorded. A notable flood occurred in April 1958 when Kirkcaldy suffered significant coastal flooding which inundated homes and businesses. In August 2020 west Fife was subject to severe disruption from extreme rainfall which caused disruption to many communities, property damage and impacts to the roads network including in Kirkcaldy.
The Dynamic coast project has shown that parts of the shoreline in or adjacent to this target area are subject to erosion at present or are considered likely to erode in the future. Consideration should be given to how erosion might impact flood risk. Any actions taken should aim to support building natural resilience to flooding and not lead to an increase in erosion.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2401	Avoid flood risk	Avoid inappropriate development that increases flood risk in Kirkcaldy
2402	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of coastal defences along the coast at Kirkcaldy
2403	Improve data and understanding	Improve data and understanding of coastal defences scheme in Kirkcaldy
2404	Prepare for flooding	Prepare for current flood risk and/or future flooding as a result of climate change in Kirkcaldy
2405	Reduce flood risk	Reduce the risk of surface water flooding in Kirkcaldy
2406	Reduce flood risk	Reduce the risk of river flooding in Kirkcaldy

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Flood study (options appraisal) (Ref: 24001)
Action	In areas where flood risk is confirmed, a range of possible options to manage flood risk are to be identified, including natural flood management actions where suitable, and a preferred approach is to be chosen. This should include adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A flood study carried out in 2019 recommended that there is no economically viable flood scheme to protect against low frequency floods. The local authority is to explore whether a solution offering a lower standard of protection would be acceptable.
Coordination	Action delivery lead is Fife Council and coordination will be determined once the actions have been finalised.

	Sewer flood risk assessment (Ref: 24002)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Kirkcaldy sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 24003)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	Fife Council should continue to develop the surface water management plan for Kirkcaldy. This will improve understand surface water flood risk and mechanisms, and in the longer term look at possible action to manage the risk. The results of the sewer flood risk assessment should be considered. Current and long term flood risk should be considered and if climate change impacts are found to be significant, surface water management should be included in the adaptation plan. Kirkcaldy is a Scottish Water priority area and opportunities to work jointly should be explored.
Coordination	Action delivery lead is Fife Council in coordination with Scottish Water and other actions in the area.

	Strategic mapping improvements (Ref: 24004)
Action	SEPA will continue to update flood maps based on new information.
Action detail	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

	Flood defence maintenance (Ref: 24005)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	Defences in the area a combination of local authority and privately owned defences. Defences owned by Fife Council (from Tiel Burn to Williamsons Quay) should continue to be inspected and maintained by the council.
Coordination	Action delivery lead is Fife Council and coordination will be determined once the actions have been finalised.

	Flood warning maintenance (Ref: 24006)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Forth and Tay coastal flood warning scheme. The scheme should be investigated for improvement and/or recalibration.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

	Adaptation plan (Ref: 24007)
Action	Information on climate change is to be used to develop an adaptation plan to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A climate change adaptation plan should be developed in relation to management of the existing defences owned by Fife Council. This is proposed as a long-term action covering the Fife Council area.
Coordination	Action delivery lead is Fife Council and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

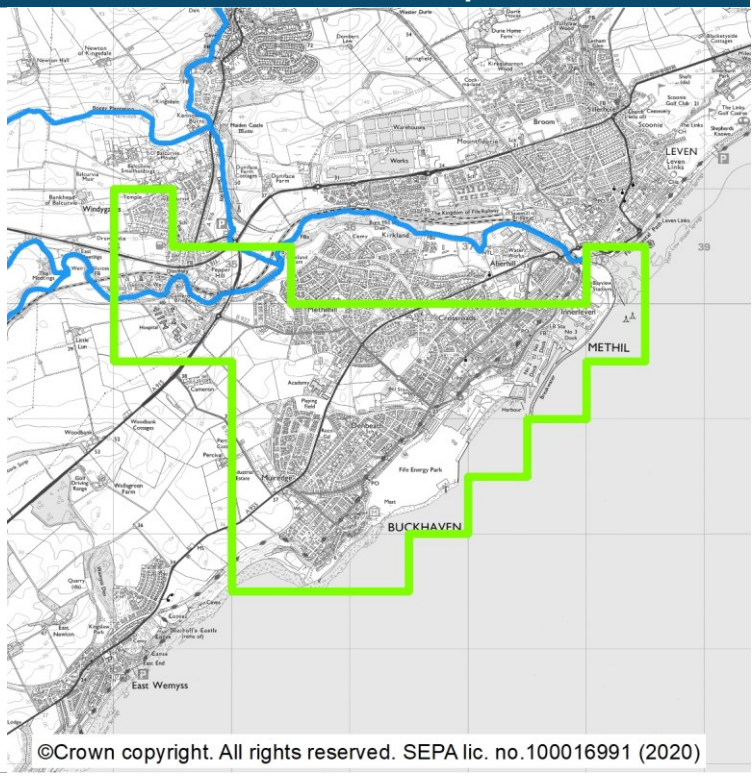
Flood risk management plan datasheet

Methil and Buckhaven (target area 302)

Summary

The towns of Methil and Buckhaven are located on the east coast of Scotland in the Fife Council area. The main source of flooding in Methil and Buckhaven is surface water and coastal flooding. River flood risk is also recorded in the area, which mainly affects businesses and is therefore not considered further in the analysis. There are approximately 530 people and 420 properties at risk from flooding. This is estimated to increase to 900 people and 620 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for surface water flooding is improved by the Leven Valley Integrated Catchment Study. There are limited records of flooding in this area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
3021	Avoid flood risk	Avoid inappropriate development that increases flood risk in Methil and Buckhaven
3022	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of coastal defences along the coast at Methil
3023	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Methil and Buckhaven
3024	Reduce flood risk	Reduce the risk of surface water flooding in Methil and Buckhaven

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Sewer flood risk assessment (Ref: 30201)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Leven Valley sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 30202)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	Development of the surface water management plan should continue based on the findings of the integrated catchments study and sewer flood risk assessment. Current and long term flood risk should be considered.
Coordination	Action delivery lead is Fife Council in coordination with Scottish Water and other actions in the area.

	Community engagement (Ref: 30203)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Community engagement should be carried out based on the findings of the flood studies in the area.
Coordination	Action delivery lead is Fife Council in coordination with the responsible authorities and the Scottish Flood Forum.

	Flood warning maintenance (Ref: 30204)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Forth and Tay coastal flood warning scheme. The scheme should be investigated for improvement and/or recalibration.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

	Flood defence maintenance (Ref: 30205)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	The local authority should continue to maintain the existing coastal defences in their ownership that reduce coastal flood risk to the communities.
Coordination	Action delivery lead is Fife Council and coordination will be determined once the actions have been finalised.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

	Adaptation plan (Ref: 30206)
Action	Information on climate change is to be used to develop an adaptation plan to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A climate change adaptation plan should be developed in relation to management of the existing defences owned by Fife Council. This is proposed as a long-term action covering the Fife Council area.
Coordination	Action delivery lead is Fife Council and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

02/10/05 (Cardenden and Cowdenbeath)

This area is designated as a Potentially Vulnerable Area due to flood risk at Cardenden and Cowdenbeath. The main source of flooding is surface water and river flooding from the River Ore and its tributaries. There have been a number of reports of river and surface water floods affecting these communities, including recent floods in August 2020 from the River Den.

There are 2 areas in this Potentially Vulnerable Area, which have been the focus of further assessment, these are listed below. Further information on the proposed objectives and actions to manage flood risk within this area is provided below.

List of target areas

Cardenden	(target area 209)
Cowdenbeath	(target area 215)

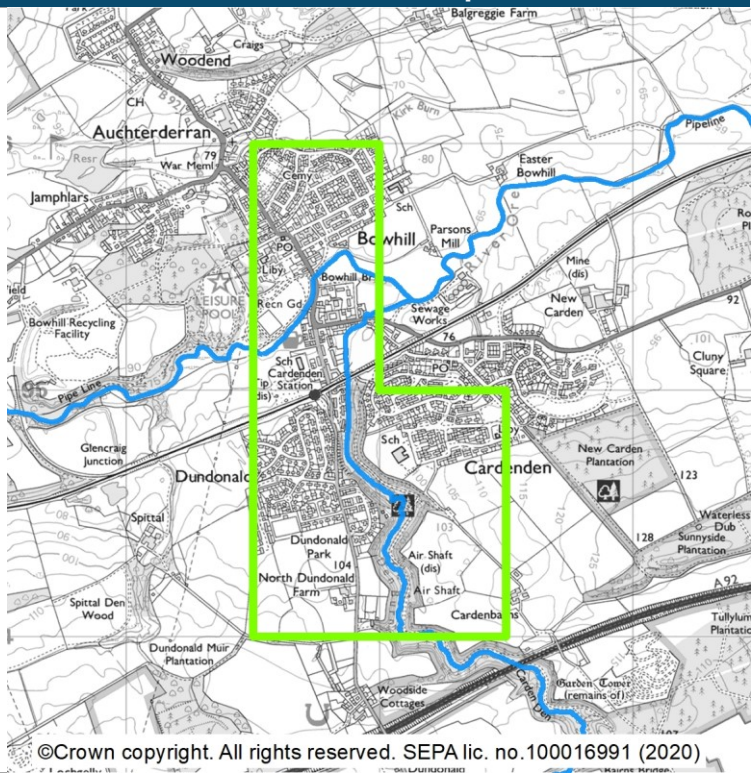
Flood risk management plan datasheet

Cardenden (target area 209)

Summary

Cardenden is located 5km west of Kirkcaldy in the Fife Council area. The main source of flooding is river flooding, including River Ore and small watercourses. There are approximately 290 people and 160 homes and businesses currently at risk from flooding. This is estimated to increase to 310 people and 170 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for river flooding is improved by the Cardenden Flood Study completed in 2020. There is a long record of flooding in this area, with the first flood recorded in April 1998 when the River Ore burst its banks flooding Wallsgreen Park. Recently in August 2020, flooding from the Den Burn affected around 20 homes in Cardenden following heavy rainfall.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2091	Avoid flood risk	Avoid inappropriate development that increases flood risk in Cardenden
2092	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Cardenden
2093	Reduce flood risk	Reduce the risk of river flooding from the River Ore and small watercourses in Cardenden

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Sewer flood risk assessment (Ref: 20901)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Leven Valley sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Community resilience group (Ref: 20902)
Action	The group of community volunteers work to prepare and put in practice their Community Resilience Plan and be supported by the local authority.
Action detail	The local authority should continue to support Cardenden Flood Forum and its activities.
Coordination	Action delivery lead is the community and coordination will be determined once the actions have been finalised.

	Community engagement (Ref: 20903)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Community engagement should be carried out based on the findings of the flood studies in the area.
Coordination	Action delivery lead is Fife Council in coordination with the responsible authorities and the Scottish Flood Forum.

	Flood study (options appraisal) (Ref: 20904)
Action	In areas where flood risk is confirmed, a range of possible options to manage flood risk are to be identified, including natural flood management actions where suitable, and a preferred approach is to be chosen. This should include adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	Flood study covering Cardenden has been completed. Fife Council are currently considering next steps to manage flood risk.
Coordination	Action delivery lead is Fife Council and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

There is potential to work with SEPA's River Basin Management team to improve the physical condition of the water environment.

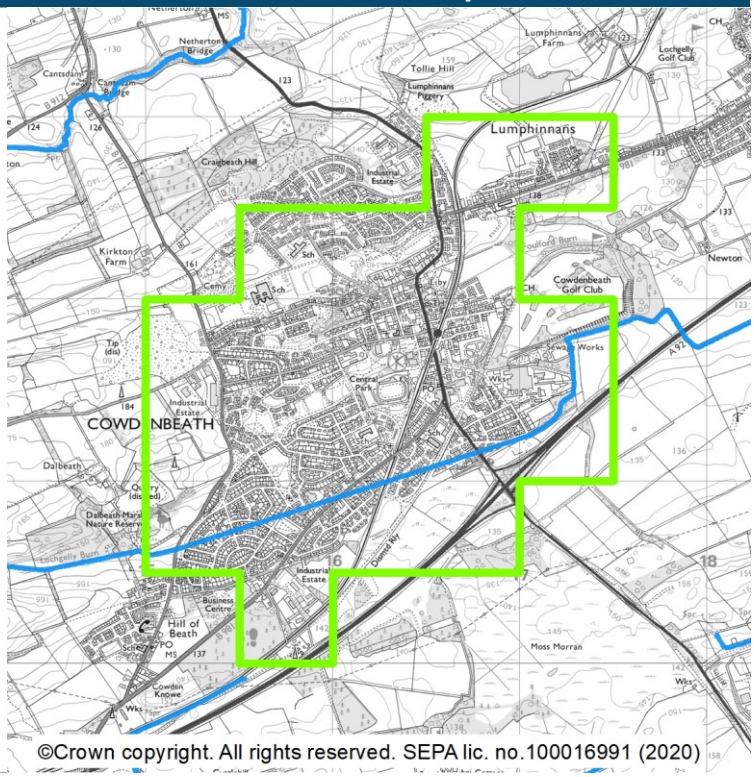
Flood risk management plan datasheet

Cowdenbeath (target area 215)

Summary

The town of Cowdenbeath is located a few kilometres north east of Dunfermline in Fife. The main source of flooding in Cowdenbeath is surface water, however there is also risk from river flooding. There are approximately 560 people and 360 homes and businesses currently at risk from flooding. This is estimated to rise to 700 people and 450 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for surface water flooding is improved by an integrated catchment study for Leven Valley and a sewer flood risk assessment. There are periodic records of flooding in this area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2151	Avoid flood risk	Avoid inappropriate development that increases flood risk in Cowdenbeath
2152	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Cowdenbeath
2153	Reduce flood risk	Reduce the risk of river flooding from the Lochgelly Burn in Cowdenbeath
2154	Reduce flood risk	Reduce the risk of surface water flooding in Cowdenbeath

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Flood study (Ref: 21501)
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Action detail	The flood study for Cowdenbeath is due to start by December 2021. Development of the flood study should continue as planned.
Coordination	Action delivery lead is Fife Council and coordination will be determined once the actions have been finalised.

	Sewer flood risk assessment (Ref: 21502)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Leven Valley sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 21503)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	The development and implementation of a surface water management plan for Cowdenbeath should continue as planned.
Coordination	Action delivery lead is Fife Council in coordination with Scottish Water and other actions in the area.

	Community engagement (Ref: 21504)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Community engagement should be carried out based on the findings of the flood studies in the area.
Coordination	Action delivery lead is Fife Council in coordination with the responsible authorities and the Scottish Flood Forum.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

There is potential to work with SEPA's River Basin Management team to improve the physical condition of the water environment.

02/10/06 (Inverkeithing, Rosyth and Dunfermline)

This area is designated as a Potentially Vulnerable Area due to flood risk to Crossford, Dunfermline, Inverkeithing and Rosyth from coastal, river, and surface water flooding. The main risk comes from surface water and river flooding. There is a long history of flooding in this area, with recent surface water flooding affecting homes and roads across this area in August 2019, and further surface water flooding in Rosyth in January 2020.

There are 4 areas in this Potentially Vulnerable Area, which have been the focus of further assessment, these are listed below Further information on the proposed objectives and actions to manage flood risk within this area is provided below.

List of target areas

Crossford	(target area 217)
Dunfermline	(target area 224)
Inverkeithing	(target area 236)
Rosyth	(target area 312)

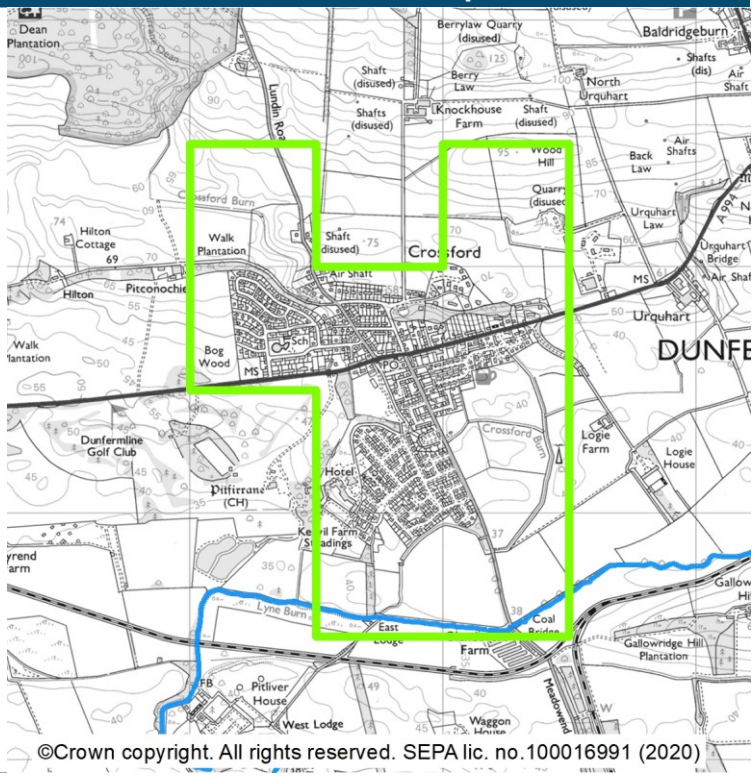
Flood risk management plan datasheet

Crossford (target area 217)

Summary

Crossford lies west of Dunfermline and within the Fife Council area. The main source of flooding in Crossford is surface water and there is limited risk from river flooding. There are approximately 250 people and 120 homes and businesses currently at risk from flooding. This is likely to increase to 270 people and 140 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for surface water flooding is improved by an integrated catchment study and a sewer flood risk assessment. There are limited records of flooding in this area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2171	Avoid flood risk	Avoid inappropriate development that increases flood risk in Crossford
2172	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Crossford
2173	Reduce flood risk	Reduce the risk of surface water flooding in Crossford

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Sewer flood risk assessment (Ref: 21701)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Iron Mill Bay sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 21702)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A surface water management plan should be drawn up for Crossford following the outcomes of the integrated catchment study to address more local surface water flooding issues.
Coordination	Action delivery lead is Fife Council in coordination with Scottish Water and other actions in the area.

	Community engagement (Ref: 21703)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Community engagement should be carried out based on the findings of the flood studies in the area.
Coordination	Action delivery lead is Fife Council in coordination with the responsible authorities and the Scottish Flood Forum.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

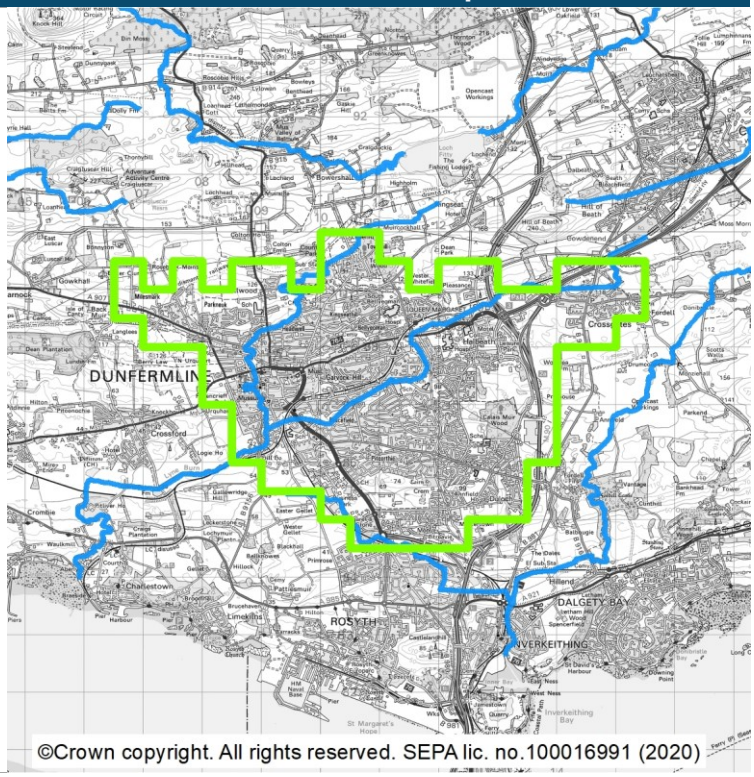
Flood risk management plan datasheet

Dunfermline (target area 224)

Summary

The town of Dunfermline is located 5km from the northern shore of the Firth of Forth, within the Fife Council area. The main sources of flooding in Dunfermline are river and surface water. There are approximately 2,500 people and 1,400 homes and businesses currently at risk from flooding. This is likely to increase to 3,100 people and 1,700 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for river flooding is improved by a flood study for Dunfermline which includes the Lyne Burn and the Tower Burn. The national level assessment for surface water flooding is improved by an integrated catchment study and a sewer flood risk assessment. There is a long record of flooding in this area, with recent flooding recorded in 2019.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2241	Avoid flood risk	Avoid inappropriate development that increases flood risk in Dunfermline
2242	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the Dunfermline Flood Protection Scheme in the south west of the town and Parkneuk Flood Protection Scheme.
2244	Reduce flood risk	Reduce the risk of river flooding from the Lyne Burn and Tower Burn in Dunfermline
2245	Reduce flood risk	Reduce the risk of surface water flooding in Dunfermline

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Flood study (Ref: 22401)
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Action detail	The flood protection study should be completed as planned. There is an ongoing restoration project on the Lyne Burn which should be coordinated with the study as far as possible. Current and long term flood risk should be considered and how the existing flood defences and the area will adapt to changes in flood risk due to climate change.
Coordination	Action delivery lead is Fife Council and coordinated with the Water Environment Fund, Lyne Burn restoration project.

	Sewer flood risk assessment (Ref: 22402)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dunfermline and Iron Mill Bay sewer catchments in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 22403)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A surface water management plan for Dunfermline should be drawn up following the outcomes of the integrated catchment study to address more local surface water flooding issues.
Coordination	Action delivery lead is Fife Council in coordination with Scottish Water and other actions in the area.

	Community engagement (Ref: 22404)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Community engagement should be carried out based on the findings of the flood studies in the area.
Coordination	Action delivery lead is Fife Council in coordination with the responsible authorities and the Scottish Flood Forum.

	Flood defence maintenance (Ref: 22406)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	Fife Council should continue to maintain the existing flood defences in Dunfermline. Development of, or updates to any existing maintenance regime to be made based on the findings of the flood studies.
Coordination	Action delivery lead is Fife Council and coordination will be determined once the actions have been finalised.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

	Adaptation plan (Ref: 22405)
Action	Information on climate change is to be used to develop an adaptation plan to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A climate change adaptation plan should be developed in relation to management of the existing defences owned by Fife Council. This is proposed as a long-term action covering the Fife Council area.
Coordination	Action delivery lead is Fife Council and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

There are opportunities to work with SEPA's Water Environment Fund project at Rex Park.

There is potential to work with SEPA's River Basin Management team to improve the physical condition of the water environment.

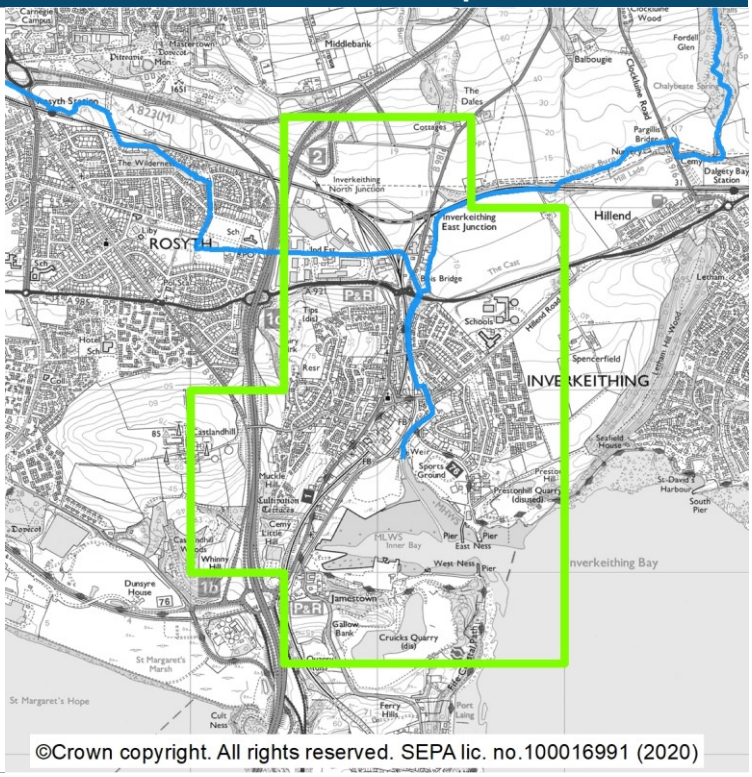
Flood risk management plan datasheet

Inverkeithing (target area 236)

Summary

Inverkeithing is located on the northern shore of the Firth of Forth in Fife. The main source of flooding to Inverkeithing is river flooding, however there is also risk from coastal and surface water flooding. There are approximately 80 people and 90 homes and businesses at risk from flooding. This is likely to increase to 90 people and 110 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is the main source of flood risk information in this area. There is a long record of flooding in this area. A notable flood occurred in April 1992 causing the Keithing Burn to burst its banks flooding roads, gardens, out-buildings, fields, building yards, public parks, the basement of a primary school and part of the railway line. A recent flood occurred in August 2020 when the severe rainfall caused disruption to the community, property damage and impacts on the roads network.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2361	Avoid flood risk	Avoid inappropriate development that increases flood risk in Inverkeithing
2362	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Inverkeithing

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Sewer flood risk assessment (Ref: 23601)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dunfermline sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Flood defence maintenance (Ref: 23602)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	Fife Council should continue to maintain the existing coastal defences. The existing coastal defences are a mix of local authority owned flood defences such as the main rock revetment and privately owned defences which are the responsibility of the private owners.
Coordination	Action delivery lead is Fife Council and coordination will be determined once the actions have been finalised.

	Flood warning maintenance (Ref: 23603)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Forth and Tay coastal flood warning scheme. The scheme should be investigated for improvement and/or recalibration.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

	Adaptation plan (Ref: 23604)
Action	Information on climate change is to be used to develop an adaptation plan to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A climate change adaptation plan should be developed in relation to management of the existing defences owned by Fife Council. This is proposed as a long-term action covering the Fife Council area.
Coordination	Action delivery lead is Fife Council and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

There is potential to work with SEPA's River Basin Management team to improve the physical condition of the water environment.

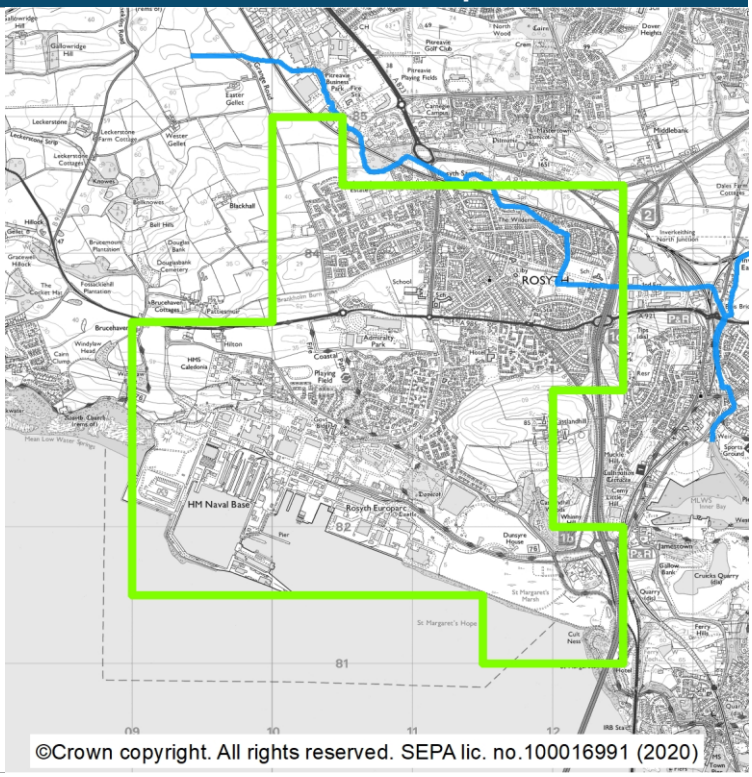
Flood risk management plan datasheet

Rosyth (target area 312)

Summary

Rosyth is located on the north shore of the Firth of Forth, within the Fife Council area. The main source of flooding in Rosyth is surface water, and there is also some risk from river and coastal flooding. There are approximately 610 people and 380 homes and businesses currently at risk from flooding. This is likely to increase to 800 people and 500 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for surface water flooding is improved by an integrated catchment study and a sewer flood risk assessment. There are frequent records of flooding in this area, mostly associated with surface water flooding. Recent floods were recorded in January, February and August of 2020 when heavy rain caused flooding to roads, gardens and homes in Rosyth.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
3121	Avoid flood risk	Avoid inappropriate development that increases flood risk in Rosyth
3122	Improve data and understanding	Improve data and understanding of surface water flooding in Rosyth
3123	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Rosyth
3124	Reduce flood risk	Reduce the risk of surface water flooding in Rosyth

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Flood study (options appraisal) (Ref: 31201)
Action	In areas where flood risk is confirmed, a range of possible options to manage flood risk are to be identified, including natural flood management actions where suitable, and a preferred approach is to be chosen. This should include adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	Scottish Water will lead on a study to look at potential options to manage sewer flooding in the Park Road area of Rosyth, with coordination from Fife Council.
Coordination	Action delivery lead is Scottish Water in coordination with Fife Council and other actions in the area.

	Sewer flood risk assessment (Ref: 31202)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dunfermline sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 31203)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	Fife Council should progress a surface water management plan, informed by the outcomes of the integrated catchment study.
Coordination	Action delivery lead is Fife Council in coordination with Scottish Water and other actions in the area.

	Community engagement (Ref: 31204)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Community engagement should be carried out based on the findings of the flood studies in the area.
Coordination	Action delivery lead is Fife Council in coordination with the responsible authorities and the Scottish Flood Forum.

	Flood defence maintenance (Ref: 31205)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	Asset owners should continue to maintain coastal defences in the Rosyth area.
Coordination	Action delivery leads are Fife Council and the asset owner. Coordination will be determined once the actions have been finalised.

	Flood warning maintenance (Ref: 31206)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Forth and Tay coastal flood warning scheme. The scheme should be investigated for improvement and/or recalibration.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

02/10/07 (Cairneyhill)

This area is designated as a Potentially Vulnerable Area due to flood risk to Cairneyhill and Torryburn from coastal, river and surface water. The main source of flooding in Cairneyhill is river flooding and surface water whilst in Torryburn the main source is coastal. There is a history of flooding in this area, particularly in Cairneyhill, including recent flooding of properties and roads from the Torry Burn.

There are 2 areas in this Potentially Vulnerable Area, which have been the focus of further assessment, these are listed below Further information on the proposed objectives and actions to manage flood risk within this area is provided below.

List of target areas

Cairneyhill	(target area 207)
Torryburn	(target area 318)

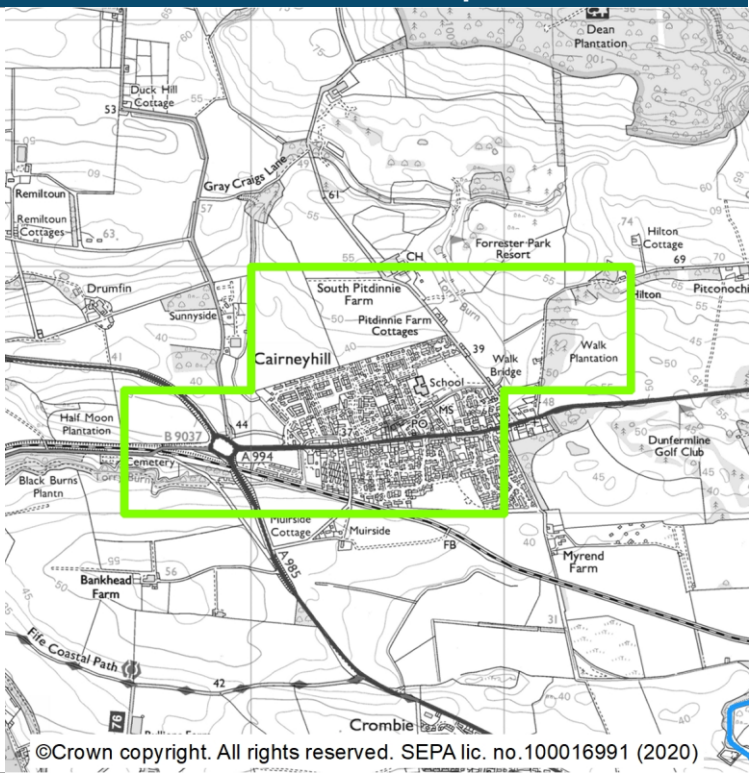
Flood risk management plan datasheet

Cairneyhill (target area 207)

Summary

Cairneyhill is a small village in west Fife. The main sources of flooding in Cairneyhill are river and surface water flooding. There are approximately 520 people and 270 homes and businesses currently at risk from flooding. This is likely to increase to 620 people and 320 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for surface water flooding is improved by an integrated catchment study, a sewer flood risk assessment and a surface water management plan. There is a long record of flooding in this area, including a recent flood in August 2020 when roads, playgrounds and playing fields were flooded. The Cairneyhill Flood Prevention Scheme provides some protection against river flooding from the Torry Burn.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2071	Avoid flood risk	Avoid inappropriate development that increases flood risk in Cairneyhill
2072	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the Cairneyhill Flood Protection Scheme.
2073	Improve data and understanding	Improve data and understanding of river flooding in Cairneyhill
2074	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Cairneyhill
2075	Reduce flood risk	Reduce the risk of river flooding from the Torry Burn in Cairneyhill
2076	Reduce flood risk	Reduce the risk of surface water flooding in Cairneyhill

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Flood study (Ref: 20701)
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Action detail	Cairneyhill Flood Study should continue to its conclusions. The study is looking to develop a flood model to improve local understanding of flood risk, assess the condition of the existing flood defences in Cairneyhill and assess the options to manage flood risk. Current and long term flood risk is considered and how the existing flood defences and the area will adapt to changes in flood risk due to climate change.
Coordination	Action delivery lead is Fife Council and coordination will be determined once the actions have been finalised.

	Sewer flood risk assessment (Ref: 20702)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Iron Mill Bay sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 20703)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	Development of the surface water management plan should continue based on the findings of the integrated catchment study. The integrated catchment study and Scottish Water's sewer flood risk assessment should be reviewed to ascertain any requirements of the surface water management plan. Current and long term flood risk should be considered and how the area will adapt to changes in flood risk due to climate change.
Coordination	Action delivery lead is Fife Council in coordination with Scottish Water and other actions in the area.

	Community engagement (Ref: 20704)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Community engagement should be carried out based on the findings of the flood studies in the area.
Coordination	Action delivery lead is Fife Council in coordination with the responsible authorities and the Scottish Flood Forum.

	Flood defence maintenance (Ref: 20705)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	Maintenance to the Cairneyhill Flood Protection Scheme should continue and updates to the maintenance regime be made based on the findings of the flood study and adaptation plan.
Coordination	Action delivery lead is Fife Council and coordination will be determined once the actions have been finalised.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

	Adaptation plan (Ref: 20706)
Action	Information on climate change is to be used to develop an adaptation plan to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A climate change adaptation plan should be developed in relation to management of the existing defences owned by Fife Council. This is proposed as a long-term action covering the Fife Council area.
Coordination	Action delivery lead is Fife Council and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

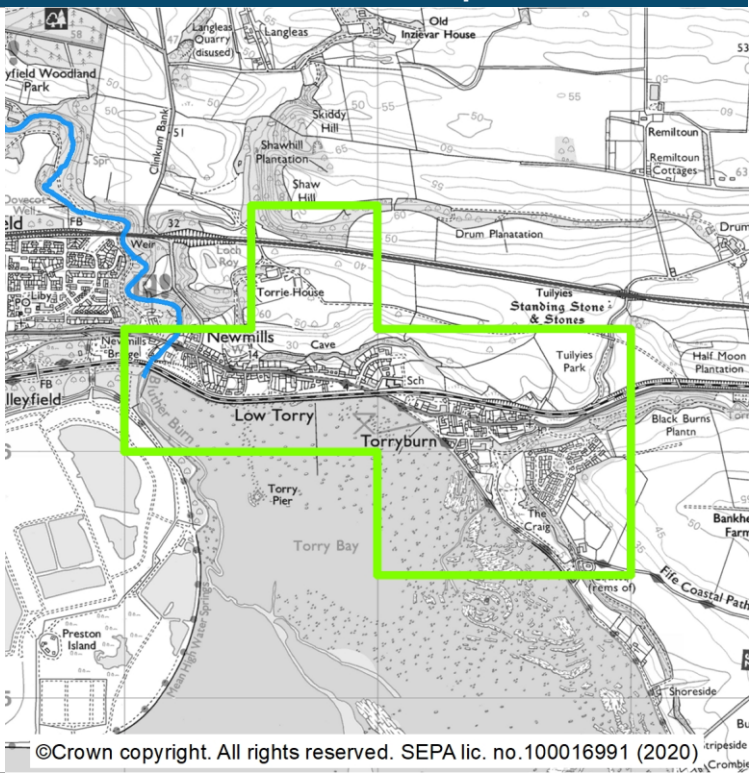
Flood risk management plan datasheet

Torryburn (target area 318)

Summary

The village of Torryburn is located on the northern shore of the Firth of Forth, in the Fife Council area. The main source of flooding is coastal flooding, which is thought to be underestimated on SEPA's flood maps. There is also lower risk of river and surface water flooding. There are approximately 150 people and 80 homes and businesses currently at risk from flooding. This is estimated to increase to 200 people and 110 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for river and coastal flooding is improved by a flood study for Cairneyhill, which includes a coastal study for Torryburn. The national level assessment for surface water flooding is improved by a sewer flood risk assessment. There are limited records of flooding in this area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
3181	Avoid flood risk	Avoid inappropriate development that increases flood risk in Torryburn
3182	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of flood defences along the coast in Torryburn.
3183	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Torryburn
3184	Reduce flood risk	Reduce the risk of coastal flooding in Torryburn.

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Flood warning maintenance (Ref: 31801)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Forth and Tay coastal flood warning scheme. The scheme should be investigated for improvement and/or recalibration.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

	Strategic mapping improvements (Ref: 31802)
Action	SEPA will continue to update flood maps based on new information.
Action detail	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

	Flood defence maintenance (Ref: 31803)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	Asset owners should continue to maintain the existing coastal defences.
Coordination	Action delivery leads are Fife Council and the asset owner. Coordination will be determined once the actions have been finalised.

	Community engagement (Ref: 31804)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Community engagement should be carried out based on the findings of the flood studies in the area.
Coordination	Action delivery lead is Fife Council in coordination with the responsible authorities and the Scottish Flood Forum.

	Shoreline Management Plan (Coastal Adaptive Plan) (Ref: 31805)
Action	The existing assessment of coastal flood and erosion risk is to be reviewed and updated as required. The plan should include assessment of climate change and develop adaptive approaches to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A shoreline management plan has been produced for this area by Fife Council. The plan is now operational and no review is planned in the short term. In the longer term the plan will be reviewed with the latest data and adaptive approaches considered in relation to the impacts of climate change.
Coordination	Action delivery lead is Fife Council and coordination will be determined once the actions have been finalised

	Flood study (Ref: 31806)
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Action detail	The ongoing coastal natural flood management study for Torryburn should be completed as planned. The study considers the impacts of climate change on flood risk. Should climate change be found to be significant this information should be taken forward to develop an adaptation plan and to update the existing shoreline management plan.
Coordination	Action delivery lead is Fife Council and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

02/10/08 (Airth)

This area is designated as a Potentially Vulnerable Area due to coastal flood risk to the Airth area. Coastal flooding of land and damage to flood defences and the water treatment works has been recorded.

There is 1 area in this Potentially Vulnerable Area, which has been the focus of further assessment, this is identified below. Further information on the proposed objectives and actions to manage flood risk within this area is provided below.

List of target areas

Airth (target area 185)

Flood risk management plan datasheet

Airth (target area 185)

Summary

Airth is a village located 7km north of Falkirk, on the south bank of the River Forth. The main source of flooding to Airth is coastal flooding, however, some surface water flooding has also been recorded in the area. There are approximately 270 people and 140 homes and businesses currently at risk from flooding. This is estimated to increase to 290 people and 150 homes and businesses by the 2080s due to climate change. A feasibility report to consider options for progressing a flood protection scheme was completed in May 2017.

Location map

What is the current understanding of flood risk?

This section provides a summary of information which has helped to develop an understanding of flood risk in the area. Since 2011, SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for coastal flooding has been improved by the coastal flood study for Airth completed in 2017. There are records of flooding for this area from coastal and surface water sources, with recent surface water flooding recorded in December 2019.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
1851	Avoid flood risk	Avoid inappropriate development that increases flood risk in Airth
1852	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Airth
1853	Reduce flood risk	Reduce the risk of coastal flooding in Airth

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Flood warning maintenance (Ref: 18501)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Forth and Tay coastal flood warning scheme. The scheme should be investigated for improvement and/or recalibration.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

	Strategic mapping improvements (Ref: 18502)
Action	SEPA will continue to update flood maps based on new information.
Action detail	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

	Adaptation plan (Ref: 18503)
Action	Information on climate change is to be used to develop an adaptation plan to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A climate change adaptation plan will be developed to allow for the likely impacts of climate change to be better understood. Future changes are to be monitored and where possible managed. Initially this should include an investigation into how the new climate change projections affect coastal flood risk in the area.
Coordination	Action delivery lead is Falkirk Council and coordination will be determined once the actions have been finalised.

	Community engagement (Ref: 18504)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Engagement will continue with Airth Community Council regarding improving community resilience.
Coordination	Action delivery leads are the responsible authorities in coordination with the Scottish Flood Forum.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

02/10/09 (Kincardine and Culross)

This area is designated as a Potentially Vulnerable Area due to flood risk to Kincardine and Culross. The main source of flooding is coastal from the Firth of Forth and surface water and there is also risk of river flooding in Kincardine. There are a few records of flooding in this area, with the most recent flooding occurring in Culross in 2019 and 2020 from surface water.

There are 2 areas in this Potentially Vulnerable Area, which have been the focus of further assessment, these are listed below. Further information on the proposed objectives and actions to manage flood risk within this area is provided below.

List of target areas

Culross	(target area 234)
Kincardine	(target area 237)

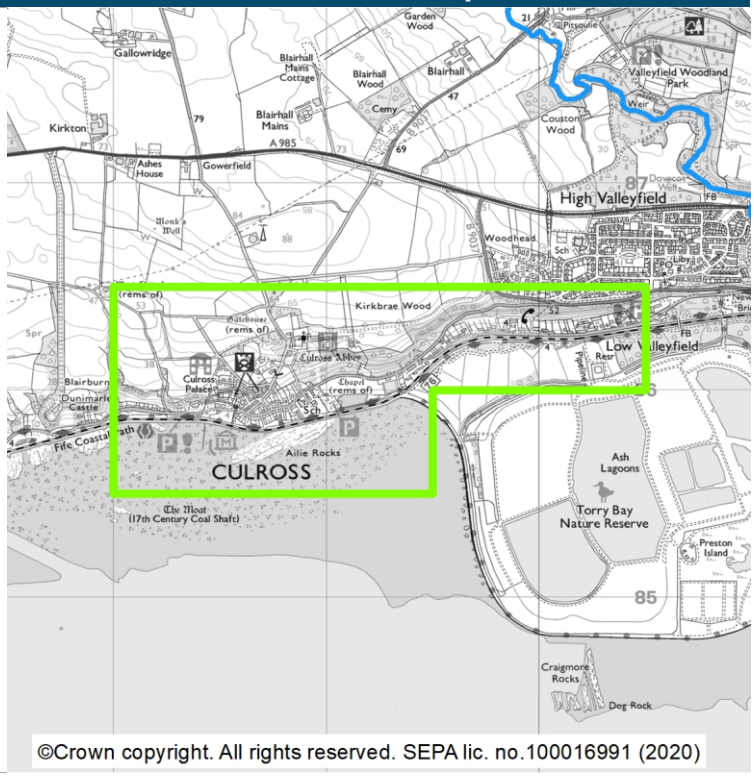
Flood risk management plan datasheet

Culross (target area 234)

Summary

The village of Culross is located along the northern shore of the Firth of Forth within the Fife Council area. The main source of flooding in Culross is coastal flooding, however there is also a risk from surface water flooding. There are approximately 250 people and 150 homes and businesses currently at risk from flooding. This is likely to increase to 330 people and 190 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for coastal flooding is improved by the Kincardine and Culross Flood Study completed in 2019, and the Fife Shoreline Management Plan. The national level assessment for surface water flooding is improved by a sewer flood risk assessment. Recent floods were recorded in August 2019 and August 2020. A significant quantity of surface water run-off was noted from the fields to the north of Culross affecting infrastructure, homes and businesses, mainly at lower locations of Culross such as Low Causeway, Main Street, and Balgownie West.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2341	Avoid flood risk	Avoid inappropriate development that increases flood risk in Culross
2342	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Culross
2343	Reduce flood risk	Reduce the risk of coastal flooding in Culross.
2344	Reduce flood risk	Reduce the risk of surface water flooding

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Flood scheme or works design (Ref: 23401)
Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	The Kincardine and Culross Flood Study carried out in 2019 identified two potential options which would provide flood protection to Culross. The option with the best cost benefit ratio has been submitted for prioritisation. This flood protection scheme is to continue to be developed through the prioritisation process. Current and long term flood risk should be considered and how the flood protection scheme and the area will adapt to changes in flood risk due to climate change.
Coordination	Action delivery lead is Fife Council and coordination will be determined once the actions have been finalised.

	Surface water management plan (Ref: 23402)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A surface water management plan is recommended for Culross. The results of the sewer flood risk assessment should be considered. Current and long term flood risk should be considered and if climate change impacts are found to be significant, surface water management should be included in the adaptation plan. Culross is a Scottish Water priority area and opportunities to work jointly should be explored.
Coordination	Action delivery lead is Fife Council in coordination with Scottish Water and other actions in the area.

	Flood warning maintenance (Ref: 23403)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Forth and Tay coastal flood warning scheme. The scheme should be investigated for improvement and/or recalibration.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

	Shoreline Management Plan (Coastal Adaptive Plan) (Ref: 23404)
Action	The existing assessment of coastal flood and erosion risk is to be reviewed and updated as required. The plan should include assessment of climate change and develop adaptive approaches to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A shoreline management plan has been produced for this area by Fife Council. The plan is now operational and no review is planned in the short term. In the longer term the plan will be reviewed with the latest data and adaptive approaches considered in relation to the impacts of climate change.
Coordination	Action delivery lead is Fife Council and coordination will be determined once the actions have been finalised.

	Strategic mapping improvements (Ref: 23405)
Action	SEPA will continue to update flood maps based on new information.
Action detail	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

	Flood study (options appraisal) (Ref: 23406)
Action	In areas where flood risk is confirmed, a range of possible options to manage flood risk are to be identified, including natural flood management actions where suitable, and a preferred approach is to be chosen. This should include adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	The Kincardine and Culross Flood Study carried out in 2019 identified two potential options which would provide flood protection to Culross. The option with the best cost benefit ratio has been submitted for prioritisation. Other option is to be further developed through a detailed option appraisal. Current and long term flood risk should be considered and the findings included in the adaptation plan.
Coordination	Action delivery lead is Fife Council and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

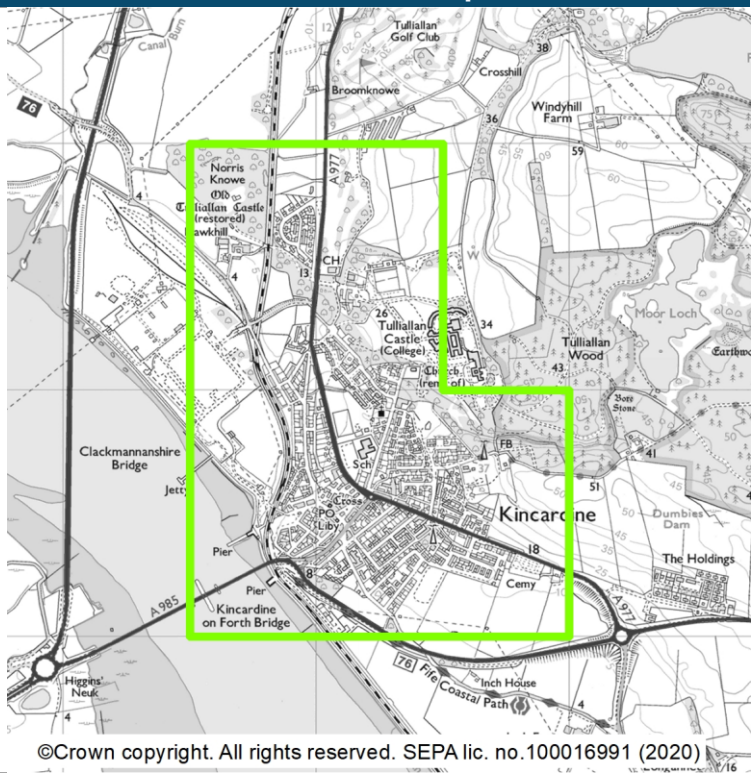
Flood risk management plan datasheet

Kincardine (target area 237)

Summary

The town of Kincardine is located on the northern shore of the Firth of Forth within the Fife Council area. The main source of flooding in Kincardine is coastal flooding, however there is also a risk from river flooding. There are approximately 540 people and 280 homes and businesses currently at risk from flooding. This is estimated to increase to 900 people and 480 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for river and coastal flooding is improved by The Kincardine and Culross Flood Study completed in 2019, and the Fife Shoreline Management Plan. The national level assessment for surface water flooding is improved by a sewer flood risk assessment. There are limited records of flooding in this target area with recent flooding occurring in August 2020. The Kincardine Flood Protection Scheme offers some protection against flooding in this area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2371	Avoid flood risk	Avoid inappropriate development that increases flood risk in Kincardine
2372	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the Kincardine-on- Forth Flood Protection Scheme.
2373	Prepare for flooding	Prepare for current flood risk and/or future flooding as a result of climate change in Kincardine
2374	Reduce flood risk	Reduce the risk of river and coastal flooding in Kincardine.

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Shoreline Management Plan (Coastal Adaptive Plan) (Ref: 23701)
Action	The existing assessment of coastal flood and erosion risk is to be reviewed and updated as required. The plan should include assessment of climate change and develop adaptive approaches to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A shoreline management plan has been produced for this area by Fife Council. The plan is now operational and no review is planned in the short term. In the longer term the plan will be reviewed with the latest data and adaptive approaches considered in relation to the impacts of climate change.
Coordination	Action delivery lead is Fife Council and coordination will be determined once the actions have been finalised

	Strategic mapping improvements (Ref: 23702)
Action	SEPA will continue to update flood maps based on new information.
Action detail	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

	Flood defence maintenance (Ref: 23703)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	Fife Council should continue to maintain the existing the Kincardine on Forth Flood Prevention Scheme.
Coordination	Action delivery lead is Fife Council and coordination will be determined once the actions have been finalised.

	Flood warning maintenance (Ref: 23704)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Forth and Tay coastal flood warning scheme. The scheme should be investigated for improvement and/or recalibration.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

	Flood scheme or works design (Ref: 23705)
Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	Fife Council have determined the best option for Kincardine. Subject to the availability of funding at later cycles, this option should be developed through outline and detailed design. Current and long term flood risk should be considered and how the flood protection scheme and the area will adapt to changes in flood risk due to climate change.
Coordination	Action delivery lead is Fife Council and coordination will be determined once the actions have been finalised.

	Flood study (options appraisal) (Ref: 23706)
Action	In areas where flood risk is confirmed, a range of possible options to manage flood risk are to be identified, including natural flood management actions where suitable, and a preferred approach is to be chosen. This should include adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	The Kincardine and Culross Flood Study concluded in 2019 and identified options to manage flood risk in the area. It is recommended that findings of the flood study are reviewed at a future date in consultation with the local community.
Coordination	Action delivery lead is Fife Council and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

02/10/10 (Falkirk and Grangemouth)

This area is designated as a Potentially Vulnerable Area due to flood risk to a number of communities, including Denny, Dunipace, Carron, Carronshore, Falkirk and Grangemouth. The main source of flood risk is river, coastal and surface water flooding. The main watercourses are the River Carron and Grange Burn and their tributaries, including the Westquarter Burn and Bonny Water. There is a long history of flooding from a variety of sources in this area, with recent surface water flooding to the railway line near Larbert causing travel disruption in January 2020. Coastal flooding to Grangemouth has also been recorded.

There are 8 areas in this Potentially Vulnerable Area, which have been the focus of further assessment, these are listed below. Further information on the proposed objectives and actions to manage flood risk within this area is provided below.
List of target areas

Bonnybridge	(target area 201)
Carron and Carronshore	(target area 211)
Denny and Dunipace	(target area 220)
Falkirk	(target area 228)
Grangemouth west	(target area 232)
Larbert and Stenhousemuir	(target area 243)
Cumbernauld east	(target area 286)
Polmont, Redding and Westquarter	(target area 308)

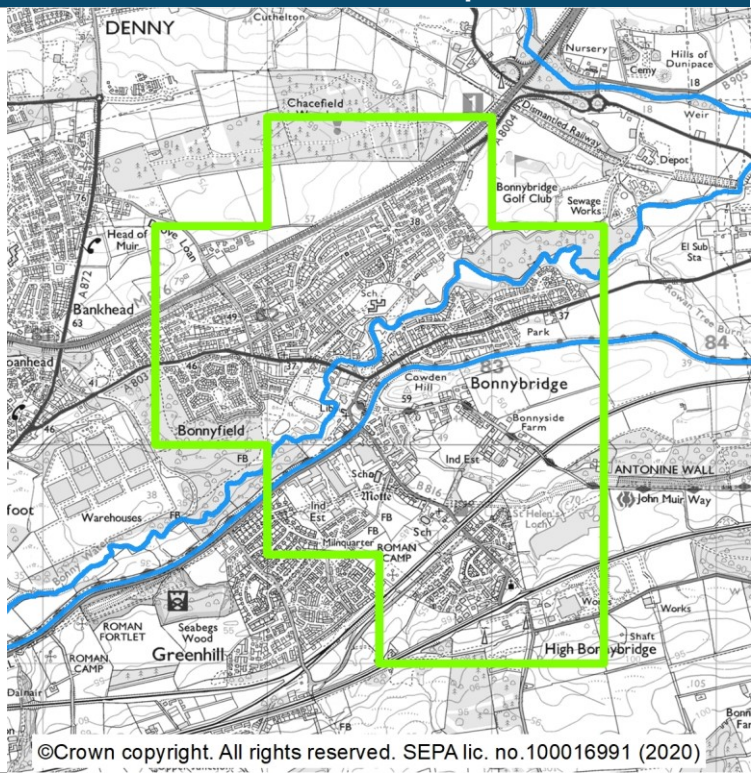
Flood risk management plan datasheet

Bonnybridge (target area 201)

Summary

The village of Bonnybridge is located 6km west of Falkirk, on the Bonny Water. It is within the Falkirk Council area. The main source of flooding in Bonnybridge is river flooding, however, there is also a risk of surface water flooding. There are approximately 430 people and 300 homes and businesses currently at risk of flooding. This is likely to rise to around 540 people and 350 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information which has helped to develop an understanding of flood risk in the area. Since 2011, SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for surface water has been improved by a sewer flood risk assessment. There is a long history of flooding in this area from the Bonny Water and frequent flooding from surface water.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2011	Avoid flood risk	Avoid inappropriate development that increases flood risk in Bonnybridge
2012	Improve data and understanding	Improve data and understanding of surface water flooding to Bonnybridge and Banknock
2013	Improve data and understanding	Improve data and understanding of river flooding from the Bonny Water and its tributaries to Bonnybridge and Banknock
2014	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Bonnybridge

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Community engagement (Ref: 20101)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Community engagement opportunities will be sought where possible with the community organisations of Bonnybridge regarding improving community resilience.
Coordination	Action delivery leads are the responsible authorities in coordination with the Scottish Flood Forum.

	Surface water management plan (Ref: 20102)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	The strategic surface water management plan covering priority areas for Falkirk Council will continue to be developed and will incorporate the outputs from Scottish Waters assessment of sewer flood risk. The strategic surface water management plan will identify areas where further more detailed studies are required to manage flood risk from surface water and minor watercourses.
Coordination	Action delivery lead is Falkirk Council in coordination with Scottish Water and SEPA. This is a Scottish Water priority area. Joint working will be required to identify joint priorities.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

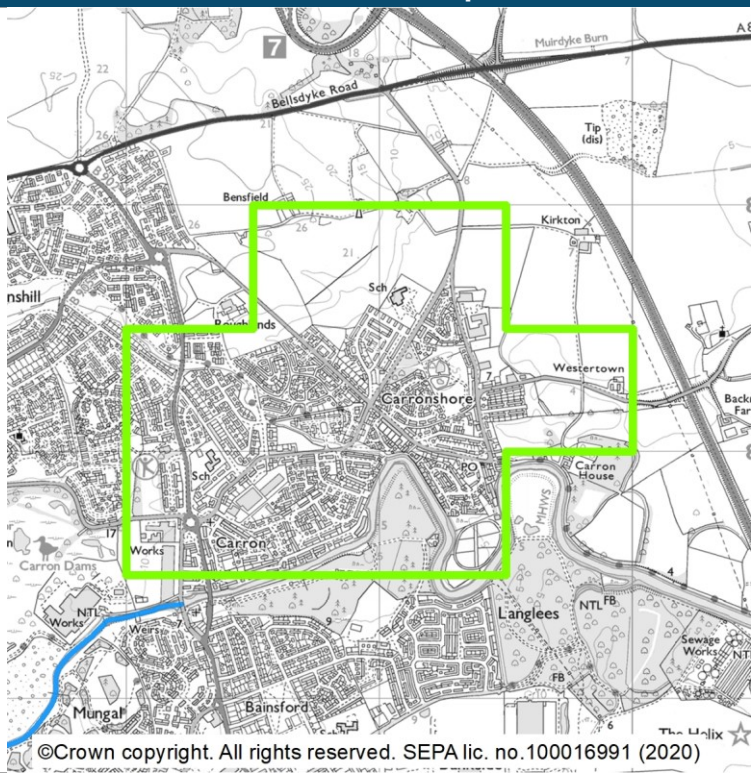
Flood risk management plan datasheet

Carron and Carronshore (target area 211)

Summary

Carron and Carronshore are villages in Falkirk, located on the north bank of the River Carron. The River Carron is tidally influenced at this location as it is near its outflow into the Firth of Forth. The main source of flooding is river flooding. However there are also risk of surface water and coastal flooding. There are approximately 1,400 people and 670 homes and businesses currently at risk from flooding. This is likely to increase to 1,900 people and 920 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information which has helped to develop an understanding of flood risk in the area. Since 2011, SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for river and coastal flooding has been improved by a flood study in support of the Grangemouth Flood Protection Scheme. The national level assessment for surface water flooding has been improved by an integrated catchment study. There is a long record of flooding in this area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2111	Avoid flood risk	Avoid inappropriate development that increases flood risk in Carron and Carronshore
2112	Improve data and understanding	Improve data and understanding of river flooding from the Chapel Burn
2113	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Carron and Carronshore
2114	Reduce flood risk	Reduce the risk of coastal flooding and river flooding from the River Carron in Carron and Carronshore
2115	Reduce flood risk	Reduce the risk of surface water flooding in Carron

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Flood scheme or works design (Ref: 21101)
Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	Following notification in 2022 and subsequent confirmation, the Grangemouth Flood Protection Scheme will progress to the detailed design stage. A climate change adaptation plan will be developed to allow for the likely impacts of climate change to be better considered.
Coordination	Action delivery lead is Falkirk Council and coordination will be determined once the actions have been finalised.

	Flood scheme or works implementation (Ref: 21102)
Action	The flood scheme/works is to be built following agreement of the design, costs and timescales.
Action detail	This action is proposed as the best viable option for managing flood risk in this community. The delivery of this action is subject to funding being made available. Once detailed design is complete the Grangemouth Flood Protection Scheme will progress to the procurement and construction phase. The construction phase of the flood protection scheme is estimated to take around 10 years to complete.
Coordination	Action delivery lead is Falkirk Council and coordination will be determined once the actions have been finalised.

	Community engagement (Ref: 21103)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Community engagement opportunities will be sought where possible with the community organisations of Carron and Carronshore regarding improving community resilience. Community engagement will continue throughout the progression of the Grangemouth Flood Protection Scheme.
Coordination	Action delivery leads are the responsible authorities in coordination with the Scottish Flood Forum.

	Sewer flood risk assessment (Ref: 21104)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalderse sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 21105)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	The strategic surface water management plan covering priority areas for Falkirk Council will continue to be developed and will incorporate the outputs from the Falkirk Integrated Catchment Study and Scottish Waters assessment of sewer flood risk. The strategic surface water management plan will identify areas where further more detailed studies are required to manage flood risk from surface water and minor watercourses.
Coordination	Action delivery lead is Falkirk Council in coordination with Scottish Water and SEPA. This is a Scottish Water priority area. Joint working will be required to identify joint priorities. Consideration to be given for the Grangemouth Flood Protection Scheme.

	Flood study (Ref: 21106)
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Action detail	Flood risk associated with the Chapel Burn is not well understood. A modelling study is required to quantify this risk. However, this risk is not considered significant and, therefore, the modelling study is a low priority. Some modelling of the lower reaches of the Chapel Burn has been incorporated within the Grangemouth Flood Protection Scheme model.
Coordination	Action delivery lead is Falkirk Council and coordination will be determined once the actions have been finalised.

	Flood warning maintenance (Ref: 21107)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Forth and Tay coastal flood warning scheme. The scheme should be investigated for improvement and/or recalibration.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

	Flood warning maintenance (Ref: 21108)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	The Carron flood warning scheme is currently under development. SEPA will maintain the Carron flood warning scheme once complete.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

	Strategic mapping improvements (Ref: 21109)
Action	SEPA will continue to update flood maps based on new information.
Action detail	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

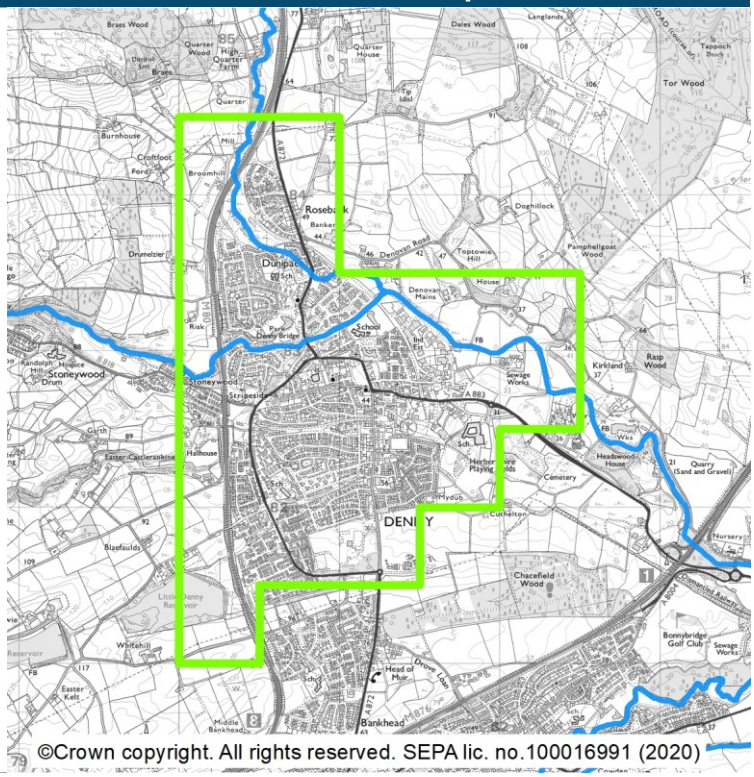
Flood risk management plan datasheet

Denny and Dunipace (target area 220)

Summary

Denny and Dunipace are located west of Falkirk and within the Falkirk Council area. The main source of flooding in Denny and Dunipace is river flooding from the River Carron, Avon Burn and Castlerankine Burn. There is also a risk from surface water flooding. There are approximately 880 people and 450 homes and businesses currently at risk from flooding. This is estimated to increase to 1,200 people and 600 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information which has helped to develop an understanding of flood risk in the area. Since 2011, SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for river flooding has been improved by a baseline flood mapping study for Denny and Dunipace completed in 2019. There is a long record of flooding in this area from the River Carron, Castlerankine Burn and Avon Burn including recent floods in 2020. Frequent surface water floods have also been recorded.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2201	Avoid flood risk	Avoid inappropriate development that increases flood risk in Denny and Dunipace
2202	Improve data and understanding	Improve data and understanding of surface water flooding in Denny and Dunipace
2203	Prepare for flooding	Prepare for current flood risk and/or future flooding as a result of climate change in Denny and Dunipace
2204	Reduce flood risk	Reduce the risk of river flooding from the River Carron, Avon Burn and Castlerankine Burn to Denny and Dunipace

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Community engagement (Ref: 22001)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Community engagement opportunities will be sought where possible with the community organisations of Denny and Dunipace regarding improving community resilience.
Coordination	Action delivery lead is the Falkirk Council in coordination with the responsible authorities and the Scottish Flood Forum.

	Surface water management plan (Ref: 22002)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	The strategic surface water management plan covering priority areas for Falkirk Council will continue to be developed and will incorporate the outputs from Scottish Waters assessment of sewer flood risk. The strategic surface water management plan will identify areas where further more detailed studies are required to manage flood risk from surface water and minor watercourses.
Coordination	Action delivery lead is Falkirk Council in coordination with Scottish Water.

	Flood study (options appraisal) (Ref: 22003)
Action	In areas where flood risk is confirmed, a range of possible options to manage flood risk are to be identified, including natural flood management actions where suitable, and a preferred approach is to be chosen. This should include adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A flood protection study is to be progressed for this area to assess options to manage flood risk. Options should include a combination of structural and non-structural elements including natural flood management. The assessment should consider these actions in combination and the impacts on flood risk upstream and downstream of each action.
Coordination	Action delivery lead is Falkirk Council in coordination with Scottish Water and SEPA.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

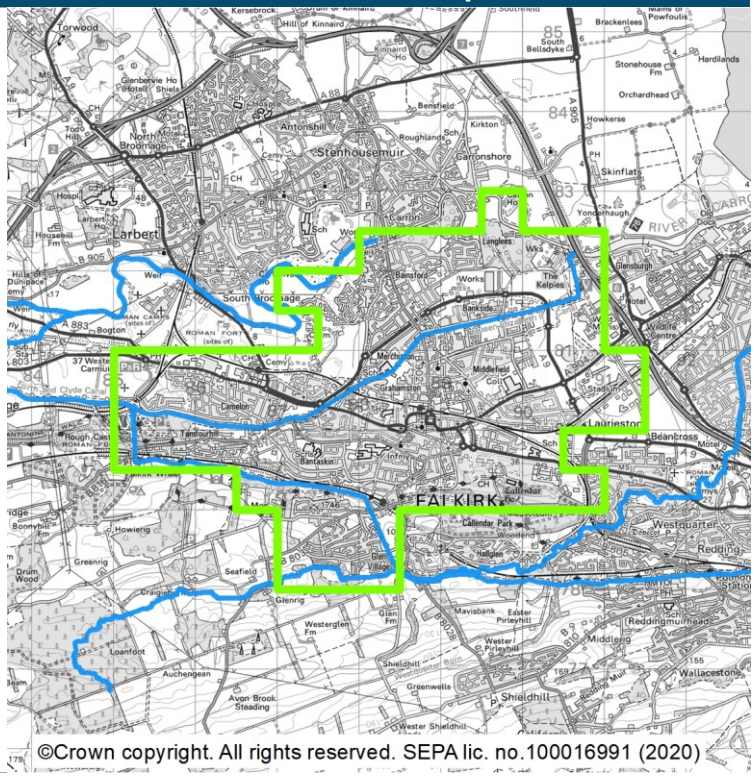
Flood risk management plan datasheet

Falkirk (target area 228)

Summary

The town of Falkirk is located in the Forth Valley west of Edinburgh and within the Falkirk Council area. The main source of flooding in Falkirk is surface water, however, there is also a risk from river flooding. There are approximately 2,300 people and 1,300 properties currently at risk from flooding. This is estimated to increase to 3,400 people and 1,800 properties by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information which has helped to develop an understanding of flood risk in the area. Since 2011, SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for river and coastal flooding has been improved in this area by a flood study in support of the Grangemouth Flood Protection Scheme. The national level assessment for surface water flooding has also been improved by an integrated catchment study and a sewer flood risk assessment. There is a long record of flooding in this area from rivers and surface water. In February 2020 the River Carron burst its banks near Stirling Road and there were also incidents of surface water flooding.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2281	Avoid flood risk	Avoid inappropriate development that increases flood risk in Falkirk
2282	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Falkirk
2283	Reduce flood risk	Reduce the risk of surface water flooding in Falkirk
2284	Reduce flood risk	Reduce the risk of river flooding from the River Carron in Falkirk

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Flood warning maintenance (Ref: 22801)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Forth and Tay coastal flood warning scheme. The scheme should be investigated for improvement and/or recalibration.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

	Community engagement (Ref: 22802)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Community engagement opportunities will be sought where possible with the community organisations of Falkirk regarding improving community resilience. Community engagement will continue throughout the progression of the Grangemouth Flood Protection Scheme.
Coordination	Action delivery leads are the responsible authorities in coordination with the Scottish Flood Forum.

	Sewer flood risk assessment (Ref: 22803)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Kinneil Kerse sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 22804)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	The strategic surface water management plan covering priority areas for Falkirk Council will continue to be developed and will incorporate the outputs from the Falkirk Integrated Catchment Study and Scottish Waters assessment of sewer flood risk. The strategic surface water management plan will identify areas where further more detailed studies are required to manage flood risk from surface water and minor watercourses.
Coordination	Action delivery lead is Falkirk Council in coordination with Scottish Water and SEPA. Consideration to be given for the Grangemouth Flood Protection Scheme.

	Flood scheme or works implementation (Ref: 22805)
Action	The flood scheme/works is to be built following agreement of the design, costs and timescales.
Action detail	This action is proposed as the best viable option for managing flood risk in this community. The delivery of this action is subject to funding being made available. Once detailed design is complete the Grangemouth Flood Protection Scheme will progress to the procurement and construction phase. The construction phase of the flood protection scheme is estimated to take around 10 years to complete.
Coordination	Action delivery lead is Falkirk Council and coordination will be determined once the actions have been finalised.

	Flood scheme or works design (Ref: 22806)
Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	Following notification in 2022 and subsequent confirmation, the Grangemouth Flood Protection Scheme will progress to the detailed design stage. A climate change adaptation plan will be developed to allow for the likely impacts of climate change to be better considered.
Coordination	Action delivery lead is Falkirk Council and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

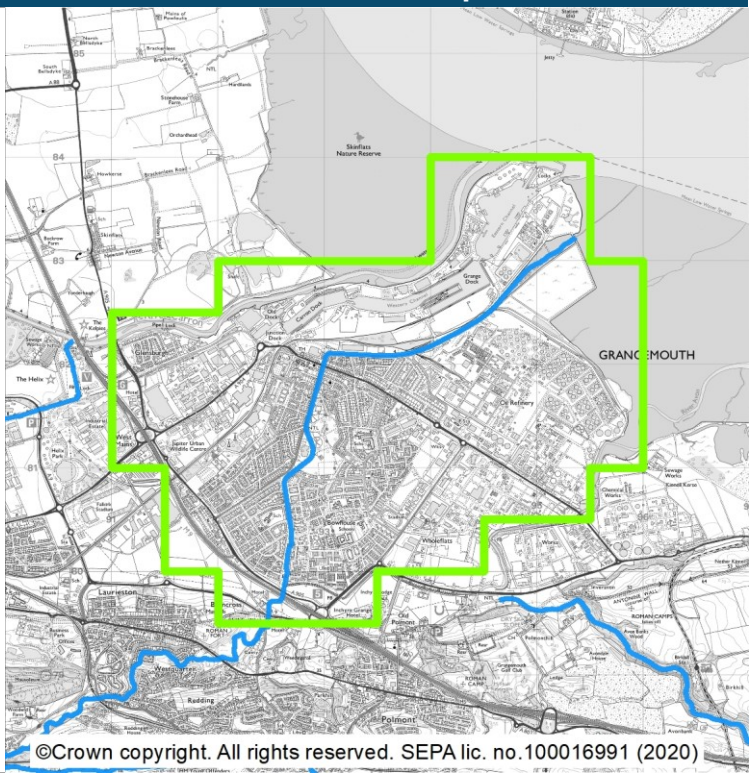
Flood risk management plan datasheet

Grangemouth west (target area 232)

Summary

Grangemouth West is located on the south shore of the Firth of Forth and incorporates residential areas as well as the Grangemouth petrochemical complex and dock, which are nationally important infrastructure. It is within the Falkirk Council area. The main source of flooding is coastal flooding and there is also risk of flooding from rivers and surface water. There are approximately 10,000 people and 6,000 homes and businesses at risk from flooding, which is a significant proportion of the community. This is estimated to rise to 17,000 people and 9,300 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information which has helped to develop an understanding of flood risk in the area. Since 2011, SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for river flooding has been improved by a flood study in support of the Grangemouth Flood Protection Scheme. The national level assessment for surface water has been improved by an integrated catchment study and a sewer flood risk assessment. There is a long record of flooding in this area from river and surface water including recent flooding in August 2020.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2321	Avoid flood risk	Avoid inappropriate development that increases flood risk in Grangemouth West
2322	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of Grangeburn Road Flood Protection Scheme.
2323	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Grangemouth west
2324	Reduce flood risk	Reduce the risk of coastal flooding and river flooding from the River Carron, Avon and Grange Burn in Grangemouth
2325	Reduce flood risk	Reduce the risk of surface water flooding in Grangemouth

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Flood scheme or works design (Ref: 23201)
Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	Following notification in 2022 and subsequent confirmation, the Grangemouth Flood Protection Scheme will progress to the detailed design stage. A climate change adaptation plan will be developed to allow for the likely impacts of climate change to be better considered.
Coordination	Action delivery lead is Falkirk Council and coordination will be determined once the actions have been finalised.

	Community engagement (Ref: 23202)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Community engagement opportunities will be sought where possible with the community organisations of Grangemouth west regarding improving community resilience. Community engagement will continue throughout the progression of the Grangemouth Flood Protection Scheme.
Coordination	Action delivery leads are the responsible authorities in coordination with the Scottish Flood Forum.

	Sewer flood risk assessment (Ref: 23203)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalderse and Kinneil Kerse sewer catchments in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 23204)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	The strategic surface water management plan covering priority areas for Falkirk Council will continue to be developed and will incorporate the outputs from the Falkirk Integrated Catchment Study and Scottish Waters assessment of sewer flood risk. The strategic surface water management plan will identify areas where further more detailed studies are required to manage flood risk from surface water and minor watercourses.
Coordination	Action delivery lead is Falkirk Council in coordination with Scottish Water and SEPA. Consideration to be given for the Grangemouth Flood Protection Scheme

	Flood scheme or works implementation (Ref: 23205)
Action	The flood scheme/works is to be built following agreement of the design, costs and timescales.
Action detail	This action is proposed as the best viable option for managing flood risk in this community. The delivery of this action is subject to funding being made available. Once detailed design is complete the Grangemouth Flood Protection Scheme will progress to the procurement and construction phase. The construction phase of the flood protection scheme is estimated to take around 10 years to complete.
Coordination	Action delivery lead is Falkirk Council and coordination will be determined once the actions have been finalised.

	Flood defence maintenance (Ref: 23206)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	Maintenance to the existing Grangeburn Road flood protection defences should continue. This existing scheme will be upgraded by the Grangemouth Flood Protection Scheme.
Coordination	Action delivery lead is Falkirk Council and coordination will be determined once the actions have been finalised.

	Flood warning maintenance (Ref: 23207)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Forth and Tay coastal flood warning scheme. The scheme should be investigated for improvement and/or recalibration.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

	Strategic mapping improvements (Ref: 23208)
Action	SEPA will continue to update flood maps based on new information.
Action detail	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

SEPA and Falkirk Council will look to enhance partnership working in this area. This will look at land use planning and flooding aspects to improve the current and future understanding of flood risk to support long term sustainable communities.

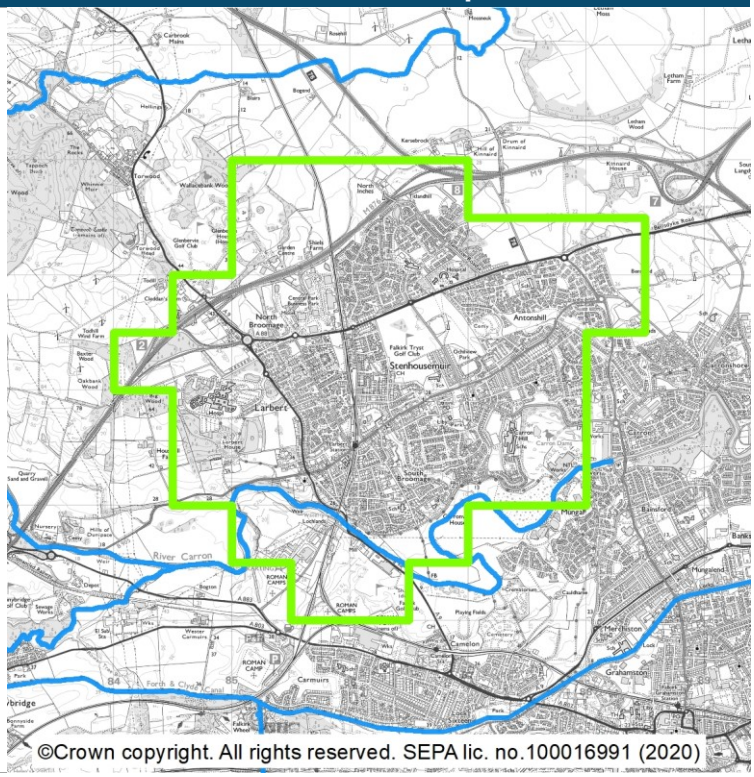
Flood risk management plan datasheet

Larbert and Stenhousemuir (target area 243)

Summary

Larbert and Stenhousemuir are located north-west of Falkirk within the Falkirk Council area. The main source of flooding is surface water, however, there is also a risk from river flooding. There are approximately 740 people and 410 homes and businesses currently at risk from flooding. This is likely to increase to 1,100 people and 590 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information which has helped to develop an understanding of flood risk in the area. Since 2011, SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for coastal and river flooding has been improved by a flood study in support of the Grangemouth Flood Protection Scheme. The national level assessment for surface water flooding has been improved by an integrated catchment study and a sewer flood risk assessment. There are frequent records of flooding in this area from surface water and rivers including the Chapel Burn and River Carron.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2431	Avoid flood risk	Avoid inappropriate development that increases flood risk in Larbert and Stenhousemuir
2432	Improve data and understanding	Improve data and understanding of river flooding from the Chapel Burn
2433	Prepare for flooding	Prepare for current flood risk and/or future flooding as a result of climate change in Larbert and Stenhousemuir
2434	Reduce flood risk	Reduce the risk of surface water flooding in Larbert and Stenhousemuir

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Community engagement (Ref: 24301)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Community engagement opportunities will be sought where possible with the community organisations of Larbert and Stenhousemuir regarding improving community resilience. Community engagement will continue throughout the progression of the Grangemouth Flood Protection Scheme.
Coordination	Action delivery leads are the responsible authorities in coordination with the Scottish Flood Forum.

	Sewer flood risk assessment (Ref: 24302)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dalderse sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 24303)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	The strategic surface water management plan covering priority areas for Falkirk Council will continue to be developed and will incorporate the outputs from the Falkirk Integrated Catchment Study and Scottish Waters assessment of sewer flood risk. The strategic surface water management plan will identify areas where further more detailed studies are required to manage flood risk from surface water and minor watercourses.
Coordination	Action delivery lead is Falkirk Council in coordination with Scottish Water and SEPA. Consideration to be given for the Grangemouth Flood Protection Scheme.

	Flood study (Ref: 24304)
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Action detail	Flood risk associated with the Chapel Burn is not well understood. A modelling study is required to quantify this risk. However, this risk is not considered significant and, therefore, the modelling study is a low priority. Some modelling of the lower reaches of the Chapel Burn has been incorporated within the Grangemouth Flood Protection Scheme Model.
Coordination	Action delivery lead is Falkirk Council and coordination will be determined once the actions have been finalised.

	Flood scheme or works implementation (Ref: 24305)
Action	The flood scheme/works is to be built following agreement of the design, costs and timescales.
Action detail	This action is proposed as the best viable option for managing flood risk in this community. The delivery of this action is subject to funding being made available. Once detailed design is complete the Grangemouth Flood Protection Scheme will progress to the procurement and construction phase. The construction phase of the flood protection scheme is estimated to take around 10 years to complete.
Coordination	Action delivery lead is Falkirk Council and coordination will be determined once the actions have been finalised.

	Flood scheme or works design (Ref: 24306)
Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	Following notification in 2022 and subsequent confirmation, the Grangemouth Flood Protection Scheme will progress to the detailed design stage. A climate change adaptation plan will be developed to allow for the likely impacts of climate change to be better considered.
Coordination	Action delivery lead is Falkirk Council and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

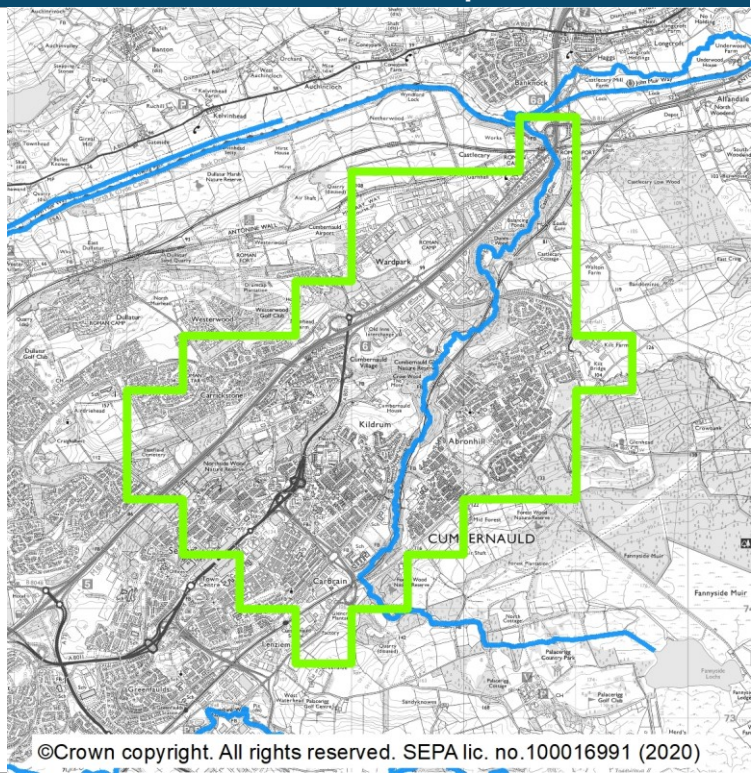
Flood risk management plan datasheet

Cumbernauld east (target area 286)

Summary

The eastern part of the town of Cumbernauld Is located in the central belt of Scotland and it is mostly within the North Lanarkshire council area (a small area lies within the Falkirk council area). The main source of flooding in Cumbernauld east is surface water flooding, however there is also risk from river flooding. There are approximately 1,500 people and 780 homes and businesses currently at risk from flooding. This is estimated to increase to 1,800 people and 900 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved by the Dunswood integrated catchment study which assesses the interactions between the different flood sources. There is a long record of flooding in this target area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2861	Avoid flood risk	Avoid inappropriate development that increases flood risk in this objective target area
2862	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in this objective target area.
2863	Reduce flood risk	Reduce the risk of flooding in this objective target area

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Sewer flood risk assessment (Ref: 28601)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Dunnswood sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

	Surface water management plan (Ref: 28602)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	Further details of the action to be determined.
Coordination	Action delivery lead is North Lanarkshire Council in coordination with Scottish Water.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

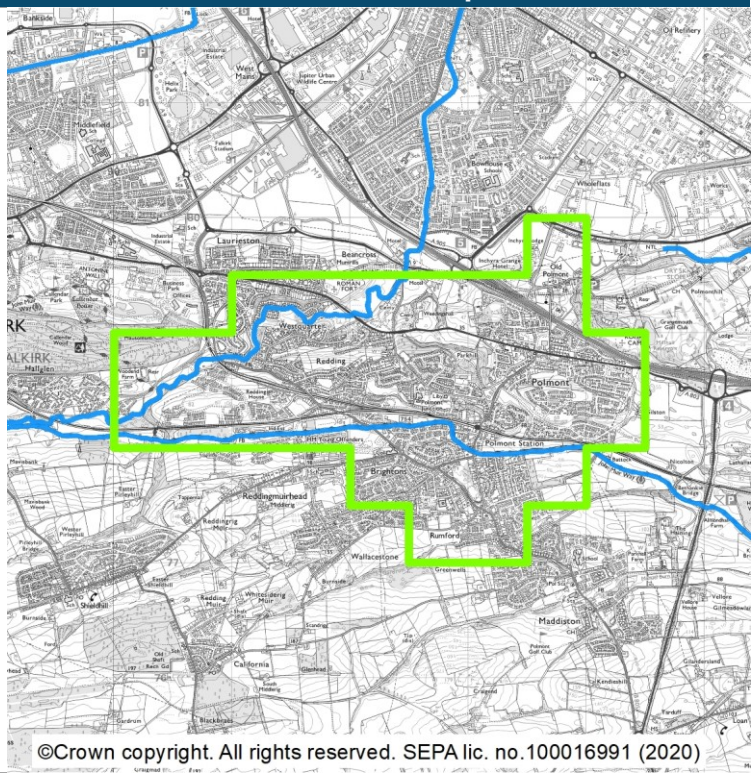
Flood risk management plan datasheet

Polmont, Redding and Westquarter (target area 308)

Summary

Polmont, Redding and Westquarter are villages located to the south-east of Falkirk, within the Falkirk Council area. The main source of flooding is surface water flooding, but there is also a risk from river flooding. There are approximately 870 people and 440 homes and businesses currently at risk from flooding. This is likely to increase to 1,000 people and 520 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information which has helped to develop an understanding of flood risk in the area. Since 2011, SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for river flooding has been partly improved by a flood study in support of the Grangemouth Flood Protection Scheme. The national level assessment for surface water flooding has been improved by an integrated catchment study and a sewer flood risk assessment. There are frequent records of flooding in this area from rivers and surface water. Flooding of multiple homes occurred recently during the August 2020 storms.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
3081	Avoid flood risk	Avoid inappropriate development that increases flood risk in Polmont, Redding and Westquarter
3082	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Polmont, Redding and Westquarter
3083	Reduce flood risk	Reduce the risk of river flooding from the Westquarter Burn in Westquarter
3084	Reduce flood risk	Reduce the risk of surface water flooding in Polmont, Redding and Westquarter

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Sewer flood risk assessment (Ref: 30801)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Kinneil Kerse sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 30802)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	The strategic surface water management plan covering priority areas for Falkirk Council will continue to be developed and will incorporate the outputs from the Falkirk Integrated Catchment Study and Scottish Waters assessment of sewer flood risk. The strategic surface water management plan will identify areas where further more detailed studies are required to manage flood risk from surface water and minor watercourses.
Coordination	Action delivery lead is Falkirk Council in coordination with Scottish Water and SEPA.

	Flood study (Ref: 30803)
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Action detail	The planned flood study for the Westquarter Burn at Westquarter Village will be progressed. The study will involve flood modelling. It will include an assessment of actions to manage flood risk and scoping of further work where appropriate. As the study area falls within the upstream catchment of the developing Grangemouth Flood Protection Scheme, close integration between the 2 studies will be required.
Coordination	Action delivery lead is Falkirk Council and coordination will be required with the Grangemouth Flood Protection Scheme.

	Community engagement (Ref: 30804)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Community engagement opportunities will be sought where possible with the community organisations of Polmont, Redding and Westquarter regarding improving community resilience.
Coordination	Action delivery leads are the responsible authorities in coordination with the Scottish Flood Forum.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

02/10/11 (Bo'ness)

This area is designated as a Potentially Vulnerable Area due to flood risk to Bo'ness and Grangemouth (east). The main source of flooding is coastal with flood risk in Grangemouth (east) also coming from the River Avon. Coastal flood protection measures protect Bo'ness from coastal flooding. There are some reports of flooding affecting this area.

There are 2 areas in this Potentially Vulnerable Area, which have been the focus of further assessment, these are listed below. Further information on the proposed objectives and actions to manage flood risk within this area is provided below.

List of target areas

Bo'ness	(target area 200)
Grangemouth east	(target area 262)

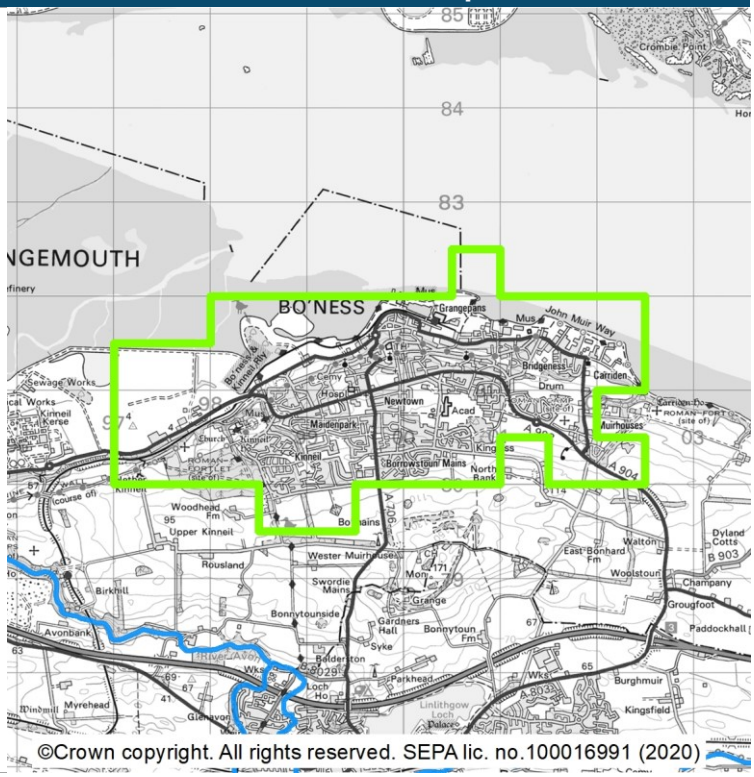
Flood risk management plan datasheet

Bo'ness (target area 200)

Summary

Bo'ness is located on the south bank of the Firth of Forth within the Falkirk Council area. The main source of flood risk in Bo'ness is from surface water and small watercourses. Coastal flood risk is being managed with coastal flood defences. There are approximately 2,400 people and 1,200 homes and businesses currently at risk from flooding. This is likely to increase to approximately 2,900 people and 1,500 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information which has helped to develop an understanding of flood risk in the area. Since 2011, SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for surface water has been improved by the integrated catchment study covering Bo'ness, Dalderse and Kinneil Kerse and a sewer flood risk assessment. There is a long history of flooding in this area from surface water. Coastal flooding is managed by the operation of the coastal flood protection scheme.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2001	Avoid flood risk	Avoid inappropriate development that increases flood risk in Bo'ness
2002	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of existing coastal flood defences
2003	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Bo'ness
2004	Reduce flood risk	Reduce the risk of surface water flooding in Bo'ness

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Sewer flood risk assessment (Ref: 20001)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Bo'ness sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 20002)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	The strategic surface water management plan covering priority areas for Falkirk Council will continue to be developed and will incorporate the outputs from the Bo'ness Integrated Catchment Study and Scottish Waters assessment of sewer flood risk. The strategic surface water management plan will identify areas where further more detailed studies are required to manage flood risk from surface water and minor watercourses.
Coordination	Action delivery lead is Falkirk Council in coordination with Scottish Water and SEPA.

	Community engagement (Ref: 20003)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Community engagement opportunities will be sought where possible with the community organisations of Bo'ness regarding improving community resilience.
Coordination	Action delivery leads are the responsible authorities in coordination with the Scottish Flood Forum.

	Flood defence maintenance (Ref: 20004)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	Monitoring and maintenance of the Bo'ness Flood Protection Scheme will continue.
Coordination	Action delivery lead is Falkirk Council and coordination will be determined once the actions have been finalised.

	Flood warning maintenance (Ref: 20005)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Forth and Tay coastal flood warning scheme. The scheme should be investigated for improvement and/or recalibration.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

	Adaptation plan (Ref: 20006)
Action	Information on climate change is to be used to develop an adaptation plan to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A climate change adaptation plan will be developed for the Bo'ness Flood Protection Scheme to allow for the likely impacts of climate change to be better understood. Future changes are to be monitored and where possible managed. Initially this should include an investigation into how the new climate change projections affect coastal flood risk in the area.
Coordination	Action delivery lead is Falkirk Council and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

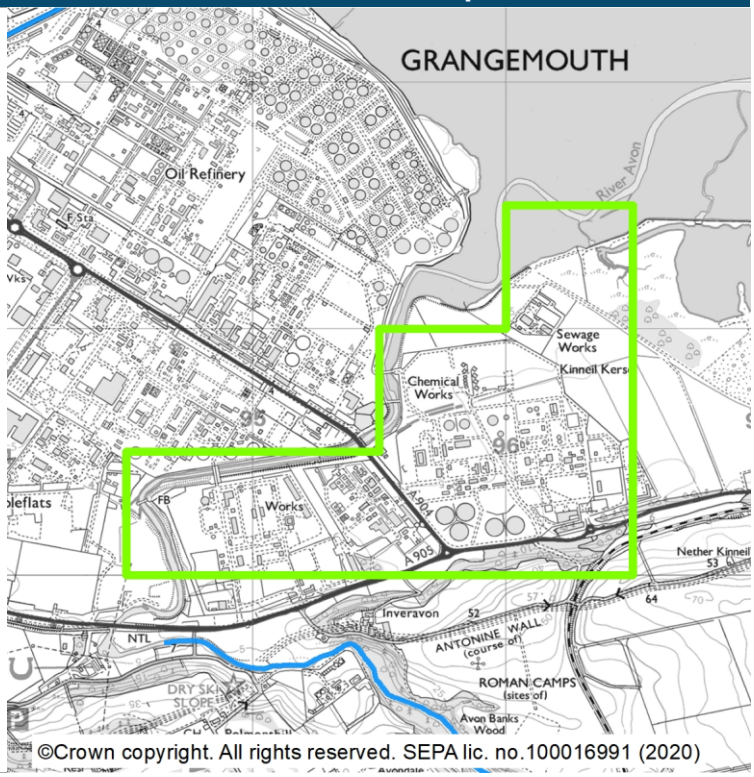
Flood risk management plan datasheet

Grangemouth east (target area 262)

Summary

Grangemouth East is located on the south shore of the Firth of Forth. It incorporates the Kinneil Complex of the Grangemouth refinery site. It is in the Falkirk Council area. The main source of flooding to Grangemouth East is coastal flooding, however, there is also a risk from river and surface water flooding. There are approximately 230 homes and businesses at risk from flooding.

Location map



What is the current understanding of flood risk?

This section provides a summary of information which has helped to develop an understanding of flood risk in the area. Since 2011, SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for river and coastal flooding has been improved by a flood study in support of the Grangemouth Flood Protection Scheme. There are records of flooding in this area including coastal, surface water and river flooding.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2621	Avoid flood risk	Avoid inappropriate development that increases flood risk in Grangemouth (east)
2622	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Grangemouth (east)
2623	Reduce flood risk	Reduce the risk of coastal flooding and river flooding from the River Avon in Grangemouth

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Flood scheme or works design (Ref: 26201)
Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	Following notification in 2022 and subsequent confirmation, the Grangemouth Flood Protection Scheme will progress to the detailed design stage. A climate change adaptation plan will be developed to allow for the likely impacts of climate change to be better considered.
Coordination	Action delivery lead is Falkirk Council and coordination will be determined once the actions have been finalised.

	Flood scheme or works implementation (Ref: 26202)
Action	The flood scheme/works is to be built following agreement of the design, costs and timescales.
Action detail	This action is proposed as the best viable option for managing flood risk in this community. The delivery of this action is subject to funding being made available. Once detailed design is complete the Grangemouth Flood Protection Scheme will progress to the procurement and construction phase. The construction phase of the flood protection scheme is estimated to take around 10 years to complete.
Coordination	Action delivery lead is Falkirk Council and coordination will be determined once the actions have been finalised.

	Sewer flood risk assessment (Ref: 26203)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Kinneil Kerse sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 26204)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	The strategic surface water management plan covering priority areas for Falkirk Council will continue to be developed and will incorporate the outputs from the Falkirk Integrated Catchment Study and Scottish Waters assessment of sewer flood risk. The strategic surface water management plan will identify areas where further more detailed studies are required to manage flood risk from surface water and minor watercourses.
Coordination	Action delivery lead is Falkirk Council in coordination with Scottish Water and SEPA. Consideration to be given for the Grangemouth Flood Protection Scheme.

	Community engagement (Ref: 26205)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Community engagement opportunities will be sought where possible with the community organisations of Grangemouth east regarding improving community resilience. Community engagement will continue throughout the progression of the Grangemouth Flood Protection Scheme.
Coordination	Action delivery leads are the responsible authorities in coordination with the Scottish Flood Forum.

	Flood warning maintenance (Ref: 26206)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Forth and Tay coastal flood warning scheme. The scheme should be investigated for improvement and/or recalibration.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

	Strategic mapping improvements (Ref: 26207)
Action	SEPA will continue to update flood maps based on new information.
Action detail	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

SEPA and Falkirk Council will look to enhance partnership working in this area. This will look at land use planning and flooding aspects to improve the current and future understanding of flood risk to support long term sustainable communities.

02/10/12 (Linlithgow)

This area is designated as a Potentially Vulnerable Area due to flood risk to Linlithgow. The main source of flooding is surface water, the River Avon and minor watercourses. A number of floods have been recorded in this area from surface water causing flooding of properties and damage to roads.

There is 1 area in this Potentially Vulnerable Area, which has been the focus of further assessment, this is identified below. Further information on the proposed objectives and actions to manage flood risk within this area is provided below.

List of target areas

Linlithgow (target area 246)

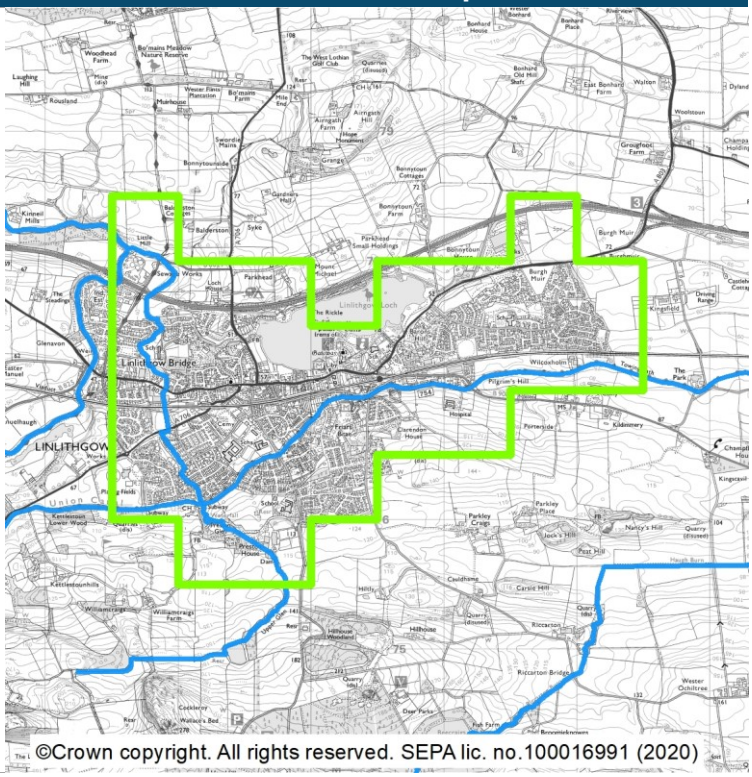
Flood risk management plan datasheet

Linlithgow (target area 246)

Summary

Linlithgow is a town located in the West Lothian Council area. The main source of flooding in Linlithgow is surface water, however there is also a risk of river flooding from the River Avon and Bell's Burn. The local authority and Scottish Water have carried out flood studies in this area which identified approximately 250 homes and businesses at risk of flooding.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for river flooding is improved by flood studies and ongoing flow monitoring in local watercourses. Understanding of surface water flooding is improved by a surface water management plan, an integrated catchment study and a sewer flood risk assessment carried out by the local authority and Scottish Water. There is a long record of flooding in this area with many floods recorded, notably in July 1998 when prolonged thunderstorms caused flooding to 100 homes leading to the development of the Mains Burn Flood Protection Scheme (2004). In May 2005 a localised storm resulted in extensive surface water flooding on the east side of the town with 12 homes affected.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2461	Avoid flood risk	Avoid inappropriate development that increases flood risk in Linlithgow
2462	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the Linlithgow Flood Protection Scheme along the Mains Burn.
2463	Improve data and understanding	Improve data and understanding of the performance of Linlithgow flood protection scheme along the Mains Burn
2464	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Linlithgow
2465	Reduce flood risk	Reduce the risk of surface water flooding in Linlithgow
2466	Reduce flood risk	Reduce the risk of river flooding from the River Avon and Bell's Burn in Linlithgow

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Data collection (Ref: 24601)
Action	Equipment that measures rainfall, river levels, erosion, ground levels or wave height may be installed and maintained to improve our understanding of flood risk. This can be done over short term or to measure longer term impacts.
Action detail	West Lothian Council should continue current efforts in data collection and monitoring to improve the confidence in flood sources, mechanisms and risk relating to river flooding from the River Avon. The new data should be used to update the existing flood risk assessment as deemed necessary.
Coordination	Action delivery lead is West Lothian Council and coordination will be determined once the actions have been finalised.

	Flood study (existing flood defences) (Ref: 24602)
Action	The performance and condition of the existing flood defences are to be evaluated, including consideration of the likely impacts of climate change. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A study is recommended to investigate the performance and long-term management of the existing flood protection scheme along the Mains Burn. The study may require survey of flood defences, data collection and flood modelling. The study should include a comprehensive assessment of the potential impacts of climate change and aim to develop a long-term plan to managing the flood defences.
Coordination	Action delivery lead is West Lothian Council and coordination will be determined once the actions have been finalised.

	Flood study (Ref: 24603)
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Action detail	Planned cycle 1 flood study for Bell's Burn should be completed by October 2021.
Coordination	Action delivery lead is West Lothian Council and coordination will be determined once the actions have been finalised.

	Sewer flood risk assessment (Ref: 24604)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Linlithgow sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 24605)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system have been identified. Next steps in managing such water ponding or over-whelmed drainage systems have been identified and should be implemented. The plan is to be reviewed and updated as needed.
Action detail	West Lothian Council published a high level surface water management plan in 2015. The plan identifies a road-map for the management of surface water flood risk and the need for further detailed studies. The plan should be kept under review and updated as new information becomes available. The local community will be advised of any resulting works.
Coordination	Action delivery lead is West Lothian Council in coordination with Scottish Water and other actions in the area.

	Flood defence maintenance (Ref: 24606)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	Maintenance to the existing 2001 Mains Burn (Linlithgow) flood protection scheme should continue.
Coordination	Action delivery lead is West Lothian Council and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

02/10/13 (Livingston, Broxburn and Bathgate)

This area is designated as a Potentially Vulnerable Area due to flood risk to a number of communities including Bathgate, Broxburn and Livingston. The main source of flooding is surface water and there is also risk from river flooding, including from the Brox Burn and Boghead Burn. Some protection is provided by flood protection scheme in Broxburn. There have been a number of reported floods, including surface water flooding in Bathgate during Storm Ciara in February 2020. Recently flooding affected Broxburn in August 2020.

There are 5 areas in this Potentially Vulnerable Area, which have been the focus of further assessment, these are listed below. Further information on the proposed objectives and actions to manage flood risk within this area is provided below.

List of target areas

Armadale	(target area 191)
Bathgate	(target area 196)
Broxburn	(target area 206)
Blackridge	(target area 282)
Livingston and Mid Calder	(target area 295)

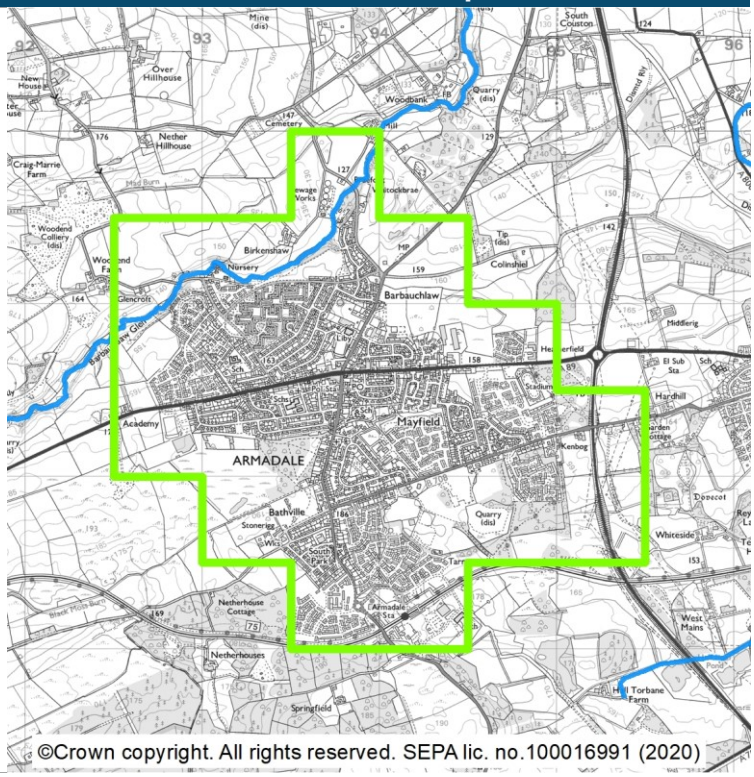
Flood risk management plan datasheet

Armadale (target area 191)

Summary

Armadale has been newly identified for inclusion in the 2021 Flood Risk Management Plans. Armadale is located within the West Lothian Council area. The main source of flooding is surface water. There are approximately 230 homes and businesses currently at risk of flooding. This is likely to increase to 320 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for surface water flooding is improved by a sewer flood risk assessment carried out by Scottish Water. There are several records of flooding in this area including a flood in August 2004 when surface water run-off caused flooding throughout Armadale.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
1911	Avoid flood risk	Avoid inappropriate development that increases flood risk in Armadale
1912	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Armadale
1913	Reduce flood risk	Reduce the risk of surface water flooding in Armadale

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Surface water management plan (Ref: 19101)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A surface water management plan should be developed for Armadale to improve understanding of surface water flood risk. Current and long-term flood risk should be considered including how climate change may impact flood risk in the area. The local community will be advised of any resulting works.
Coordination	Action delivery lead is West Lothian Council in coordination with Scottish Water and other actions in the area.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

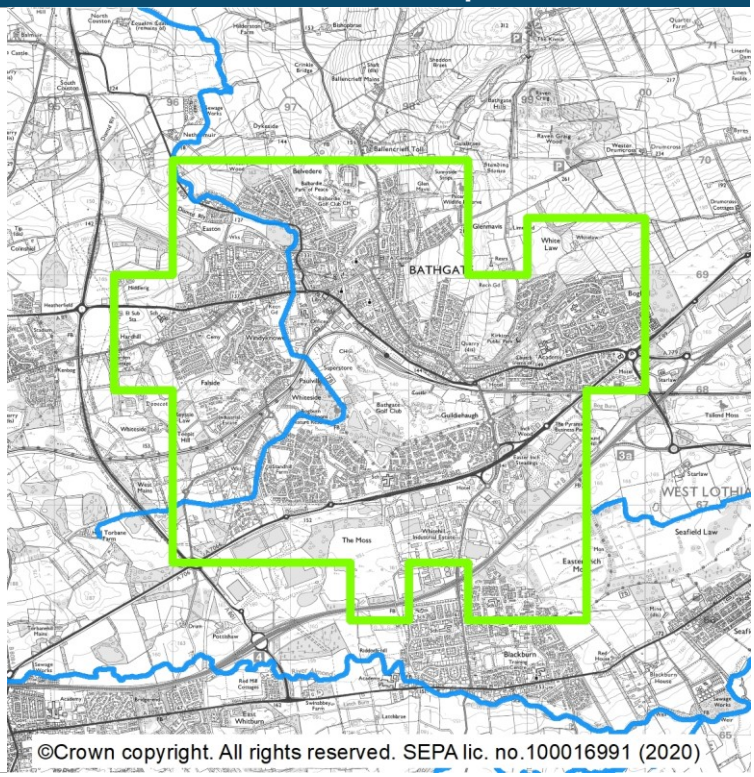
Flood risk management plan datasheet

Bathgate (target area 196)

Summary

Bathgate is a town located west of Livingston, within the West Lothian Council area. The main source of flooding in Bathgate is surface water, however there is also a risk of river flooding from the Bog Burn, Boghead Burn and Bathgate Water. The local authority and Scottish Water have carried out flood studies in this area which identified approximately 150 homes and businesses at risk of flooding.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for surface water flooding is improved by a surface water management plan, an integrated catchment study and a sewer flood risk assessment carried out by the local authority and Scottish Water. There is a long history of flooding in this area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
1961	Avoid flood risk	Avoid inappropriate development that increases flood risk in Bathgate
1962	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Bathgate
1963	Reduce flood risk	Reduce the risk of surface water flooding in Bathgate
1964	Reduce flood risk	Reduce the risk of river flooding from Boghead Burn in Bathgate

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Sewer flood risk assessment (Ref: 19601)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Bathgate and Blackburn sewer catchments in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Flood study (Ref: 19603)
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Action detail	A cycle 1 river flood study for Bathgate is due to be completed by November 2021. Water Environment Fund project (Bathgate Water Restoration) is underway in the area which could bring flooding benefits. The local community will be advised of any resulting works.
Coordination	Action delivery lead is West Lothian Council and coordinated with the Water Environment Fund, Bathgate Water restoration project.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

	Surface water management plan (Ref: 19602)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system have been identified. Next steps in managing such water ponding or over-whelmed drainage systems have been identified and should be implemented. The plan is to be reviewed and updated as needed.
Action detail	West Lothian Council published a high level surface water management plan in 2015. The Plan identifies a road-map for the management of surface water flood risk and the need for further detailed studies. The plan should be kept under review and updated as new information becomes available. The local community will be advised of any resulting works.
Coordination	Action delivery lead is West Lothian Council in coordination with Scottish Water and other actions in the area

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

There is an opportunity for joint working with the Bathgate river restoration project. The project aims to improve the morphology and biodiversity of the Boghead Burn, Bog Burn and the Bathgate Water which are tributaries of the River Avon. The rivers here have multiple issues related to morphology, fish passage, as well as flood and amenity issues. This project brings together SEPA, West Lothian Council, Forth Fisheries Trust and the local community to improve the rivers in the area.

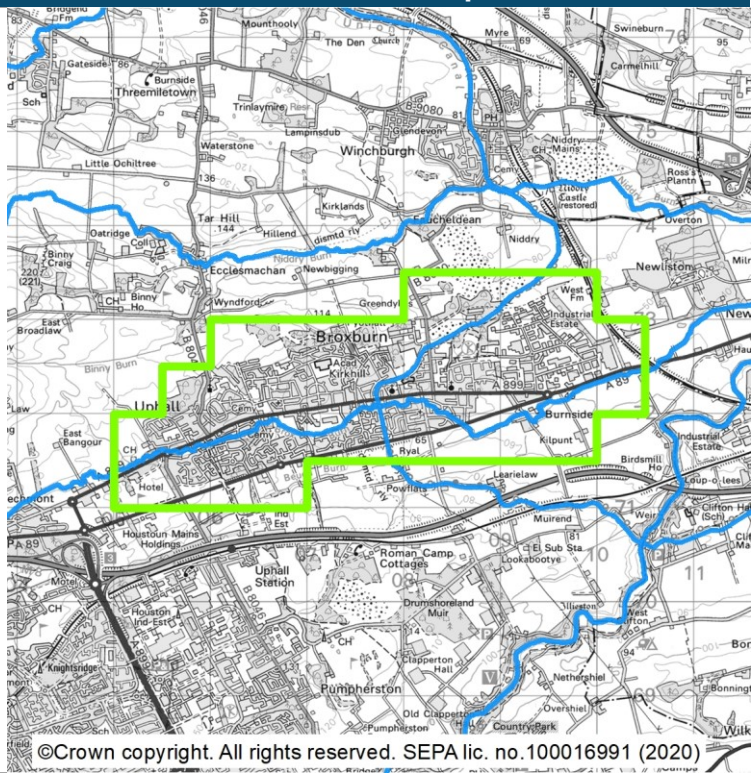
Flood risk management plan datasheet

Broxburn (target area 206)

Summary

The town of Broxburn is located immediately north east of Livingston in the West Lothian Council area. The main source of flooding is surface water flooding, however there is also a risk from river flooding from the Liggat Syke and the Brox Burn. The local authority has carried out a flood study in this area which identified approximately 220 homes and businesses at risk of flooding.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for river flooding is improved by flood studies on the Liggat Syke and in support of the Broxburn Flood Protection Scheme delivered by the local authority. The national level assessment for surface water flooding is improved by a surface water management plan and a sewer flood risk assessment carried out by the local authority and Scottish Water. There are long and extensive records of flooding in this area. Several significant river and surface water floods occurred between 2000 and 2007 which resulted in the promotion of the Broxburn Flood Protection Scheme. Significant floods also occurred in 2008 and 2012 during construction of the scheme which now provides protection at Burnside, West Burnside and Blyth Road. On the 27 August 2020 extreme rainfall led to 21 properties being flooded from the Liggat Syke, whilst 7 properties near Illieston Castle also suffered surface water flood damage.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2061	Avoid flood risk	Avoid inappropriate development that increases flood risk in Broxburn
2062	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the Broxburn Flood Protection Scheme along the Brox Burn
2063	Improve data and understanding	Improve data and understanding of the performance of the Broxburn Flood Protection Scheme
2064	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Broxburn
2065	Reduce flood risk	Reduce the risk of surface water flooding in Broxburn
2066	Reduce flood risk	Reduce the risk of river flooding from Liggat Syke in Broxburn.
2067	Reduce flood risk	Reduce the risk of river flooding from the Brox Burn in Broxburn West Main Street and New Holygate.

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Flood scheme or works design (Ref: 20601)
Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	Detailed design for future phases of the flood protection scheme in Broxburn commenced in 2019 with local authority funding. Proposed works include Liggat Syke flood relief culvert and basin, property level protection scheme for New Holygate and Parkwood Gardens and West Burnside flood embankment. Stakeholder and public consultations are due to be carried out in these areas in 2021.
Coordination	Action delivery lead is West Lothian Council in coordination with SEPA, Scottish Water and Scottish Canals.

	Flood scheme or works implementation (Ref: 20602)
Action	The flood scheme/works is to be built following agreement of the design, costs and timescales.
Action detail	The responsible authority proposes this action as the best viable option for managing flood risk in this community. The delivery of this action is subject to funding being made available. The future phases of Broxburn Flood Protection Scheme should continue to the construction phase. The future phases include the Liggat Syke flood relief culvert and Basin, property flood resilience scheme costs for New Holygate and Parkwood Gardens and West Burnside flood embankment.
Coordination	Action delivery lead is West Lothian Council in coordination with SEPA, Scottish Water and Scottish Canals.

	Flood scheme or works implementation (Ref: 20603)
Action	The flood scheme/works is to be built following agreement of the design, costs and timescales.
Action detail	The legacy sustainable drainage systems project is to continue in partnership between the local authority and Scottish Water.
Coordination	Action delivery lead is Scottish Water and coordinated with West Lothian Council and other actions in the area.

	Sewer flood risk assessment (Ref: 20604)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Newbridge sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Flood study (existing flood defences) (Ref: 20605)
Action	The performance and condition of the existing flood defences are to be evaluated, including consideration of the likely impacts of climate change. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A study is recommended to investigate the long-term performance and management of the existing flood protection scheme in Broxburn. The study may require survey of flood defences, data collection and flood modelling. The study should include a comprehensive assessment of the potential impacts of climate change and aim to develop a long-term plan to managing the flood defences. The local community will be advised of any resulting works.
Coordination	Action delivery lead is West Lothian Council and coordination will be determined once the actions have been finalised.

	Flood defence maintenance (Ref: 20606)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	Maintenance to the existing 2008 Broxburn flood protection scheme should continue.
Coordination	Action delivery lead is West Lothian Council and coordination will be determined once the actions have been finalised.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

	Surface water management plan (Ref: 20607)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system have been identified. Next steps in managing such water ponding or over-whelmed drainage systems have been identified and should be implemented. The plan is to be reviewed and updated as needed.
Action detail	West Lothian Council published a high level surface water management plan in 2015. The Plan identifies a road-map for the management of surface water flood risk and the need for further detailed studies. The plan should be kept under review and updated as new information becomes available. The local community will be advised of any resulting works
Coordination	Action delivery lead is West Lothian Council in coordination with Scottish Water and other actions in the area.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

Liggat Syke flood protection measures are under development. West Lothian Council has invested in the development of flood protection measures for the Liggat Syke in consultation with Scottish Canals, utility companies and private landowners.

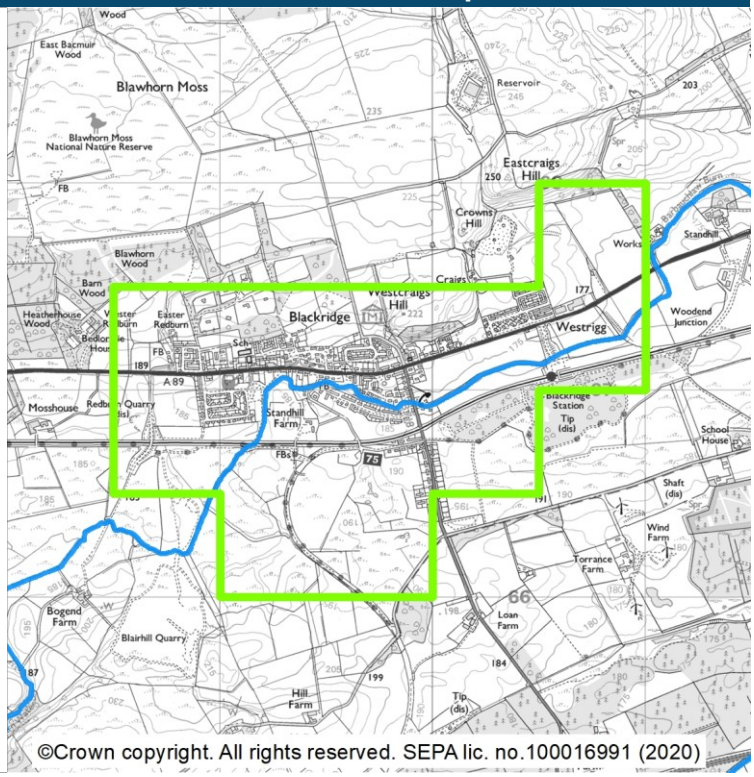
Flood risk management plan datasheet

Blackridge (target area 282)

Summary

Blackridge is located on the Barbauchlaw Burn in the West Lothian Council area. The main source of flooding is surface water flooding, however there is also a risk from river flooding. The local authority has carried out a flood study in this area which identified approximately 40 homes and businesses at risk from flooding. This is estimated to increase to approximately 70 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for river flooding is improved by a flood study for the Blackridge area carried out by the local authority. There have been several recorded floods in the Blackridge area. In February 2017 a blocked culvert caused the Barbauchlaw Burn to overflow and inundate the local community centre with flood water.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2821	Avoid flood risk	Avoid inappropriate development that increases flood risk in Blackridge
2822	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Blackridge.
2823	Reduce flood risk	Reduce the risk of river flooding from the Barbauchlaw Burn and surface water flooding in Blackridge

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Data collection (Ref: 28201)
Action	Equipment that measures rainfall, river levels, erosion, ground levels or wave height may be installed and maintained to improve our understanding of flood risk. This can be done over short term or to measure longer term impacts.
Action detail	West Lothian Council should continue current efforts in data collection and monitoring to improve the confidence in flood sources, mechanisms and risk relating to river flooding from the Barbauchlaw Burn. The new data should be used to update the existing flood risk assessment as deemed necessary.
Coordination	Action delivery lead is West Lothian Council and coordination will be determined once the actions have been finalised.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

	Flood scheme or works implementation (Ref: 28202)
Action	The flood scheme/works is to be built following agreement of the design, costs and timescales.
Action detail	The recommendations of the flood study should be taken forward to reduce surface water flood risk in Blackridge in the longer term. These include surface water works and consideration of natural flood management opportunities. Delivery of this action is subject to achieving a positive benefit to cost ratio, and sufficient funding being made available.
Coordination	Action delivery lead is West Lothian Council and coordination will be determined once the actions have been finalised.

	Surface water management plan (Ref: 28203)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A surface water management plan should be developed for Blackridge to improve understanding of surface water flood risk. Current and long-term flood risk should be considered including how climate change may impact flood risk in the area. The local community will be advised of any resulting works.
Coordination	Action delivery lead is West Lothian Council in coordination with Scottish Water and other actions in the area

	Flood study (Ref: 28204)
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Action detail	The flood protection study for the Barbauchlaw Burn was completed in 2019. The study should be updated once more hydrological information is available to confirm the understanding of flood risk.
Coordination	Action delivery lead is West Lothian Council and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

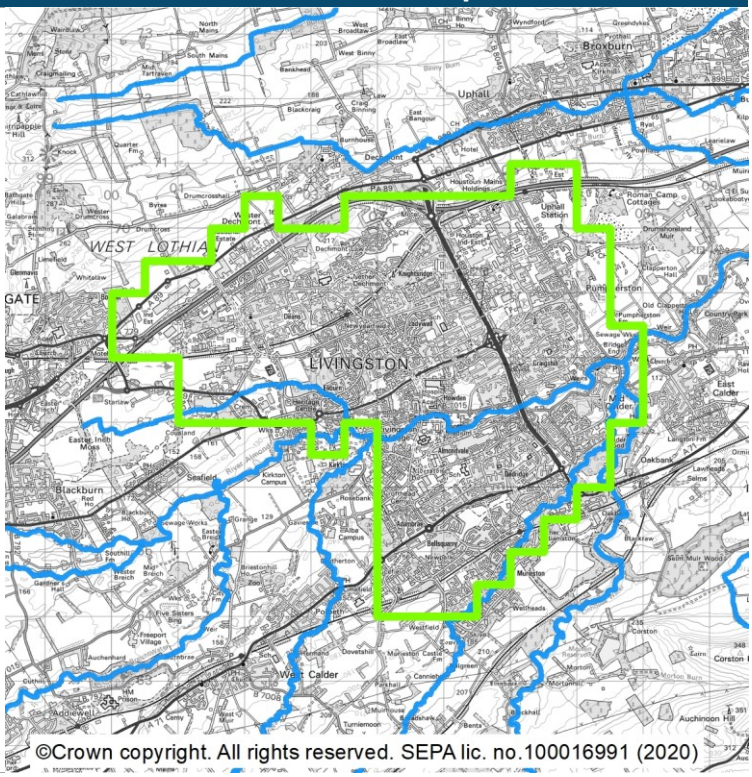
Flood risk management plan datasheet

Livingston and Mid Calder (target area 295)

Summary

Livingston and Mid Calder lie on the River Almond, within the West Lothian Council area. The main source of flooding in Livingston and Mid Calder is surface water. The local authority has carried out a flood study in this area which identified approximately 260 homes and businesses at risk of flooding.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for surface water is improved by a surface water management plan and a sewer flood risk assessment carried out by the local authority and Scottish Water. There are a number of records of surface water flooding in the Livingston and Mid Calder area. Over a number of years some homes and businesses have been affected by surface water flooding in Murieston Gardens, most recently in August 2020.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2951	Avoid flood risk	Avoid inappropriate development that increases flood risk in Livingston and Mid Calder
2952	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Livingston and Mid Calder
2953	Reduce flood risk	Reduce the risk of surface water flooding in Livingston and Mid Calder

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Flood scheme or works design (Ref: 29501)
Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	The legacy sustainable drainage systems project should continue as appropriate.
Coordination	Action delivery lead is Scottish Water in coordination with West Lothian Council and other actions in the area.

	Sewer flood risk assessment (Ref: 29502)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes East Calder and Livingston sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

	Surface water management plan (Ref: 29503)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system have been identified. Next steps in managing such water ponding or over-whelmed drainage systems have been identified and should be implemented. The plan is to be reviewed and updated as needed.
Action detail	West Lothian Council published a high level surface water management plan in 2015. The plan identifies a road-map for the management of surface water flood risk and the need for further detailed studies. The plan should be kept under review and updated as new information becomes available. The local community will be advised of any resulting works.
Coordination	Action delivery lead is West Lothian Council in coordination with Scottish Water and other actions in the area.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

02/10/14 (Whitburn)

This area is designated as a Potentially Vulnerable Area due to flood risk to Blackburn and Whitburn. The main source of flooding is surface water and river flooding to Whitburn from the White Burn. Recent flooding has been caused by surface water flooding and affected a number of roads.
There are 2 areas in this Potentially Vulnerable Area, which have been the focus of further assessment, these are listed below. Further information on the proposed objectives and actions to manage flood risk within this area is provided below.

List of target areas

Blackburn	(target area 197)
Whitburn	(target area 325)

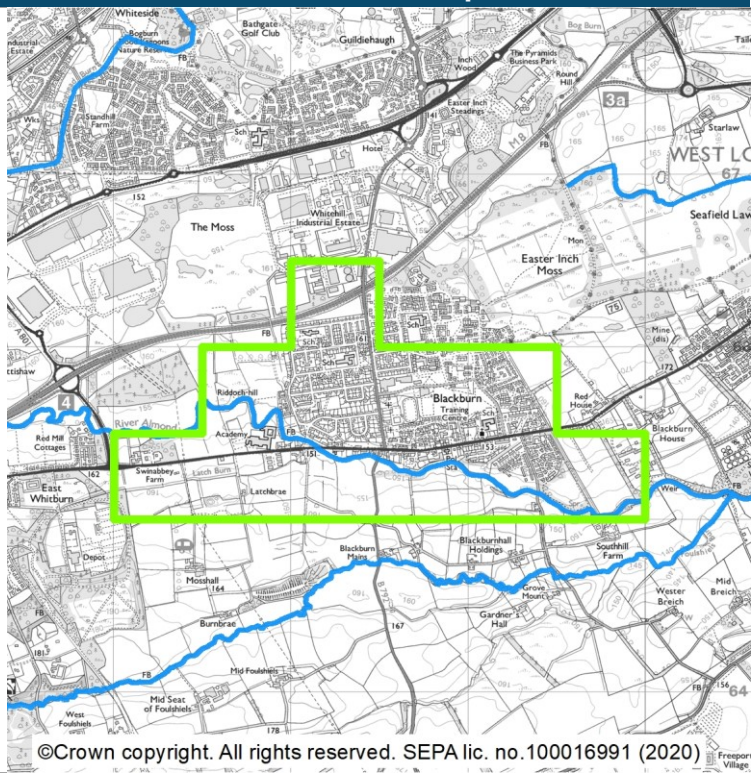
Flood risk management plan datasheet

Blackburn (target area 197)

Summary

Blackburn has been newly identified for inclusion in the 2021 Flood Risk Management Plans. Blackburn is a town located just south of Bathgate and within the West Lothian Council area. The main source of flooding in Blackburn is surface water flooding, and there is also a risk from river flooding from the River Almond. There are approximately 120 homes and businesses currently at risk from flooding. This is likely to increase to 150 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for surface water flooding is improved by a sewer flood risk assessment carried out by Scottish Water. There are records of flooding for this area. Flooding in the area is commonly caused by surface water leading to flooding of roads and footpaths.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
1971	Avoid flood risk	Avoid inappropriate development that increases flood risk in Blackburn
1972	Prepare for flooding	Prepare for current flood risk and future flooding as a result of the effects of climate change in Blackburn
1973	Reduce flood risk	Reduce the risk of surface water flooding in Blackburn

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Sewer flood risk assessment (Ref: 19701)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Blackburn sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 19702)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A surface water management plan should be developed for Blackburn to improve understanding of surface water flood risk. Current and long-term flood risk should be considered including how climate change may impact flood risk in the area. The local community will be advised of any resulting works.
Coordination	Action delivery lead is West Lothian Council in coordination with Scottish Water and other actions in the area

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

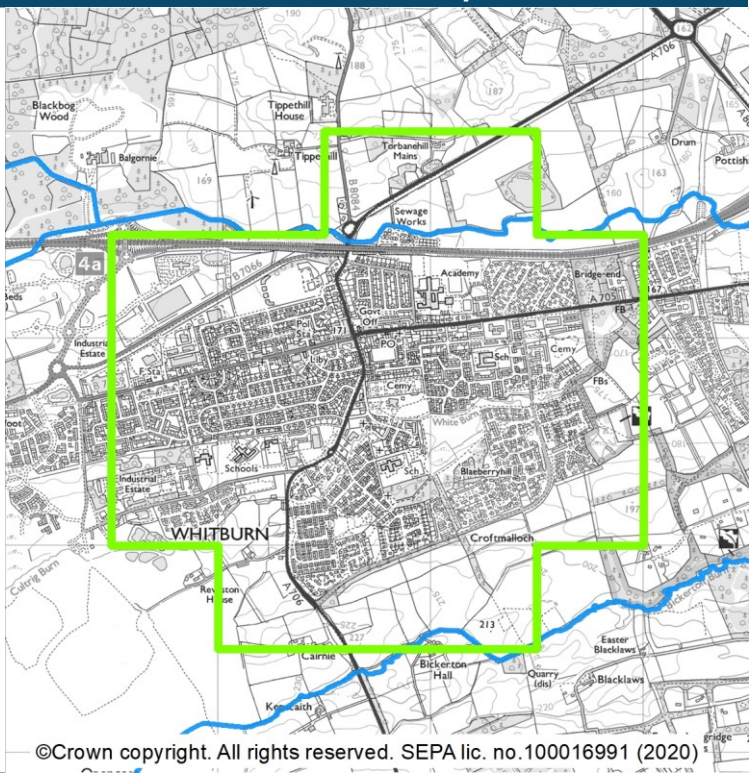
Flood risk management plan datasheet

Whitburn (target area 325)

Summary

Whitburn is a town located close to the River Almond in the West Lothian Council area. The main source of flooding in Whitburn is surface water and river flooding from the White Burn. There are approximately 470 homes and businesses currently at risk from all sources of flooding. This is likely to increase to 570 homes and businesses by the 2080s due to climate change. The local authority has carried out a flood study which clarified flood risk from the White Burn. The study identified 24 homes and businesses at risk of flooding from the White Burn.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for river flooding is improved by a flood study for the White Burn and the ongoing flow monitoring on the White Burn. Understanding of surface water flooding is improved by a surface water management plan also carried out by the local authority. There is a history of flooding in this area. In 2014 a blocked culvert caused the White Burn to overflow flooding several properties. The Dixon Terrace area experienced minor surface water flooding in 2017.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
3251	Avoid flood risk	Avoid inappropriate development that increases flood risk in Whitburn
3252	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Whitburn
3253	Improve data and understanding	Improve data and understanding of river flooding in Whitburn
3254	Reduce flood risk	Reduce the risk of surface water flooding in Whitburn

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Surface water management plan (Ref: 32501)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A surface water management plan should be developed for Whitburn to improve understanding of surface water flood risk. Current and long-term flood risk should be considered including how climate change may impact flood risk in the area. The local community will be advised of any resulting works.
Coordination	Action delivery lead is West Lothian Council and coordination will be carried out with Scottish Water and other actions in the area.

	Data collection (Ref: 32502)
Action	Equipment that measures rainfall, river levels, erosion, ground levels or wave height may be installed and maintained to improve our understanding of flood risk. This can be done over short term or to measure longer term impacts.
Action detail	West Lothian Council should continue current efforts in data collection and monitoring to improve the confidence in flood sources, mechanisms and risk relating to river flooding from the White Burn. The new data should be used to update the existing flood risk assessment as deemed necessary.
Coordination	Action delivery lead is West Lothian Council and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

02/10/15 (West Calder and Fauldhouse)

This area is designated as a Potentially Vulnerable Area due to flood risk to Fauldhouse and West Calder from surface water. There are several records of flooding in this area, primarily from surface water.

There are 2 areas in this Potentially Vulnerable Area, which have been the focus of further assessment, these are listed below. Further information on the proposed objectives and actions to manage flood risk within this area is provided below.

List of target areas

Fauldhouse	(target area 229)
West Calder	(target area 323)

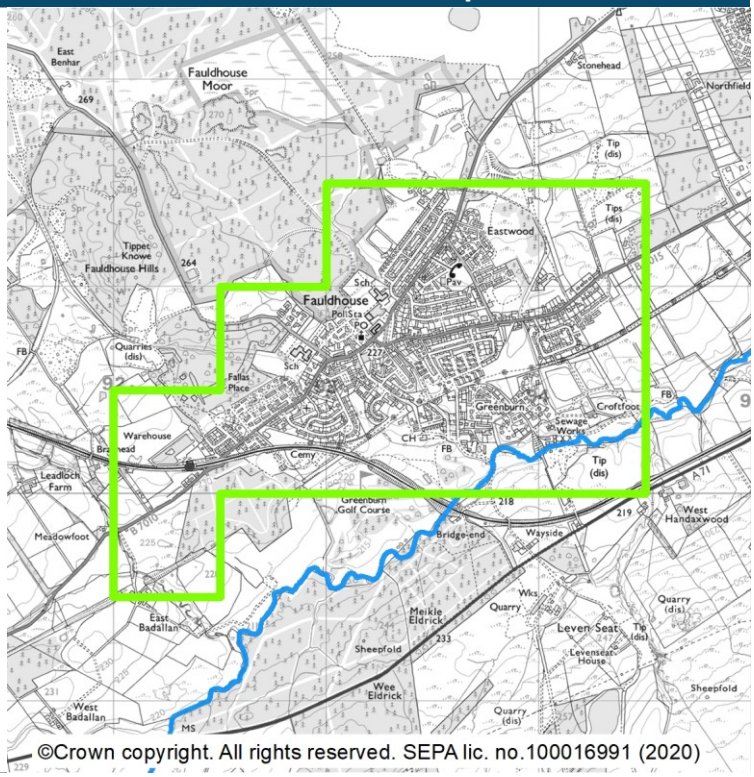
Flood risk management plan datasheet

Fauldhouse (target area 229)

Summary

Fauldhouse has been newly identified for inclusion in the 2021 Flood Risk Management Plans. It is located in the West Lothian Council area. The main source of flooding is surface water. There are approximately 80 homes and businesses currently at risk from flooding. This is likely to increase to 110 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. This information has highlighted the risk of flooding in this target area. There is a number of records of surface water flooding in Fauldhouse due to run-off from higher ground. In 2012 a flood affected numerous gardens and some commercial premises in the Eldrick Avenue, Bridge Street and Greenburn Road area. Greenburn Golf Club was also affected.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2291	Avoid flood risk	Avoid inappropriate development that increases flood risk in Fauldhouse
2292	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Fauldhouse
2293	Reduce flood risk	Reduce the risk of surface water flooding in Fauldhouse

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Sewer flood risk assessment (Ref: 22901)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Fauldhouse sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 22902)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A surface water management plan should be developed for Fauldhouse to improve understanding of surface water flood risk. Current and long-term flood risk should be considered including how climate change may impact flood risk in the area. The local community will be advised of any resulting works.
Coordination	Action delivery lead is West Lothian Council in coordination with Scottish Water and other actions in the area.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

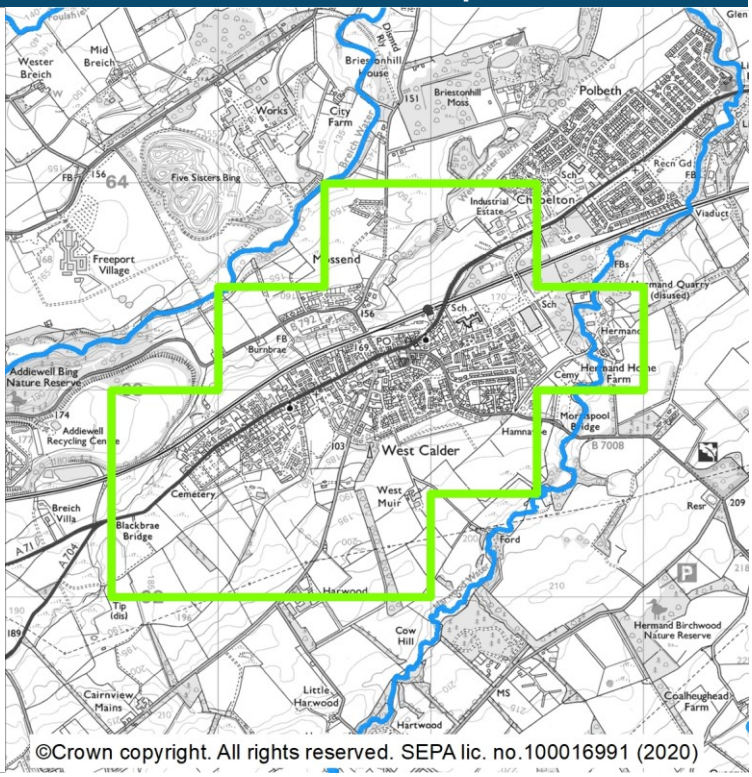
Flood risk management plan datasheet

West Calder (target area 323)

Summary

West Calder has been newly identified for inclusion in the 2021 Flood Risk Management Plans. West Calder is a town located approximately 6km west of Livingston, within the West Lothian Council area. The main source of flooding in West Calder is surface water, with a small proportion of risk from river flooding. There are approximately 110 homes and businesses currently at risk from flooding. This is estimated to increase to over 120 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. This information has highlighted the risk of flooding in this target area. There are a number of records of flooding in this area, mainly resulting from surface water flooding. The first significant flood recorded occurred in July 2002, when surface water run-off and river overtopping caused localised flooding. A 2005 flood resulted in increased attenuation near West Calder Community Centre. Further flooding was recorded in July 2013, when a flash flood combined with blocked drains resulted in significant flooding to homes, businesses and roads.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
3231	Avoid flood risk	Avoid inappropriate development that increases flood risk in West Calder
3232	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in West Calder
3233	Reduce flood risk	Reduce the risk of surface water flooding in West Calder

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Sewer flood risk assessment (Ref: 32301)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes East Calder sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 32302)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A surface water management plan should be developed for West Calder to improve understanding of surface water flood risk. Current and long-term flood risk should be considered including how climate change may impact flood risk in the area. The local community will be advised of any resulting works.
Coordination	Action delivery lead is West Lothian Council in coordination with Scottish Water and other actions in the area.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

02/10/16 (Slamannan)

This area is designated as a Potentially Vulnerable Area due to flood risk to Slamannan. The main source of flooding is surface water and river flooding from the Culloch Burn. There is a history of flooding in this area, with frequent river and surface water flooding affecting homes and roads.

There is 1 area in this Potentially Vulnerable Area, which has been the focus of further assessment, this is identified below Further information on the proposed objectives and actions to manage flood risk within this area is provided below.

List of target areas

Slamannan	(target area 314)

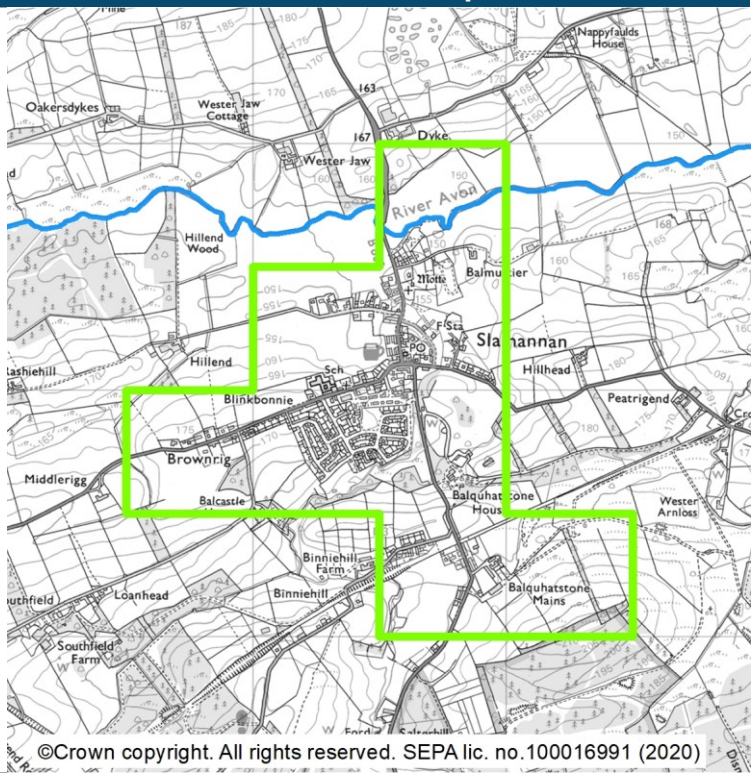
Flood risk management plan datasheet

Slamannan (target area 314)

Summary

Slamannan is a village located on the banks of the Culloch Burn in the Falkirk Council area. The main sources of flooding in Slamannan are river and surface water flooding. There are approximately 80 people and 50 homes and businesses currently at risk from flooding.

Location map



What is the current understanding of flood risk?

This section provides a summary of information which has helped to develop an understanding of flood risk in the area. Since 2011, SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for surface water flooding has been improved by an integrated catchment study. There are frequent records of flooding in this area from surface water and the Culloch Burn. Surface water flooding results from runoff from fields and sewerage issues.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
3141	Avoid flood risk	Avoid inappropriate development that increases flood risk in Slamannan
3142	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Slamannan
3143	Reduce flood risk	Reduce the risk of river flooding from the Culloch Burn and surface water flooding in Slamannan

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Sewer flood risk assessment (Ref: 31401)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes Slammanan sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 31402)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	The strategic surface water management plan covering priority areas for Falkirk Council will continue to be developed. The strategic surface water management plan will identify areas where further more detailed studies are required to manage flood risk from surface water and minor watercourses.
Coordination	Action delivery lead is Falkirk Council in coordination with Scottish Water.

	Flood study (Ref: 31403)
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Action detail	A flood protection study is to be progressed for this area to assess options to manage flood risk. Options should include a combination of structural and non-structural elements including natural flood management. The assessment should consider these actions in combination and the impacts on flood risk upstream and downstream of each action.
Coordination	Action delivery lead is Falkirk Council and coordination will be determined once the actions have been finalised.

	Community engagement (Ref: 31404)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Community engagement opportunities will be sought where possible with the community organisations of Slamannan regarding improving community resilience.
Coordination	Action delivery leads are the responsible authorities in coordination with the Scottish Flood Forum.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

02/10/17 (Edinburgh West)

This area is designated as a Potentially Vulnerable Area due to flood risk to Edinburgh Airport and the western part of Edinburgh including South Gyle and Edinburgh Park. The main sources of flooding are surface water and river flooding from the Gogar Burn. There is a history of flooding in this area, with frequent reports of surface water flooding, including in June 2019 when surface water flooding caused significant transport disruption to road, tram and rail services and flooding to properties.

There are 2 areas in this Potentially Vulnerable Area, which have been the focus of further assessment, these are listed below. Further information on the proposed objectives and actions to manage flood risk within this area is provided below.

List of target areas

Edinburgh west	(target area 264)
Edinburgh Airport	(target area 310)

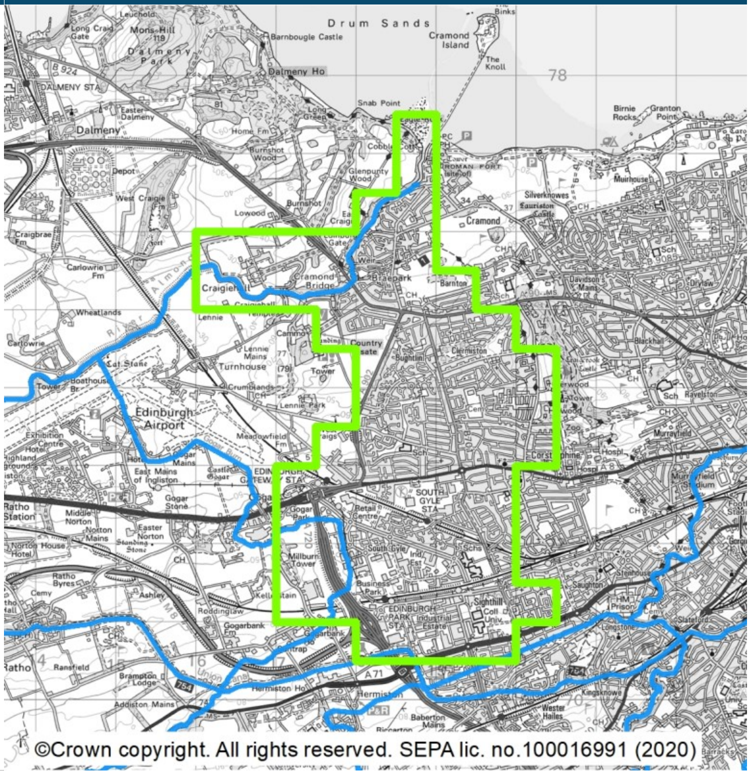
Flood risk management plan datasheet

Edinburgh west (target area 264)

Summary

Edinburgh west covers the western edge of the city of Edinburgh, including Cramond Bridge, Corstorphine, South Gyle and Edinburgh Park. The main sources of flooding are surface water and river flooding. There are approximately 5,000 people and 2,800 homes and businesses currently at risk from flooding. This is likely to increase to 5,900 people and 3,300 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for surface water by an integrated catchment study and a sewer flood risk assessment. There are records of flooding in this area from rivers and surface water.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2641	Avoid flood risk	Avoid inappropriate development that increases flood risk in Edinburgh west
2642	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Edinburgh west
2643	Reduce flood risk	Reduce the risk of flooding from the Gogar Burn to homes and businesses in Edinburgh west.
2644	Reduce flood risk	Reduce the risk of surface water flooding in Edinburgh west.

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Flood study (Ref: 26401)
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Action detail	The proposed flood study for the Gogar Burn should be undertaken. This should include flood modelling and a high level assessment of actions. The impacts of climate change on flood risk should be evaluated and if found to be significant then an adaptation plan may be required to consider how the area will adapt to future changes in flood risk.
Coordination	Action delivery lead is City of Edinburgh Council and coordinated with Edinburgh Airport and SEPA and any other relevant projects in the area.

	Sewer flood risk assessment (Ref: 26402)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes the Edinburgh sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 26403)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A high level surface water management plan has been produced for the Edinburgh area. City of Edinburgh Council should continue to further develop priorities for the management of surface water flood risk in the city. The results of the integrated catchment study and sewer flood risk assessment should be considered. Current and long term flood risk should be assessed and how the city will adapt to changes in flood risk due to climate change should be considered.
Coordination	Action delivery lead is City of Edinburgh Council in coordination with Scottish Water.

	Community engagement (Ref: 26404)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Awareness raising should be developed based on the findings of the flood studies and surface water management plan.
Coordination	Action delivery lead is City of Edinburgh Council in coordination with the Scottish Flood Forum.

	Flood warning maintenance (Ref: 26405)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Almond flood warning scheme.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

	Flood study (Ref: 26406)
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Action detail	A flood study for River Almond is to be carried out as part of future activities.
Coordination	Action delivery lead is City of Edinburgh Council and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

Together with SEPA, Scottish Water and neighbouring local authorities, the City of Edinburgh Council is part of the Edinburgh and Lothians Strategic Drainage Partnership. Through joint planning and collaborative working, this group is developing innovative and effective ways to tackle flood risk using sustainable drainage, whilst also considering biodiversity, multi-functional spaces, water quality and education.

SEPA will look to enhance coordinated working in this target area through placemaking partnerships. This will look at land use planning and flooding aspects to improve the current and future understanding of flood risk with the aim of identifying long term improvements for communities.

Scottish Water will continue to work in partnership with local authorities, SEPA and other relevant authorities to support long term sustainable drainage planning through the Edinburgh and Lothians Strategic Drainage Partnership.

There is potential to work with SEPA's River Basin Management team to improve the physical condition of the water environment.

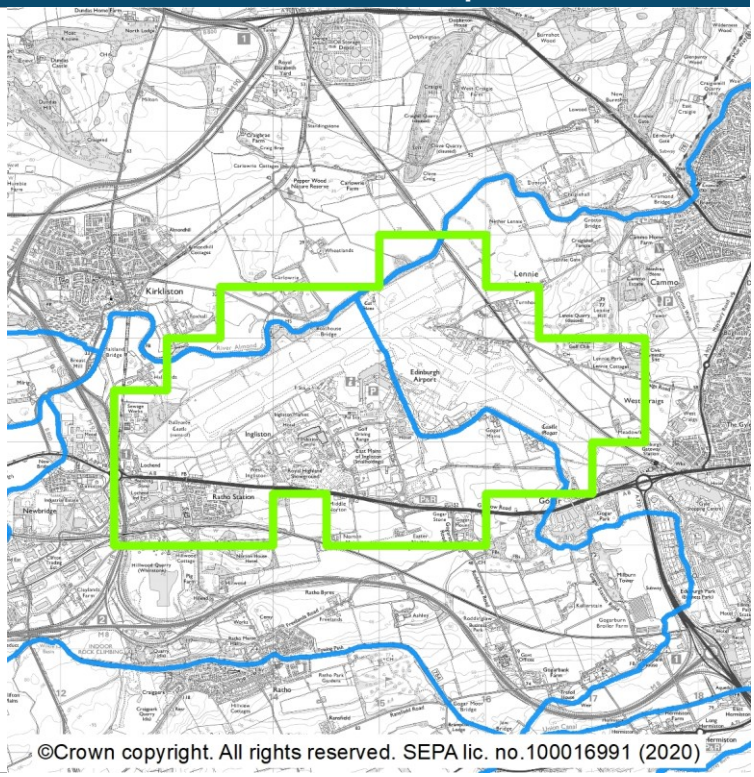
Flood risk management plan datasheet

Edinburgh Airport (target area 310)

Summary

Edinburgh Airport and surrounding business and residential areas are located to the west of Edinburgh city centre. The main source of flooding is from river flooding, however there is also a risk of surface water flooding. There are approximately 20 people and 190 homes and businesses currently at risk of flooding. This is likely to increase to 30 people and 210 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for surface water flooding by an integrated catchment study and a sewer flood risk assessment. There are records of flooding in this area from the River Almond and surface water. The most recent flood was recorded in February 2020 when heavy rain during Storm Ciara caused surface water flooding at the airport tram terminus, preventing tram travel to and from the airport.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
3101	Avoid flood risk	Avoid inappropriate development that increases flood risk to Edinburgh Airport and the surrounding area.
3102	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change at Edinburgh Airport.

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Flood study (Ref: 31001)
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Action detail	The proposed flood study for the Gogar Burn should be carried out to improve understanding of river flood risk. The study should include modelling and high level assessment of actions to manage flood risk. Current and future flood risk should be considered and how the area may adapt to the impacts of climate change. As the study includes a small area of Edinburgh Airport, joint working between City of Edinburgh Council and the Edinburgh Airport may be required.
Coordination	Action delivery lead is the City of Edinburgh Council in coordination with Edinburgh Airport and SEPA.

	Sewer flood risk assessment (Ref: 31002)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes the Edinburgh and Newbridge sewer catchments in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Emergency plan (Ref: 31003)
Action	The plan to coordinate responses to emergency incidents between organisations, including local authorities, the emergency services and SEPA, is to be maintained and executed as required.
Action detail	Edinburgh airport should continue to operate their flood emergency plan. The plan should be reviewed and updated periodically.
Coordination	Action delivery lead is Edinburgh Airport and coordination will be determined once the actions have been finalised.

	Community engagement (Ref: 31004)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Awareness raising should be developed based on the outcomes of the flood study.
Coordination	Action delivery lead is the City of Edinburgh Council and the responsible authorities in coordination with the Scottish Flood Forum.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

Together with SEPA, Scottish Water and neighbouring local authorities, the City of Edinburgh Council is part of the Edinburgh and Lothians Strategic Drainage Partnership. Through joint planning and collaborative working, this group is developing innovative and effective ways to tackle flood risk using sustainable drainage, whilst also considering biodiversity, multi-functional spaces, water quality and education.

There is potential to work with SEPA's River Basin Management team to improve the physical condition of the water environment.

02/10/18 (South Queensferry)

This area is designated as a Potentially Vulnerable Area due to coastal flood risk to South Queensferry. There are some records of floods in this area.

There is 1 area in this Potentially Vulnerable Area, which has been the focus of further assessment, this is identified below. Further information on the proposed objectives and actions to manage flood risk within this area is provided below.

List of target areas

South Queensferry (target area 315)

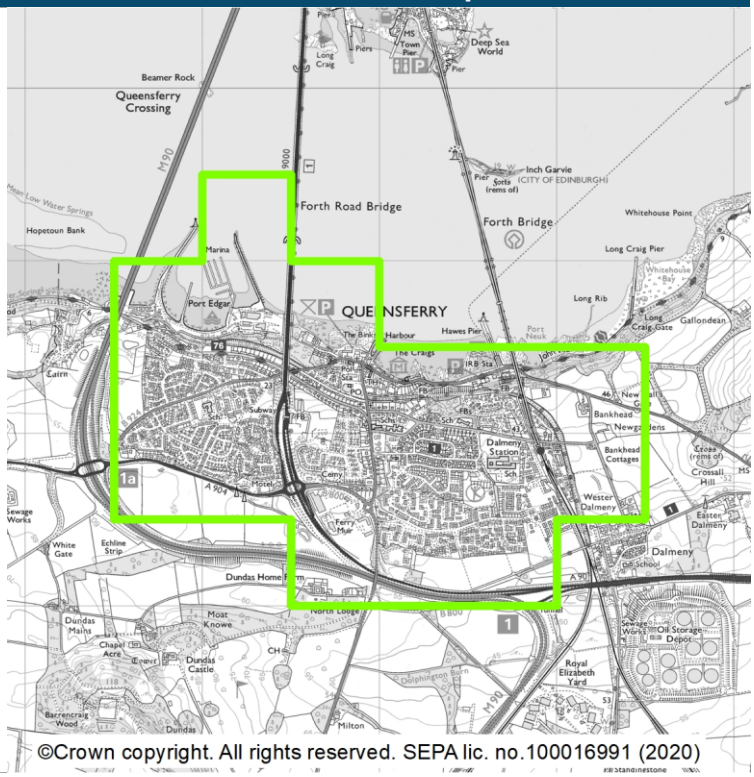
Flood risk management plan datasheet

South Queensferry (target area 315)

Summary

The town of South Queensferry is located to the west of Edinburgh, along the southern shore of the Firth of Forth. It is in the City of Edinburgh Council area. The main source of flooding in the South Queensferry area is coastal flooding. There are approximately 130 people and 80 homes and businesses currently at risk from flooding. This is likely to remain approximately the same for people and increase to 90 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national assessment is the main source of flood risk information in this area. There are limited records of surface water flooding in this area but that does not confirm that there is no flood risk.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
3151	Avoid flood risk	Avoid inappropriate development that increases flood risk in South Queensferry
3152	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in South Queensferry

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Strategic mapping improvements (Ref: 31501)
Action	SEPA will continue to update flood maps based on new information.
Action detail	This action is required to improve the confidence in flood sources and flood risk. This could include modelling and mapping to improve representation of coastal flooding on SEPA maps and understanding of climate change impacts.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

	Surface water management plan (Ref: 31502)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A high level surface water management plan has been produced for the Edinburgh area. City of Edinburgh Council should continue to further develop priorities for the management of surface water flood risk in the city. The results of the integrated catchment study and sewer flood risk assessment should be considered. Current and long term flood risk should be assessed and how the city will adapt to changes in flood risk due to climate change should be considered.
Coordination	Action delivery lead is the City of Edinburgh Council in coordination with Scottish Water.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

Together with SEPA, Scottish Water and neighbouring local authorities, the City of Edinburgh Council is part of the Edinburgh and Lothians Strategic Drainage Partnership. Through joint planning and collaborative working, this group is developing innovative and effective ways to tackle flood risk using sustainable drainage, whilst also considering biodiversity, multi-functional spaces, water quality and education.

02/10/19 (Edinburgh North)

This area is designated as a Potentially Vulnerable Area due to flood risk to parts of northern Edinburgh including Cramond, Silverknowes and Granton. The main source of flooding is surface water and coastal. The coastal area of Granton includes coastal flood protection which reduce the risk to this area. There are a few records of flooding in this area, including significant coastal flooding.

There is 1 area in this Potentially Vulnerable Area, which has been the focus of further assessment, this is identified below. Further information on the proposed objectives and actions to manage flood risk within this area is provided below.

List of target areas

Edinburgh north (target area 265)

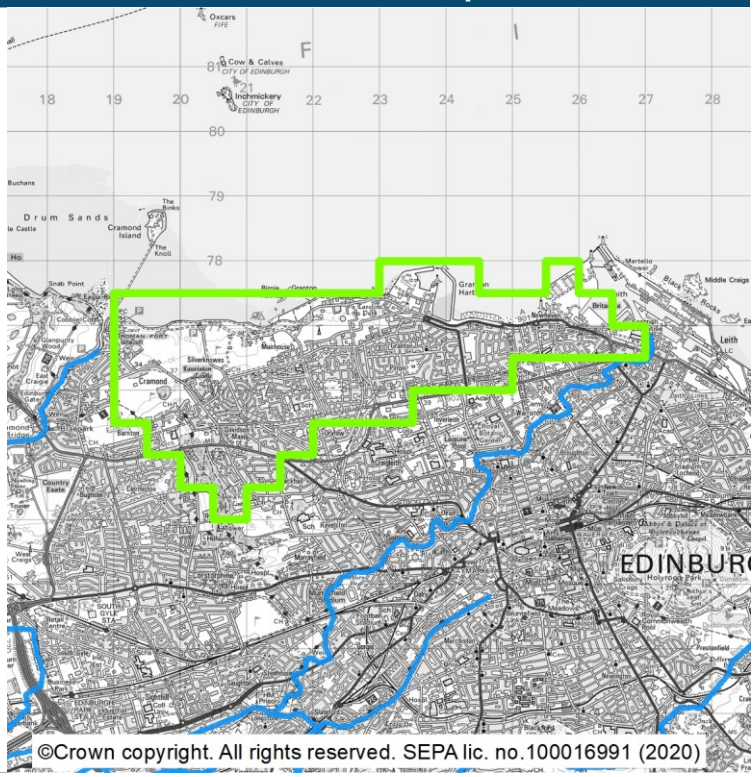
Flood risk management plan datasheet

Edinburgh north (target area 265)

Summary

The Edinburgh north area is located on the south shore of the Firth of Forth, and includes the Cramond, Silverknowes and Granton areas of the Edinburgh City. The main source of flooding is surface water, however there is also risk from coastal flooding. There are approximately 4,800 people and 2,400 homes and businesses currently at risk from flooding. This is likely to increase to 6,800 people and 3,510 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for surface water flooding by an integrated catchment study and a sewer flood risk assessment. There are records of flooding in this area including coastal flooding.

The Dynamic coast project has shown that parts of the shoreline in or adjacent to this target area are subject to erosion at present or are considered likely to erode in the future. Consideration should be given to how erosion might impact flood risk. Any actions taken should aim to support building natural resilience to flooding and not lead to an increase in erosion.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2651	Avoid flood risk	Avoid inappropriate development that increases flood risk in Edinburgh north
2652	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the existing flood defences along the coast in Cramond, Silverknowes and Granton.
2653	Improve data and understanding	Improve data and understanding of the performance of coastal flood defences along the north coast of Edinburgh (Granton, Silverknowes and Cramond)
2654	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Edinburgh north
2655	Reduce flood risk	Reduce the risk of surface water flooding in Edinburgh north.

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Sewer flood risk assessment (Ref: 26501)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes the Edinburgh sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 26502)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A high level surface water management plan has been produced for the Edinburgh area. City of Edinburgh Council should continue to further develop priorities for the management of surface water flood risk in the city. The results of the integrated catchment study and sewer flood risk assessment should be considered. Current and long term flood risk should be assessed and how the city will adapt to changes in flood risk due to climate change should be considered.
Coordination	Action delivery lead is City of Edinburgh Council in coordination with Scottish Water.

	Community engagement (Ref: 26503)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Community engagement should be developed based on the findings of the surface water management plan.
Coordination	Action delivery lead is the City of Edinburgh Council in coordination with the responsible authorities and the Scottish Flood Forum.

	Flood defence maintenance (Ref: 26504)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	Maintenance of the existing coastal flood defences along the Cramond, Silverknowes and Granton coast should continue.
Coordination	Action delivery lead is the City of Edinburgh Council and coordination will be determined once the actions have been finalised.

	Flood warning maintenance (Ref: 26505)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Forth and Tay coastal flood warning scheme. The scheme should be investigated for improvement and/or recalibration.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

	Strategic mapping improvements (Ref: 26506)
Action	SEPA will continue to update flood maps based on new information.
Action detail	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. SEPA will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

	Flood study (existing flood defences) (Ref: 26507)
Action	The performance and condition of the existing flood defences are to be evaluated, including consideration of the likely impacts of climate change. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A flood study is required to investigate the performance and long-term management of the existing coastal flood defences along the Cramond, Silverknowes and Granton coast. The study may require survey of flood defences, data collection and flood modelling. The study should include a comprehensive assessment of the potential impacts of climate change and aim to develop an adaptation plan for management of the flood defences.
Coordination	Action delivery lead is the City of Edinburgh Council and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

Together with SEPA, Scottish Water and neighbouring local authorities, the City of Edinburgh Council is part of the Edinburgh and Lothians Strategic Drainage Partnership. Through joint planning and collaborative working, this group is developing innovative and effective ways to tackle flood risk using sustainable drainage, whilst also considering biodiversity, multi-functional spaces, water quality and education.

Scottish Water will continue to work in partnership with local authorities, SEPA and other relevant authorities to support long term sustainable drainage planning through the Edinburgh and Lothians Strategic Drainage Partnership.

02/10/20 (Edinburgh, Water of Leith)

This area is designated as a Potentially Vulnerable Area due to risk to parts of central and southwestern Edinburgh including Stockbridge, Murrayfield and Longstone. There is risk of river flooding from the Water of Leith and Murray Burn as well as surface water. Water of Leith Flood Protection Scheme offers protection to this area. There is a long history of flooding in this area, including a combined river and surface water flood in June 2019, which flooded properties and roads. In 2003, a significant flood on the Water of Leith affected many areas of Edinburgh and resulted in the flood protection scheme.

There is 1 area in this Potentially Vulnerable Area, which has been the focus of further assessment, this is identified below. Further information on the proposed objectives and actions to manage flood risk within this area is provided below.

List of target areas

Edinburgh Water of Leith (target area 266)

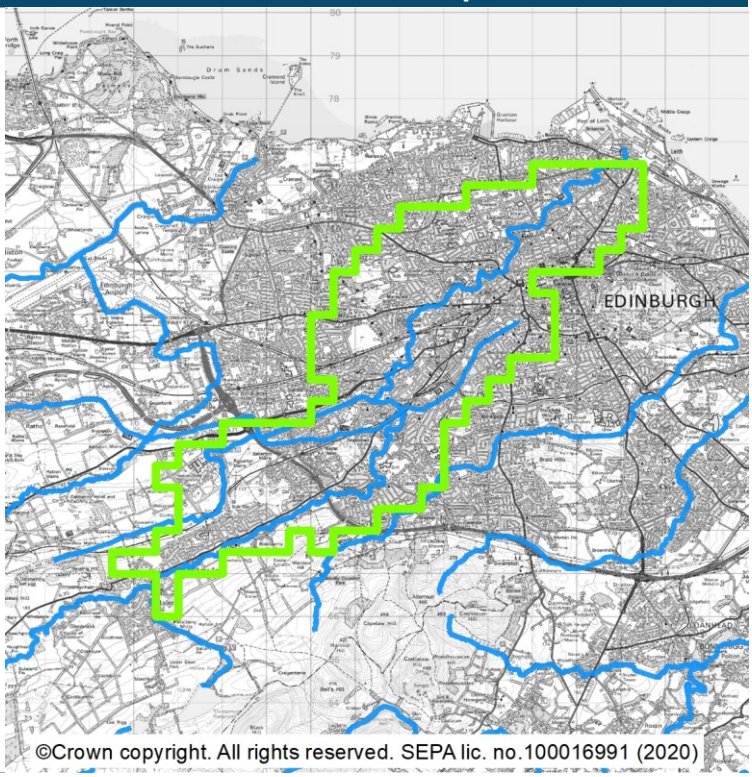
Flood risk management plan datasheet

Edinburgh Water of Leith (target area 266)

Summary

The Edinburgh Water of Leith area covers a large section of central Edinburgh and includes the Water of Leith and the Union Canal. The main sources of flooding are surface water and river flooding. There are approximately 28,000 people and 15,000 homes and businesses at risk from flooding. This is likely to increase to 40,000 people and 22,000 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for river flooding by the flood study in support of the Water of Leith Flood Protection Scheme and a flood study of the Water of Leith basin completed by the local authority in 2018. Understanding of surface water flooding is improved by an integrated catchment study and a sewer flood risk assessment. There is a long history of flooding from river and surface water with a with a notable river flood in July 2011 which led to the construction of the flood scheme on Water of Leith.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2661	Avoid flood risk	Avoid inappropriate development that increases flood risk in Edinburgh
2662	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the Water of Leith Flood Protection Scheme.
2663	Improve data and understanding	Improve data and understanding of flooding in Edinburgh following the construction of phase 2 Water of Leith Flood Protection Scheme
2664	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Edinburgh
2665	Reduce flood risk	Reduce the risk of surface water flooding in Edinburgh.
2666	Reduce flood risk	Reduce the risk of river flooding from the Water of Leith in Coltbridge, Gorgie and Saughton in Edinburgh.

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Flood scheme or works implementation (Ref: 26601)
Action	The flood scheme/works is to be built following agreement of the design, costs and timescales.
Action detail	City of Edinburgh Council will explore the development of further flood scheme or works to the Water of Leith, in line with the updated study and revised flood risk. The delivery of this action is subject to funding being made available. Current and long term flood risk should be assessed and how the flood scheme will adapt to changes in flood risk due to climate change should be considered.
Coordination	Action delivery lead is the City of Edinburgh Council and coordination will be determined once the actions have been finalised.

	Flood study (Ref: 26602)
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Action detail	A flood modelling study is to be carried out looking at the coastal impact at the downstream boundary of Water of Leith to quantify flood risk. The study may develop further depending on the outcome of flood risk investigations.
Coordination	Action delivery lead is the City of Edinburgh Council and coordination will be determined once the actions have been finalised.

	Sewer flood risk assessment (Ref: 26603)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes the Edinburgh sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 26604)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A high level surface water management plan has been produced for the Edinburgh area. City of Edinburgh Council should continue to further develop priorities for the management of surface water flood risk in the city. The results of the integrated catchment study and sewer flood risk assessment should be considered. Current and long term flood risk should be assessed and how the city will adapt to changes in flood risk due to climate change should be considered.
Coordination	Action delivery lead is the City of Edinburgh Council in coordination with Scottish Water.

	Community engagement (Ref: 26605)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Awareness raising should be developed based on the outcomes of the surface water management plan and flood studies.
Coordination	Action delivery lead is the City of Edinburgh Council in coordination with responsible authorities and the Scottish Flood Forum.

	Flood defence maintenance (Ref: 26606)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	Maintenance to the Water of Leith Flood Protection Scheme including the reservoirs in the upper catchment of the Water of Leith should continue. Updates to the maintenance regime are to be made based on the findings of flood studies. The as built drawings (Murrayfield and Roseburn), should be provided to SEPA, who will assess the need for updates to the flood warning scheme, flood maps and the Scottish Flood Defence Asset database.
Coordination	Action delivery lead is the City of Edinburgh Council and coordination will be determined once the actions have been finalised.

	Flood warning maintenance (Ref: 26607)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Water of Leith flood warning scheme. The scheme should be investigated for improvement and/or recalibration.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

	Flood warning maintenance (Ref: 26608)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Forth and Tay coastal flood warning scheme. The scheme should be investigated for improvement and/or recalibration.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

Together with SEPA, Scottish Water and neighbouring local authorities, the City of Edinburgh Council is part of the Edinburgh and Lothians Strategic Drainage Partnership. Through joint planning and collaborative working, this group is developing innovative and effective ways to tackle flood risk using sustainable drainage, whilst also considering biodiversity, multi-functional spaces, water quality and education.

SEPA will look to enhance coordinated working in this target area through placemaking partnerships. This will look at land use planning and flooding aspects to improve the current and future understanding of flood risk with the aim of identifying long term improvements for communities.

Scottish Water will continue to work in partnership with local authorities, SEPA and other relevant authorities to support long term sustainable drainage planning through the Edinburgh and Lothians Strategic Drainage Partnership.

There is potential to work with SEPA's River Basin Management team to improve the physical condition of the water environment.

02/10/21 (Edinburgh, Braid Burn)

This area is designated as a Potentially Vulnerable Area due to flood risk to central and eastern Edinburgh including Leith, Portobello and Colinton. There is flood risk from the Braid Burn, as well as risk from coastal and surface water. The Braid Burn flood protection scheme was completed by the local authority in 2010 and offers protection to many areas. Coastal protection measures protect many areas in Leith and Portobello. There is a history of flooding from various sources, including recent floods caused by surface water.

There is 1 area in this Potentially Vulnerable Area, which has been the focus of further assessment, this is identified below. Further information on the proposed objectives and actions to manage flood risk within this area is provided below.**List of target areas**

Edinburgh Braid Burn (target area 267)

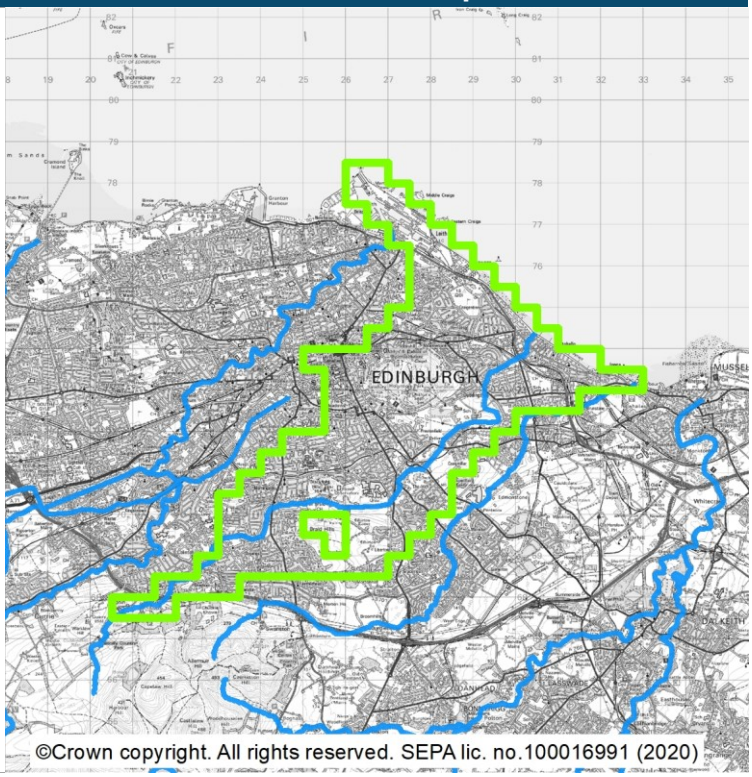
Flood risk management plan datasheet

Edinburgh Braid Burn (target area 267)

Summary

The Braid Burn area is located within the City of Edinburgh. A small part of the catchment extends beyond Edinburgh towards East Lothian. The main source of flooding in this area is from surface water, however there is also risk from river and coastal flooding. The risk of flooding from the Braid Burn is reduced by the Braid Burn Flood Protection Scheme. There are approximately 12,000 people and 6,500 homes and businesses currently at risk from flooding. This is likely to increase to 18,000 people and 9,400 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for river flooding by the flood study developed in support of the Braid Burn Flood Protection Scheme. Understanding of surface water flooding is improved by an integrated catchment study and a sewer flood risk assessment. There is a long history of flooding in this area with a notable flood in April 2000 when the Braid Burn burst its banks. Since then, flooding from the Braid Burn has been reduced through the construction of flood defences.
The Dynamic coast project has shown that parts of the shoreline in or adjacent to this target area are subject to erosion at present or are considered likely to erode in the future. Consideration should be given to how erosion might impact flood risk. Any actions taken should aim to support building natural resilience to flooding and not lead to an increase in erosion.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2671	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the Braid Burn flood protection scheme.
2672	Avoid flood risk	Avoid inappropriate development that increases flood risk in Edinburgh.
2673	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the coastal flood defences in Leith and Portobello.
2674	Improve data and understanding	Improve data and understanding of the performance of the Braid Burn flood protection scheme in relation to climate change.
2675	Improve data and understanding	Improve data and understanding of the performance of the coastal flood defences in Leith and Portobello.
2676	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Edinburgh
2677	Reduce flood risk	Reduce the risk of surface water flooding in Edinburgh.

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Flood study (Ref: 26701)
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Action detail	The flood study is to include a review of existing flood defences and natural flood management. A review is required to assess the performance of the Braid Burn Flood Protection Scheme and the coastal flood defences in the Leith and Portobello areas of Edinburgh in relation to climate change. Regarding the Braid Burn Flood Protection Scheme, a review may be required to assess the need for rain or river gauges. Post flood surveys may be required to collect data on flooding mechanisms, risk and damage caused. This study will help to inform the flood asset management plan that City of Edinburgh Council are developing. Current and future risk and asset performance should be considered, and the information used to develop an adaptation plan.
Coordination	Action delivery lead is the City of Edinburgh Council and coordination will be determined once the actions have been finalised.

	Sewer flood risk assessment (Ref: 26702)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes the Edinburgh sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 26703)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A high level surface water management plan has been produced for the Edinburgh area. City of Edinburgh Council should continue to further develop priorities for the management of surface water flood risk in the city. The results of the integrated catchment study and sewer flood risk assessment should be considered. Current and long term flood risk should be assessed and how the city will adapt to changes in flood risk due to climate change should be considered.
Coordination	Action delivery lead is the City of Edinburgh Council in coordination with Scottish Water.

	Flood study (options appraisal) (Ref: 26704)
Action	In areas where flood risk is confirmed, a range of possible options to manage flood risk are to be identified, including natural flood management actions where suitable, and a preferred approach is to be chosen. This should include adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	Joint study to identify potential options to reduce surface water and sewer flooding is ongoing through the integrated catchments study optioneering project. Outputs from this study will be received during public consultation and this action will be updated prior to final publication dependent on study outcomes.
Coordination	Action delivery leads are Scottish Water and City of Edinburgh Council and coordination will be determined once the actions have been finalised.

	Community engagement (Ref: 26705)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Awareness raising should be developed based on the outcome of the flood studies and surface water management plan.
Coordination	Action delivery lead is the City of Edinburgh Council in coordination with responsible authorities and the Scottish Flood Forum.

	Flood defence maintenance (Ref: 26706)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	Maintenance to the Braid Burn Flood Protection Scheme and to the Leith and Portobello coastal defences should continue. Updates to the maintenance regime should be made based on the findings of the flood study. City of Edinburgh Council are currently developing a flood asset management plan.
Coordination	Action delivery lead is the City of Edinburgh Council and coordination will be determined once the actions have been finalised.

	Strategic mapping improvements (Ref: 26707)
Action	SEPA will continue to update flood maps based on new information.
Action detail	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

	Flood warning maintenance (Ref: 26708)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Braid Burn flood warning scheme.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

	Flood warning maintenance (Ref: 26709)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should investigate improvements to the Braid Burn flood warning scheme.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

Together with SEPA, Scottish Water and neighbouring local authorities, the City of Edinburgh Council is part of the Edinburgh and Lothians Strategic Drainage Partnership. Through joint planning and collaborative working, this group is developing innovative and effective ways to tackle flood risk using sustainable drainage, whilst also considering biodiversity, multi-functional spaces, water quality and education.

SEPA will look to enhance coordinated working in this target area through placemaking partnerships. This will look at land use planning and flooding aspects to improve the current and future understanding of flood risk with the aim of identifying long term improvements for communities.

Scottish Water will continue to work in partnership with local authorities, SEPA and other relevant authorities to support long term sustainable drainage planning through the Edinburgh and Lothians Strategic Drainage Partnership.

There is potential to work with SEPA's River Basin Management team to improve the physical condition of the water environment.

02/10/22 (Edinburgh, Niddrie Burn and Burdiehouse)

This area is designated as a Potentially Vulnerable Area due to flood risk to west and southwest Edinburgh including Niddrie, Burdiehouse and Straiton. The main source of flooding is surface water and river flooding from the Niddrie Burn and Burdiehouse Burn. A number of floods have been reported in this area including recent surface water flooding to roads.

There are 2 areas in this Potentially Vulnerable Area, which have been the focus of further assessment, these are listed below. Further information on the proposed objectives and actions to manage flood risk within this area is provided below.

List of target areas

Edinburgh Niddrie Burn and Burdiehouse	(target area 268)
Straiton	(target area 329)

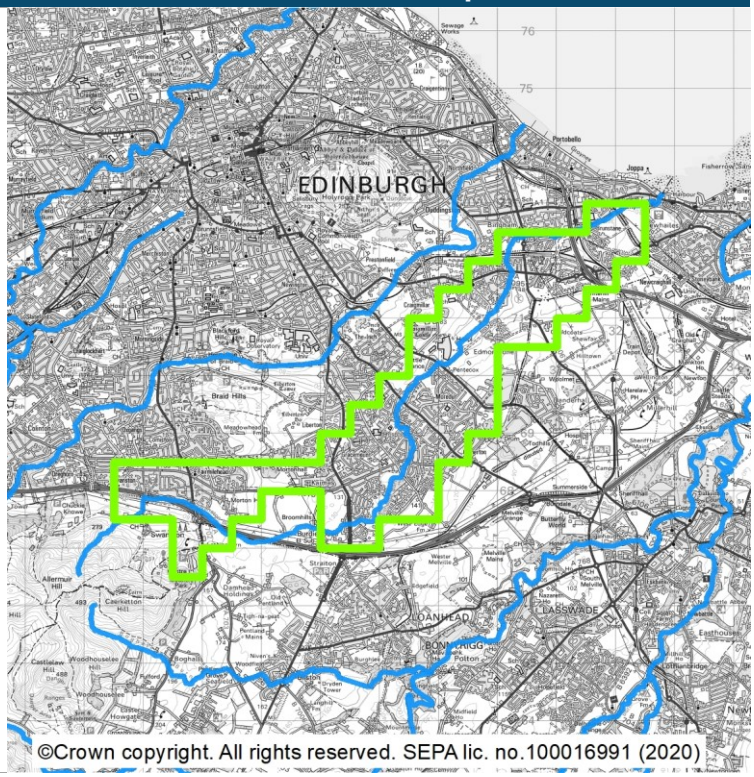
Flood risk management plan datasheet

Edinburgh Niddrie Burn and Burdiehouse (target area 268)

Summary

The Edinburgh Niddrie Burn and Burdiehouse area is part of southeast Edinburgh. The main source of flooding in the area is surface water, however there is also risk of river flooding. There are approximately 2,300 people and 1,200 homes and businesses currently at risk from flooding. This is likely to increase to 2,700 people and 1,400 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for surface water flooding by an integrated catchment study and a sewer flood risk assessment. Rain gauges and flow meters have been installed in the Niddrie Burn by the local authority, with data being collected and recorded for a period of 2 years to improve understanding of river flooding. There are a number of records of past flooding in the Edinburgh Niddrie Burn and Burdiehouse area, mostly from surface water.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2681	Avoid flood risk	Avoid inappropriate development that increases flood risk in Edinburgh.
2682	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the flood control structure and flood storage area at Greendykes and flood defences at Nether Craigour.
2683	Improve data and understanding	Improve data and understanding of flooding from the Niddrie Burn in Edinburgh
2684	Prepare for flooding	Prepare for current flood risk and future flooding in Edinburgh as a result of climate change
2685	Reduce flood risk	Reduce the risk of flooding from the Niddrie Burn to homes and businesses in Edinburgh / Burdiehouse.
2686	Reduce flood risk	Reduce the risk of surface water flooding in Edinburgh.

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Data collection (Ref: 26801)
Action	Equipment that measures rainfall, river levels, erosion, ground levels or wave height may be installed and maintained to improve our understanding of flood risk. This can be done over short term or to measure longer term impacts.
Action detail	Collection of rain data via installed rain gauges should continue to improve understanding of flood risk in the Niddrie Burn catchment. The data will be used in the proposed flood study.
Coordination	Action delivery lead is the City of Edinburgh Council and coordination will be determined once the actions have been finalised.

	Flood study (Ref: 26802)
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Action detail	The ongoing data collected for the Niddrie Burn should be used in taking forward the proposed flood study to completion as scheduled. The study should include modelling of flood risk and high level assessment of actions to manage flood risk. Performance of the flood control structure and flood storage area at Greendykes and flood defences at Nether Craigour should be reviewed. The impacts of climate change on flood risk and asset performance should be assessed and an adaptation plan should be developed.
Coordination	Action delivery lead is the City of Edinburgh Council and coordination will be determined once the actions have been finalised.

	Sewer flood risk assessment (Ref: 26803)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes the Edinburgh sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 26804)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A high level surface water management plan has been produced for the Edinburgh area. City of Edinburgh Council should continue to further develop priorities for the management of surface water flood risk in the city. The results of the integrated catchment study and sewer flood risk assessment should be considered. Current and long term flood risk should be assessed and how the city will adapt to changes in flood risk due to climate change should be considered.
Coordination	Action delivery lead is the City of Edinburgh Council in coordination with Scottish Water.

	Community engagement (Ref: 26805)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Awareness raising should be developed based on the findings of the flood study and surface water management plan.
Coordination	Action delivery lead is the City of Edinburgh Council in coordination with the responsible authorities and the Scottish Flood Forum.

	Flood defence maintenance (Ref: 26806)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	Maintenance to the flood control structure and flood storage area at Greendykes and flood defences at Nether Craigour should continue. Updates to the maintenance regime should be made based on the findings of the flood study.
Coordination	Action delivery lead is the asset owner and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

Together with SEPA, Scottish Water and neighbouring local authorities, the City of Edinburgh Council is part of the Edinburgh and Lothians Strategic Drainage Partnership. Through joint planning and collaborative working, this group is developing innovative and effective ways to tackle flood risk using sustainable drainage, whilst also considering biodiversity, multi-functional spaces, water quality and education.

SEPA will look to enhance coordinated working in this target area through placemaking partnerships. This will look at land use planning and flooding aspects to improve the current and future understanding of flood risk with the aim of identifying long term improvements for communities.

Scottish Water will continue to work in partnership with local authorities, SEPA and other relevant authorities to support long term sustainable drainage planning through the Edinburgh and Lothians Strategic Drainage Partnership.

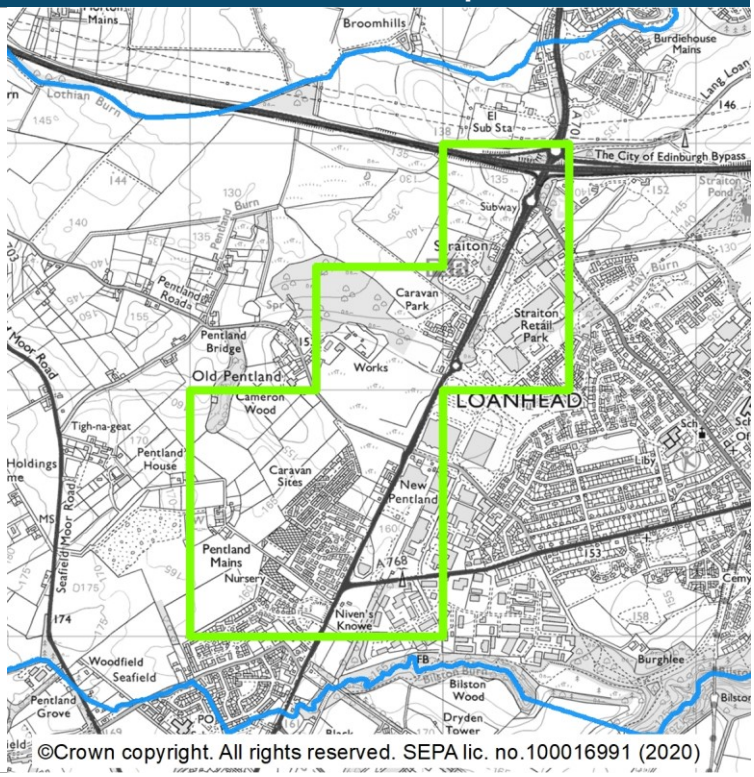
Flood risk management plan datasheet

Straiton (target area 329)

Summary

Straiton lies just south of the Edinburgh Bypass and is within the Midlothian Council area. The only source of flooding in Straiton is from surface water. There are approximately 80 people and 50 homes and businesses currently at risk of flooding. This is estimated to increase to 110 people and 70 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for surface water flooding is improved by an integrated catchment study and a sewer flood risk assessment. A flood was recorded in the Straiton area in April 2000, when a section of the A701 road at Straiton was closed due to flooding.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
3291	Avoid flood risk	Avoid inappropriate development that increases flood risk in Loanhead
3292	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Straiton
3293	Reduce flood risk	Reduce the risk of surface water flooding in Loanhead

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Sewer flood risk assessment (Ref: 32901)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes the Edinburgh sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 32902)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	Following the completion of the integrated catchment study, the local authority should prepare a strategic surface water management plan to determine high risk areas of surface water flooding across the Midlothian Council area. Current and long term flood risk should be considered and include the assessment of the potential impacts of climate change.
Coordination	Action delivery lead is Midlothian Council in coordination with Scottish Water.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

02/10/23 (Musselburgh)

This area is designated as a Potentially Vulnerable Area due to flood risk to Musselburgh and northeast part of Dalkeith. The main source of flooding in Musselburgh is the River Esk and coastal flooding. There is also risk from surface water across the area. There is a history of flooding in this area including coastal flooding and river flooding to homes and businesses.

There are 2 areas in this Potentially Vulnerable Area, which have been the focus of further assessment, these are listed below. Further information on the proposed objectives and actions to manage flood risk within this area is provided below.

List of target areas)

Dalkeith (north east)	(target area 263)
Musselburgh	(target area 304)

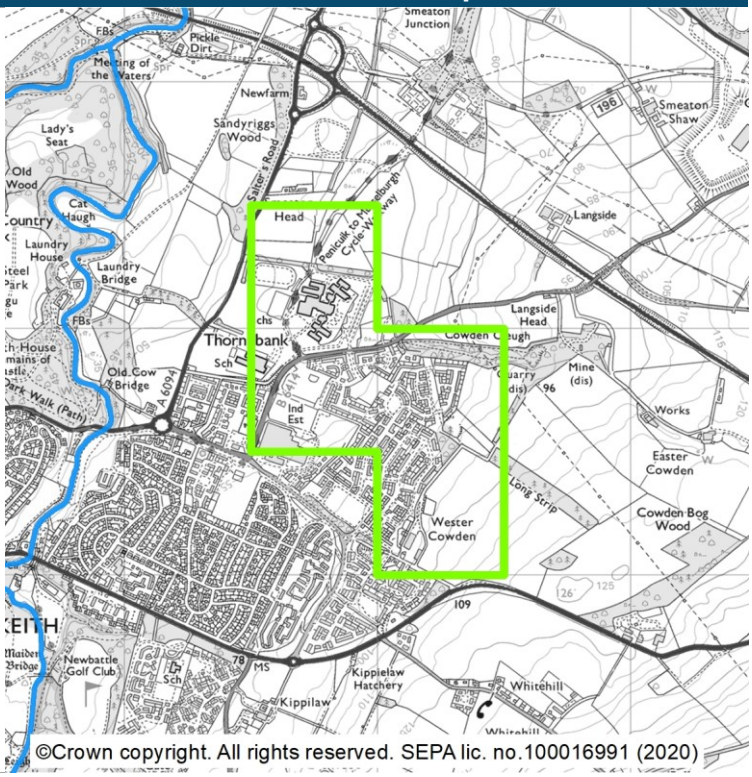
Flood risk management plan datasheet

Dalkeith (north east) (target area 263)

Summary

The Dalkeith north east area covers the north east corner of the town of Dalkeith in the Midlothian Council area. The main source of flooding in Dalkeith north east is surface water. There are approximately 40 people and 30 homes and businesses currently at risk from flooding. This is likely to increase to 80 people and 50 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for surface water flooding is improved by an integrated catchment study and a sewer flood risk assessment. There are no records of flooding in this target area but this does not confirm that there is no flood risk.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2631	Avoid flood risk	Avoid inappropriate development that increases flood risk in Dalkeith (north east)
2632	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Dalkeith (north east)
2633	Reduce flood risk	Reduce the risk of surface water flooding in Dalkeith (north east)

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Sewer flood risk assessment (Ref: 26301)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes the Edinburgh sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 26302)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	Following the completion of the integrated catchment study, the local authority should prepare a strategic surface water management plan to determine high risk areas of surface water flooding across the Midlothian Council area. Current and long term flood risk should be considered and include the assessment of the potential impacts of climate change.
Coordination	Action delivery lead is Midlothian Council in coordination with Scottish Water.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

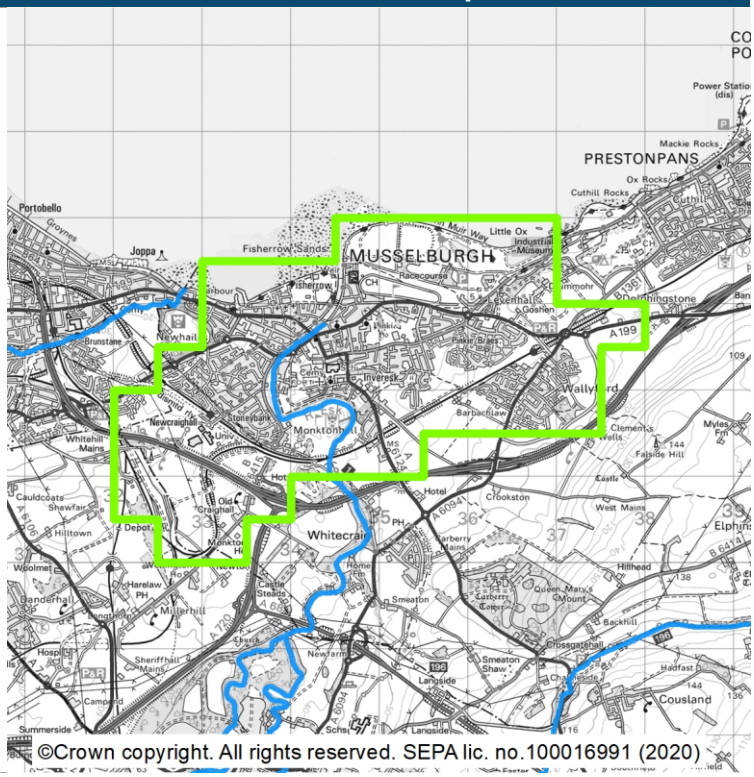
Flood risk management plan datasheet

Musselburgh (target area 304)

Summary

Musselburgh is a town located east of Edinburgh at the mouth of the River Esk and on the south side of the Firth of Forth. It is located within the East Lothian Council area. The main source of flooding in Musselburgh is river flooding, however there is also risk from surface water and coastal flooding. There are approximately 5,200 people and 2,700 homes and businesses currently at risk from flooding. This is likely to increase to 6,900 people and 3,500 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for river and coastal flooding is improved by a flood study in support of the flood protection scheme for Musselburgh. The national level assessment for surface water flooding is improved by an integrated catchment study and sewer flood risk assessment. There is a long history of flooding in this area with recent records of minor floods in 2013, 2014, 2017 and 2018.
The Dynamic coast project has shown that parts of the shoreline in or adjacent to this target area are subject to erosion at present or are considered likely to erode in the future. Consideration should be given to how erosion might impact flood risk. Any actions taken should aim to support building natural resilience to flooding and not lead to an increase in erosion.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
3041	Avoid flood risk	Avoid inappropriate development that increases flood risk in Musselburgh
3042	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the Musselburgh Flood Protection Scheme.
3043	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Musselburgh
3044	Reduce flood risk	Reduce the risk of flooding from surface water, coastal and the River Esk in Musselburgh.

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Flood scheme or works implementation (Ref: 30401)
Action	The flood scheme/works is to be built following agreement of the design, costs and timescales.
Action detail	The Musselburgh Flood Protection Scheme was allocated funding as part of cycle 1. The scheme is to progress to construction once detailed design is complete. As built drawings will be made available to SEPA, for consideration in the Scottish Flood Defence Asset Database, flood map updates and flood warning scheme updates.
Coordination	Action delivery lead is East Lothian Council and coordination will be determined once the actions have been finalised.

	Sewer flood risk assessment (Ref: 30402)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes the Edinburgh sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 30403)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	The development of cycle 1 surface water management plan for Musselburgh should continue following the outcomes of the integrated catchment study to address local surface water flooding issues.
Coordination	Action delivery lead is East Lothian Council in coordination with Scottish Water.

	Community engagement (Ref: 30404)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Community engagement should be taken forward based on the outcomes of the flood protection scheme development.
Coordination	Action delivery lead is East Lothian Council in coordination with the Scottish Flood Forum and SEPA.

	Flood defence maintenance (Ref: 30405)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	East Lothian Council should start regular maintenance and inspection of the Musselburgh Flood Protection Scheme once complete.
Coordination	Action delivery lead is East Lothian Council and coordination will be determined once the actions have been finalised.

	Flood warning maintenance (Ref: 30406)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Forth and Tay coastal flood warning scheme. The scheme should be investigated for improvement and/or recalibration.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

	Flood warning maintenance (Ref: 30407)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Esk (Lothians) flood warning scheme.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

	Strategic mapping improvements (Ref: 30408)
Action	SEPA will continue to update flood maps based on new information.
Action detail	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

	Flood warning maintenance (Ref: 30409)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should investigate improvements to the Esk (Lothians) flood warning scheme.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

02/10/24 (Dalkeith, Lasswade and Newtongrange)

This area is designated as a Potentially Vulnerable Area due to flood risk to Bonnyrigg, Dalkeith, Lasswade and Newtongrange. The main source of flooding in the area is surface water, and there is also risk of flooding to Lasswade from the River North Esk. There is history of flooding in these communities with river flooding having affected homes and more recently a number of minor floods from surface water.

There are 4 areas in this Potentially Vulnerable Area, which have been the focus of further assessment, these are listed below. Further information on the proposed objectives and actions to manage flood risk within this area is provided below.

List of target areas

Bonnyrigg and Lasswade	(target area 202)
Dalkeith	(target area 219)
Loanhead	(target area 296)
Newtongrange	(target area 300)

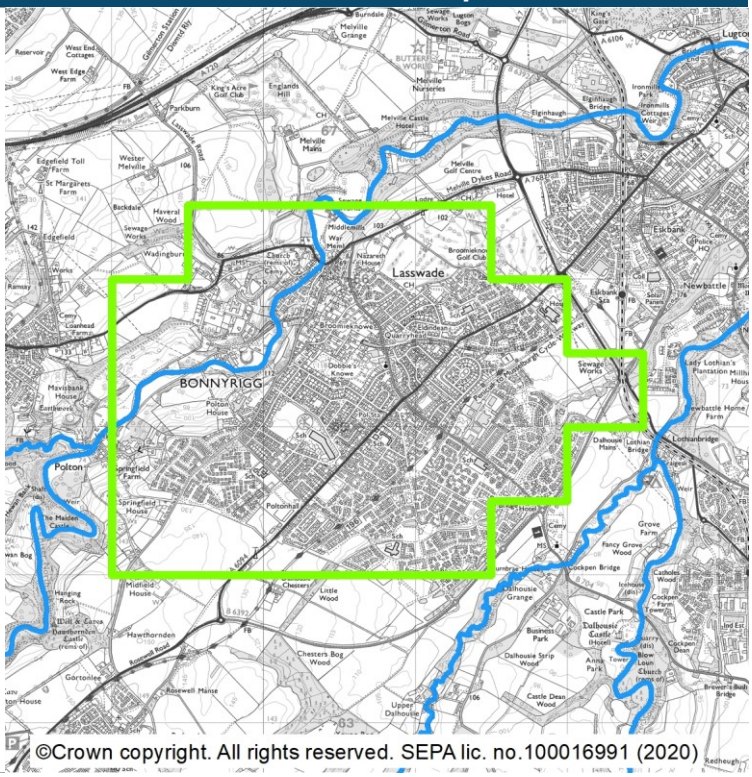
Flood risk management plan datasheet

Bonnyrigg and Lasswade (target area 202)

Summary

Bonnyrigg and Lasswade are located in Midlothian, southeast of Edinburgh. The main source of flooding to Bonnyrigg is from surface water. The main risk of flooding to Lasswade is river flooding. There are approximately 680 people and 350 homes and businesses at risk of flooding. This is estimated to rise to 920 people and 470 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for surface water flooding is improved by an integrated catchment study. There is some history of flooding in this area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2021	Avoid flood risk	Avoid inappropriate development that increases flood risk in Bonnyrigg
2022	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Bonnyrigg
2023	Reduce flood risk	Reduce the risk of river flooding from the River North Esk in Lasswade
2024	Reduce flood risk	Reduce the risk of surface water flooding in Bonnyrigg and Lasswade

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Sewer flood risk assessment (Ref: 20201)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes the Edinburgh sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 20202)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	Following the completion of the integrated catchment study, the local authority should prepare a strategic surface water management plan to determine high risk areas of surface water flooding across the Midlothian Council area. Current and long term flood risk should be considered and include the assessment of the potential impacts of climate change.
Coordination	Action delivery lead is Midlothian Council in coordination with Scottish Water.

	Flood study (Ref: 20203)
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Action detail	A cycle 1 flood study should be carried out and include the initial stage of flood modelling. Flood risk should be quantified for present day and future flood risk. The interaction between surface water and river flooding should be assessed. If flood risk is confirmed, potential options to address flood risk should be investigated. Current and long term flood risk should be considered and include the assessment of the potential impacts of climate change.
Coordination	Action delivery lead is Midlothian Council and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

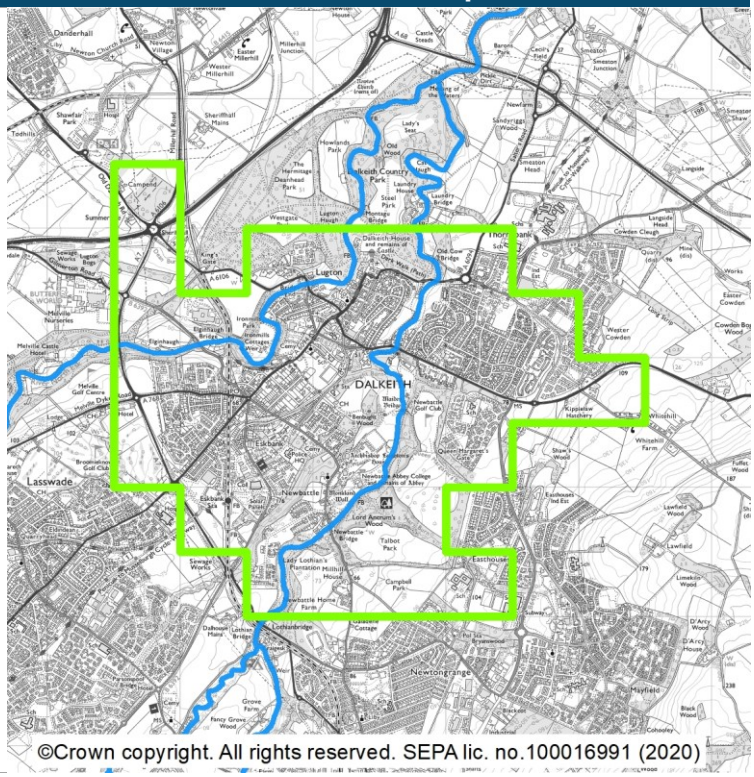
Flood risk management plan datasheet

Dalkeith (target area 219)

Summary

Dalkeith is located on the rivers South Esk and North Esk and is within the Midlothian Council area. The main source of flooding in Dalkeith is surface water. There is limited risk from river flooding which is not considered significant. There are approximately 600 people and 350 homes and businesses currently at risk from flooding. This is likely to increase to 880 people and 500 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for surface water flooding is improved by an integrated catchment study and a sewer flood risk assessment. There is some history of flooding in this area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2191	Avoid flood risk	Avoid inappropriate development that increases flood risk in Dalkeith
2192	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Dalkeith
2193	Reduce flood risk	Reduce the risk of surface water flooding in Dalkeith and Eskbank

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Flood study (Ref: 21901)
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Action detail	A cycle 1 flood study should be carried out and include the initial stage of flood modelling. Flood risk should be quantified for present day and future flood risk. If flood risk is confirmed, potential options to address flood risk should be investigated. Current and long term flood risk should be considered and include the assessment of the potential impacts of climate change.
Coordination	Action delivery lead is Midlothian Council and coordination will be determined once the actions have been finalised.

	Sewer flood risk assessment (Ref: 21902)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes the Edinburgh sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 21903)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	Following the completion of the integrated catchment study, the local authority should prepare a strategic surface water management plan to determine high risk areas of surface water flooding across the Midlothian Council area. Current and long term flood risk should be considered and include the assessment of the potential impacts of climate change.
Coordination	Action delivery lead is Midlothian Council in coordination with Scottish Water.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

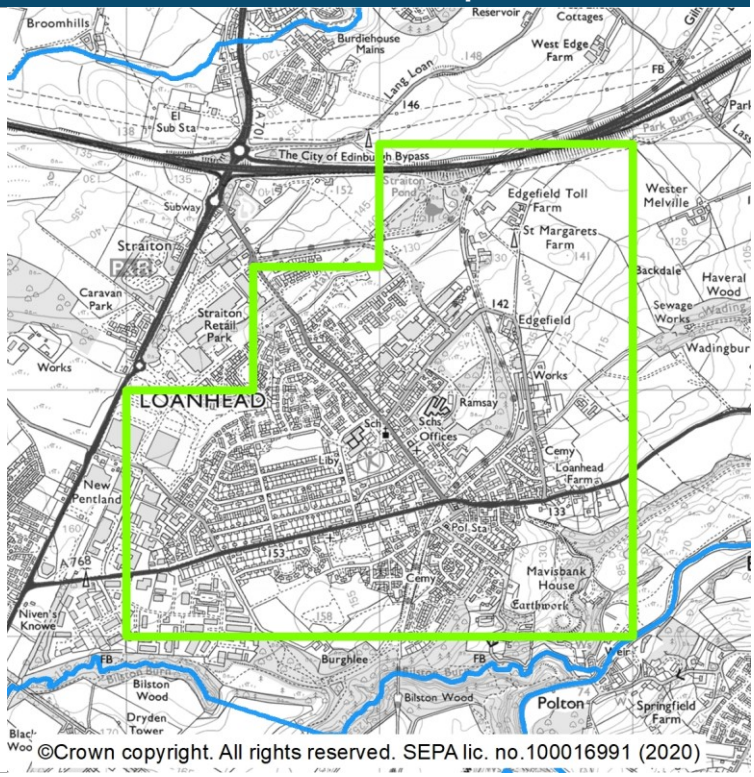
Flood risk management plan datasheet

Loanhead (target area 296)

Summary

Loanhead is a small town in the Midlothian Council area. The main source of flooding in Loanhead is from surface water. There are approximately 170 people and 100 homes and businesses currently at risk from flooding. This is likely to increase to 240 people and 140 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for surface water flooding is improved by an integrated catchment study and a sewer flood risk assessment. There are some records of surface water flooding in this area.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2961	Avoid flood risk	Avoid inappropriate development that increases flood risk in Loanhead
2962	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Loanhead
2963	Reduce flood risk	Reduce the risk of surface water flooding in Loanhead

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Sewer flood risk assessment (Ref: 29601)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes the Edinburgh sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 29602)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	Following the completion of the integrated catchment study, the local authority should prepare a strategic surface water management plan to determine high risk areas of surface water flooding across the Midlothian Council area. Current and long term flood risk should be considered and include the assessment of the potential impacts of climate change.
Coordination	Action delivery lead is Midlothian Council in coordination with Scottish Water.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

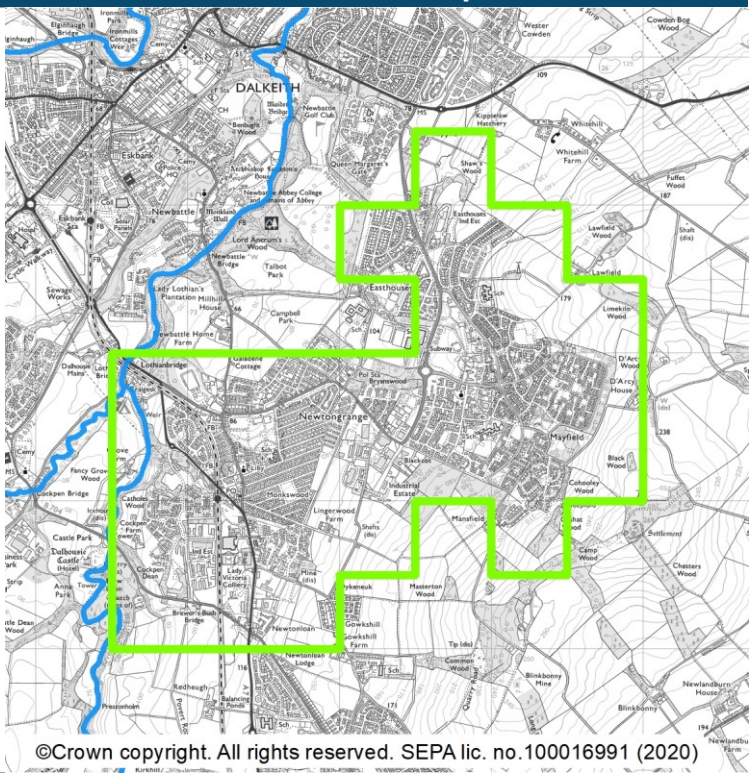
Flood risk management plan datasheet

Newtongrange (target area 300)

Summary

The Newtongrange area also includes the community of Mayfield and is located south of Dalkeith within the Midlothian Council area. The main source of flooding in Newtongrange is surface water. There are approximately 720 people and 390 homes and businesses at risk from flooding. This is estimated to increase to 970 people and 510 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for surface water flooding is improved by an integrated catchment study and a sewer flood risk assessment. There are no records of flooding in this area but this does not confirm that there is no flood risk.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
3001	Avoid flood risk	Avoid inappropriate development that increases flood risk in Newtongrange
3002	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Newtongrange
3003	Reduce flood risk	Reduce the risk of surface water flooding in Newtongrange

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Sewer flood risk assessment (Ref: 30001)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes the Edinburgh sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 30002)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	Following the completion of the integrated catchment study, the local authority should prepare a strategic surface water management plan to determine high risk areas of surface water flooding across the Midlothian Council area. Current and long term flood risk should be considered and include the assessment of the potential impacts of climate change.
Coordination	Action delivery lead is Midlothian Council in coordination with Scottish Water.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

02/10/25 (Penicuik)

This area is designated as a Potentially Vulnerable Area due to flood risk to Penicuik. The main source of flooding is surface water, and there is also risk from river flooding from the Loan Burn. A number of floods have been recorded in this area, with several recent reports of flooding from the burn.

There is 1 area in this Potentially Vulnerable Area, which has been the focus of further assessment, this is identified below. Further information on the proposed objectives and actions to manage flood risk within this area is provided below.

List of target areas

Penicuik	(target area 307)

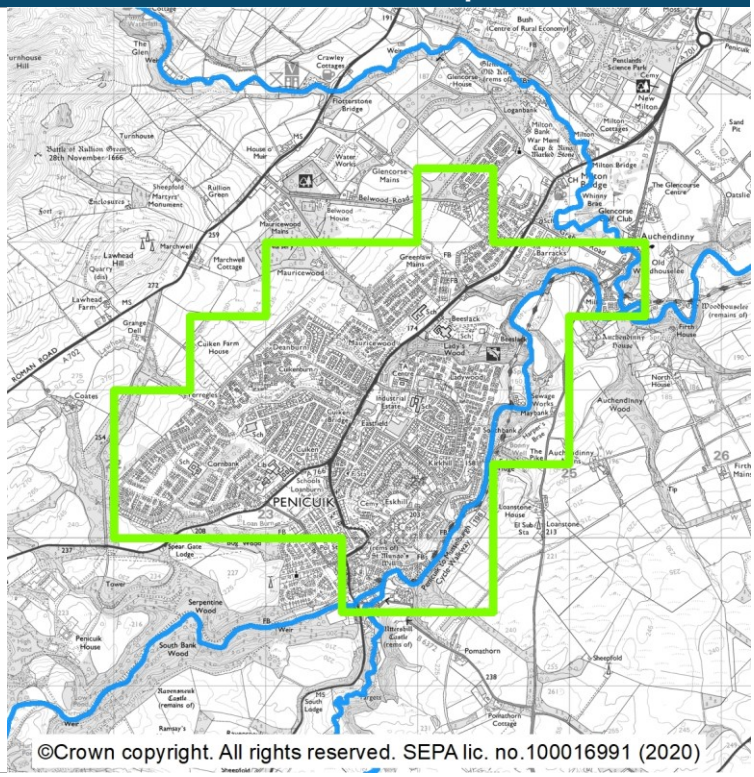
Flood risk management plan datasheet

Penicuik (target area 307)

Summary

Penicuik is located south of Edinburgh on the west bank of the River North Esk. The town is within the Midlothian Council area. The main source of flooding in Penicuik is surface water and there is also a risk of river flooding although this is not considered significant. There are approximately 980 people and 520 homes and businesses currently at risk from flooding. This is likely to increase to 1,300 people and 660 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for surface water flooding is improved by an integrated catchment study and a sewer flood risk assessment. There are records of flooding in this area. The most recent flood was recorded in October 2019 when river flooding inundated gardens and flats on the Edinburgh Road in Penicuik.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
3071	Avoid flood risk	Avoid inappropriate development that increases flood risk in Penicuik
3072	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of flood protection schemes and flood defences in Penicuik
3073	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Penicuik
3074	Reduce flood risk	Reduce the risk of surface water flooding in Penicuik

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Sewer flood risk assessment (Ref: 30701)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes the Edinburgh sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 30702)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	Following the completion of the integrated catchment study, the local authority should prepare a strategic surface water management plan to determine high risk areas of surface water flooding across the Midlothian Council area. Current and long term flood risk should be considered and include the assessment of the potential impacts of climate change.
Coordination	Action delivery lead is Midlothian Council in coordination with Scottish Water.

	Flood defence maintenance (Ref: 30703)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	Midlothian Council should continue to maintain existing flood protection scheme at Rullian Road.
Coordination	Action delivery lead is Midlothian Council and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

02/10/26 (North Berwick)

This area is designated as a Potentially Vulnerable Area due to flood risk to North Berwick. The main source of flooding is coastal from the North sea. Several floods have been recorded in this area.

There is 1 area in this Potentially Vulnerable Area, which has been the focus of further assessment, this is identified below. Further information on the proposed objectives and actions to manage flood risk within this area is provided below.

List of target areas

North Berwick (target area 305)

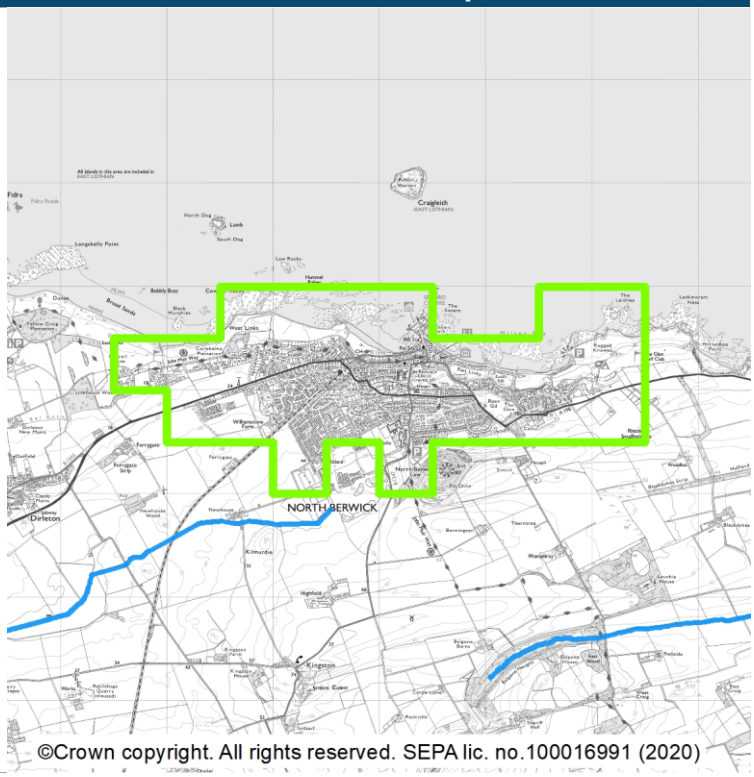
Flood risk management plan datasheet

North Berwick (target area 305)

Summary

The town of North Berwick is situated on the southern shores of the Firth of Forth in East Lothian. The main source of flooding is coastal. There are approximately 150 people and 80 homes and businesses currently at risk from flooding. This is likely to increase to 200 people and 110 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources and this information has highlighted the risk of flooding in this target area. The national level assessment is the main source of flood risk information in this area. There is a long history of flooding in this area from the sea. A recent coastal flood was recorded in March 2018 when a storm caused high waves that overtopped the sea defences at North Berwick.
The Dynamic coast project has shown that parts of the shoreline in or adjacent to this target area are subject to erosion at present or are considered likely to erode in the future. Consideration should be given to how erosion might impact flood risk. Any actions taken should aim to support building natural resilience to flooding and not lead to an increase in erosion.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
3051	Avoid flood risk	Avoid inappropriate development that increases flood risk in North Berwick
3052	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in North Berwick
3053	Reduce flood risk	Reduce the risk of coastal flooding in North Berwick.

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Flood study (Ref: 30501)
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Action detail	The cycle 1 flood study for Dunbar, West Barns and North Berwick is to be completed in order to improve understanding of flood risk. If flood risk is confirmed, potential options to address flood risk should be investigated. Current and long term flood risk should be considered and include the assessment of the potential impacts of climate change.
Coordination	Action delivery lead is East Lothian Council and coordination will be determined once the actions have been finalised.

	Strategic mapping improvements (Ref: 30502)
Action	SEPA will continue to update flood maps based on new information.
Action detail	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

	Flood warning maintenance (Ref: 30503)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Forth and Tay coastal flood warning scheme. The scheme should be investigated for improvement and/or recalibration.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

02/10/27 (Dunbar and West Barns)

This area is designated as a Potentially Vulnerable Area due to flood risk to Dunbar and West Barns. The main sources of flood risk are coastal and surface water. There is also a risk of river flooding in West Barns from the Biel Water. There is a long history of flooding in this area, with recent coastal flooding to homes and surface water flooding.

There are 2 areas in this Potentially Vulnerable Area, which have been the focus of further assessment, these are listed below Further information on the proposed objectives and actions to manage flood risk within this area is provided below.

List of target areas

Dunbar	(target area 222)
West Barns	(target area 322)

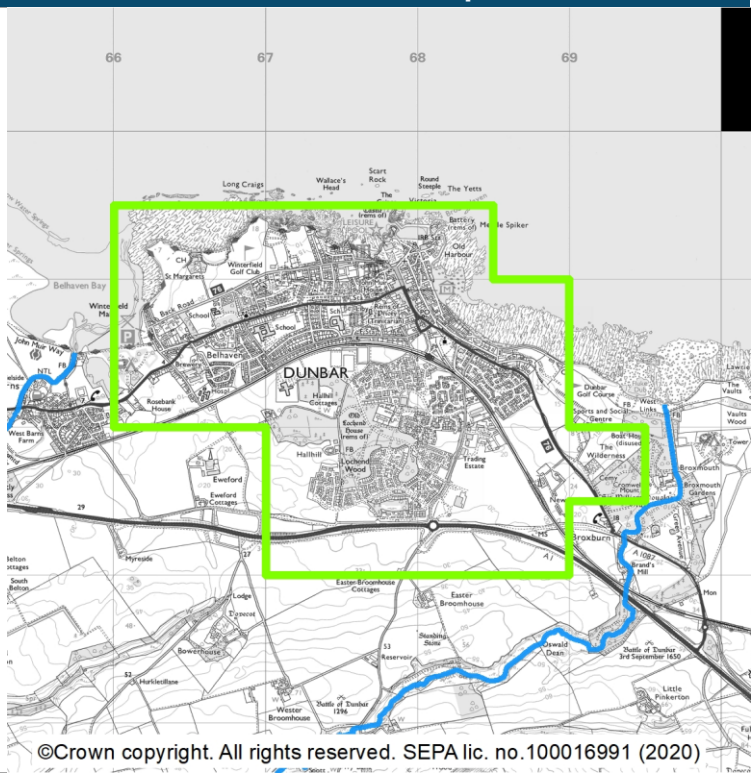
Flood risk management plan datasheet

Dunbar (target area 222)

Summary

Dunbar is a town located on the east coast of Scotland within East Lothian. The main source of flooding in Dunbar is from surface water, however there is also risk from river and coastal flooding. There are approximately 340 people and 190 homes and businesses currently at risk. This is likely to increase to 580 people and 320 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for surface water flooding by a sewer flood risk assessment. There have been a number of floods recorded in the Dunbar area. The most recent flood was recorded in June 2017 when minor surface water flooding occurred to roads and the primary school grounds.

The Dynamic coast project has shown that parts of the shoreline in or adjacent to this target area are subject to erosion at present or are considered likely to erode in the future. Consideration should be given to how erosion might impact flood risk. Any actions taken should aim to support building natural resilience to flooding and not lead to an increase in erosion.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2221	Avoid flood risk	Avoid inappropriate development that increases flood risk in Dunbar
2222	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Dunbar
2223	Reduce flood risk	Reduce the risk of flooding from all sources in Dunbar.

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Strategic mapping improvements (Ref: 22201)
Action	SEPA will continue to update flood maps based on new information.
Action detail	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

	Flood warning maintenance (Ref: 22202)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Forth and Tay coastal flood warning scheme. The scheme should be investigated for improvement and/or recalibration.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

	Flood defence maintenance (Ref: 22203)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	The existing informal coastal defences in the area should continue to be inspected and maintained by the local authority where required.
Coordination	Action delivery lead is East Lothian Council and the asset owners. Coordination will be determined once the actions have been finalised.

	Flood study (Ref: 22204)
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Action detail	A cycle 1 flood study should continue to be carried out. The scoping study should include all areas of concern and include river, surface water and coastal flooding.
Coordination	Action delivery lead is East Lothian Council in coordination with Scottish Water.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

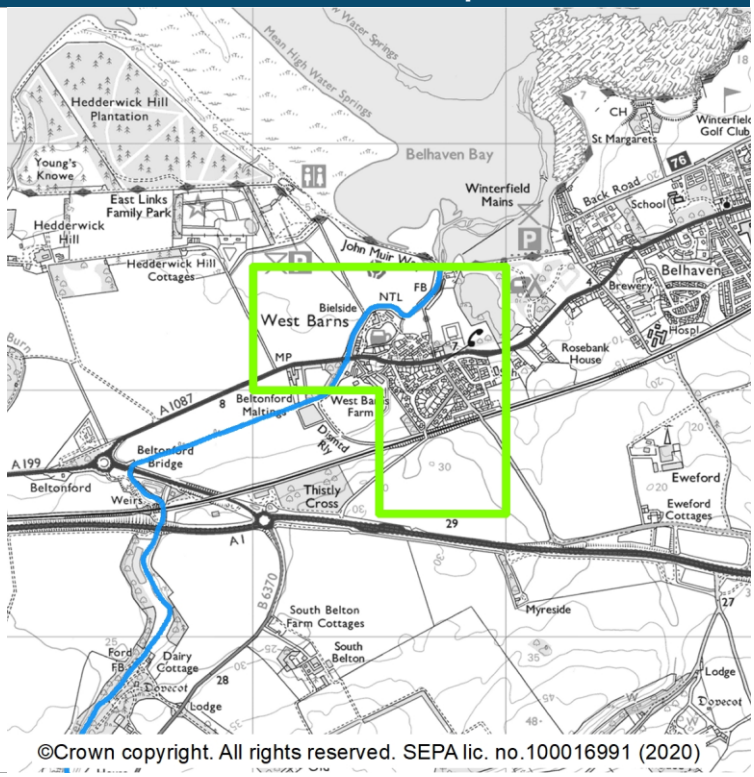
Flood risk management plan datasheet

West Barns (target area 322)

Summary

West Barns is a small village in East Lothian. The village is set back from Belhaven Bay and is relatively sheltered from the North Sea. The main sources of flooding in West Barns are river and coastal flooding. There are approximately 60 people and 40 homes and businesses currently at risk from flooding. This is likely to increase to 100 people and 60 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is the main source of information in this area. A number of floods have been recorded in this area. In July 2007 the Biel Water overflowed causing flooding to 15 houses and a public bar.

The Dynamic coast project has shown that parts of the shoreline in or adjacent to this target area are subject to erosion at present or are considered likely to erode in the future. Consideration should be given to how erosion might impact flood risk. Any actions taken should aim to support building natural resilience to flooding and not lead to an increase in erosion.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
3221	Avoid flood risk	Avoid inappropriate development that increases flood risk in West Barns
3222	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in West Barns
3223	Reduce flood risk	Reduce the risk of coastal and river flooding from Biel Water in West Barns.

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Strategic mapping improvements (Ref: 32201)
Action	SEPA will continue to update flood maps based on new information.
Action detail	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

	Flood warning maintenance (Ref: 32202)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Forth and Tay coastal flood warning scheme. The scheme should be investigated for improvement and/or recalibration.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

	Flood study (Ref: 32203)
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Action detail	The cycle 1 flood study should continue to be carried out. The flood study should include all areas of concern. The study should assess all flood sources and consider current and future flood risk. If flood risk is confirmed, potential options to address flood risk should be investigated. Current and long term flood risk should be considered and include the assessment of the potential impacts of climate change.
Coordination	Action delivery lead is East Lothian Council in coordination with Scottish Water.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

02/10/28 (Berwickshire Coast)

This area is designated as a Potentially Vulnerable Area due to flood risk to Eyemouth. The main source of flood risk is the Eye Water and coastal flooding, sometimes in combination. There are a number of records of flooding in this area, with frequent coastal flooding in the harbour area.

There is 1 area in this Potentially Vulnerable Area, which has been the focus of further assessment, this is identified below. Further information on the proposed objectives and actions to manage flood risk within this area is provided below.

List of target areas

Eyemouth (target area 227)

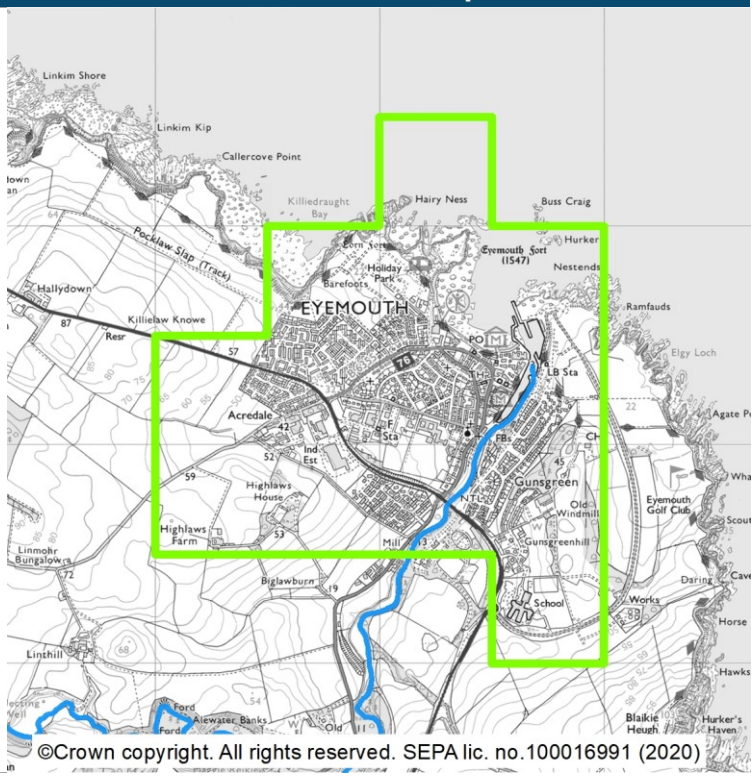
Flood risk management plan datasheet

Eyemouth (target area 227)

Summary

Eyemouth is a small coastal town located at the mouth of Eye Water in the Scottish Borders. The main source of flooding to Eyemouth is coastal flooding, and there is also a risk from river flooding. Surface water and sewer flood risk has also been recorded in Church Street. There are approximately 110 people and 90 homes and businesses at risk from flooding. This is estimated to increase to 150 people and 120 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for river flooding is improved by a flood study for Eyemouth. Understanding of coastal flooding is improved by the Berwickshire Coast Shoreline Management Plan and the understanding of surface water flooding is improved by a sewer flood risk assessment. There is a long history of flooding in this area. The big flood of 1948 caused significant river flooding that also coincided with a high spring tide and is thought to have been the most extreme flood in recent memory in the area. There was further flooding in the 1953 and 2013 due to storm surges. There is a recurring sewer flooding issue on Church Street which coincides with heavy rainfall which surcharges the combined sewer system. This is currently being managed through works by Scottish Water. Wave and spray overtopping occurs frequently in this area causing hazardous conditions. The local authority deploys pedestrian barriers on the Bantry during these conditions as well as demountable flood barriers on Harbour Road during times of flooding.
The Dynamic coast project has shown that parts of the shoreline in or adjacent to this target area are subject to erosion at present or are considered likely to erode in the future. Consideration should be given to how erosion might impact flood risk. Any actions taken should aim to support building natural resilience to flooding and not lead to an increase in erosion.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2271	Avoid flood risk	Avoid inappropriate development that increases flood risk in Eyemouth
2272	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Eyemouth
2273	Reduce flood risk	Reduce the risk of river flooding from the Eye Water and coastal flooding in Eyemouth.

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Flood study (options appraisal) (Ref: 22701)
Action	In areas where flood risk is confirmed, a range of possible options to manage flood risk are to be identified, including natural flood management actions where suitable, and a preferred approach is to be chosen. This should include adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	The cycle 1 coastal and river flood study for Eyemouth should continue to its conclusions. The study assesses flood risk from both river and coastal sources and aims to provide recommendations to manage flood risk in the short, medium and long term.
Coordination	Action delivery lead is Scottish Borders Council and coordination will be determined once the actions have been finalised.

	Shoreline Management Plan (Coastal Adaptive Plan) (Ref: 22702)
Action	An assessment of coastal flood and erosion risk is to be carried out. The plan should include assessment of climate change and develop adaptive approaches to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	The development of the Berwickshire Coast Shoreline Management Plan should continue to its conclusion. If climate change impacts are found to be significant, the plan should include adaptation.
Coordination	Action delivery lead is Scottish Borders Council and coordination will be determined once the actions have been finalised.

	Strategic mapping improvements (Ref: 22703)
Action	SEPA will continue to update flood maps based on new information.
Action detail	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

	Community engagement (Ref: 22704)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Community engagement should continue for Eyemouth and the rest of the Berwickshire Coast as appropriate. Any engagement undertaken should advise on current flood risk as well as other coastal processes.
Coordination	Action delivery lead is Scottish Borders Council. Action will be coordinated with the responsible authorities, Scottish Flood Forum and other actions in the area.

	Community resilience group (Ref: 22705)
Action	The group of community volunteers work to prepare and put in practice their Community Resilience Plan and be supported by the local authority.
Action detail	Scottish Borders Council should continue to support the established community resilience group (Eyemouth Response Team) and its activities. This should include awareness raising activities and continued training for the deployment of flood resilience measures in the town.
Coordination	Action delivery leads are Scottish Borders Council and the community. Coordination will be determined once the actions have been finalised.

	Emergency plan (Ref: 22706)
Action	The plan to coordinate responses to emergency incidents between organisations, including local authorities, the emergency services and SEPA, is to be maintained and executed as required.
Action detail	Scottish Borders Council should review and update as appropriate the Severe Weather Emergency Plan as information becomes available. This includes deployment of flood barriers during times of flood risk in Eyemouth, including measures along the bantry in hazardous conditions due to wave and spray overtopping.
Coordination	Action delivery lead is Scottish Borders Council. Action will be coordinated with the responsible authorities.

	Flood warning maintenance (Ref: 22707)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Forth and Tay coastal flood warning scheme. The scheme should be investigated for improvement and/or recalibration.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

	Flood warning maintenance (Ref: 22708)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Eye Water flood warning scheme.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

	Flood warning maintenance (Ref: 22709)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should investigate improvements to the Eye Water flood warning scheme.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

02/10/29 (Cockenzie, Port Seton, Longniddry and Prestonpans)

This area is designated as a Potentially Vulnerable Area due to flood risk to Cockenzie and Port Seton, Longniddry, Macmerry, Prestonpans and Tranent from all sources. The main sources of flooding are coastal and surface water. There are a number of recent reports of surface water flooding to these communities, affecting homes and community services.

There are 5 areas in this Potentially Vulnerable Area, which have been the focus of further assessment, these are listed below. Further information on the proposed objectives and actions to manage flood risk within this area is provided below.

List of target areas

Cockenzie and Port Seton	(target area 212)
Longniddry	(target area 297)
Prestonpans	(target area 309)
Tranent	(target area 319)
Macmerry	(target area 31900)

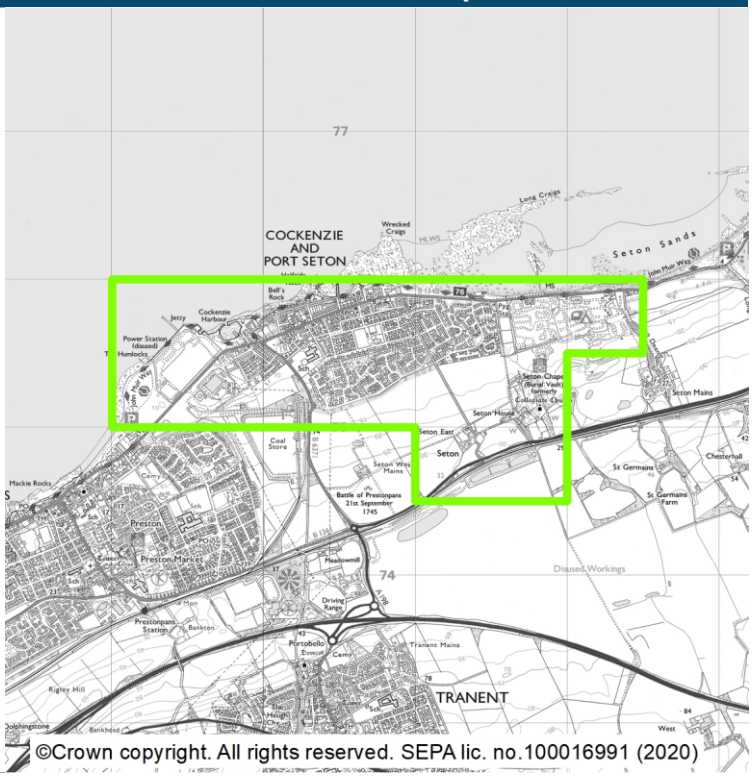
Flood risk management plan datasheet

Cockenzie and Port Seton (target area 212)

Summary

Cockenzie and Port Seton are located on the southern side of the Firth of Forth in East Lothian. The main sources of flooding are coastal and surface water, however there is also a risk from river flooding. There are approximately 450 people and 230 homes and businesses currently at risk from flooding. This is likely to increase to 720 people and 360 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for surface water flooding by a sewer flood risk assessment. There is a long history of flooding in this area. 2 recent floods occurred in January 2016, when flooding from a blocked culvert affected a road and Seton Sands holiday park with damage to caravan pitches. In August 2019 surface water flooded a road and properties.
The Dynamic coast project has shown that parts of the shoreline in or adjacent to this target area are subject to erosion at present or are considered likely to erode in the future. Consideration should be given to how erosion might impact flood risk. Any actions taken should aim to support building natural resilience to flooding and not lead to an increase in erosion.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2121	Avoid flood risk	Avoid inappropriate development that increases flood risk in Cockenzie and Port Seton
2122	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the coastal flood defences.
2123	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Cockenzie and Port Seton
2124	Reduce flood risk	Reduce the risk of surface water and coastal flooding in Cockenzie and Port Seton
2125	Reduce flood risk	Reduce the risk of river flooding from the Seton Dean and the culvert in Seton Sands

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Flood study (Ref: 21201)
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Action detail	A cycle 1 flood study should continue to be carried out. The flood study should include all areas of concern, including river flooding from the Seton Dean and Seton Burn.
Coordination	Action delivery lead is East Lothian Council. Coordination will be required with Scottish Water, Local Development Plan, Green networks, Blindwells development and the Climate Evolution Strategy.

	Sewer flood risk assessment (Ref: 21202)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes the Edinburgh sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Flood defence maintenance (Ref: 21203)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	The existing coastal defences in the area are privately owned. East Lothian Council does not maintain these informal defences, but occasionally inspects them.
Coordination	Action delivery lead is East Lothian Council and the asset owners. Coordination will be determined once the actions have been finalised.

	Flood warning maintenance (Ref: 21204)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Forth and Tay coastal flood warning scheme. The scheme should be investigated for improvement and/or recalibration.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

	Strategic mapping improvements (Ref: 21205)
Action	SEPA will continue to update flood maps based on new information.
Action detail	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

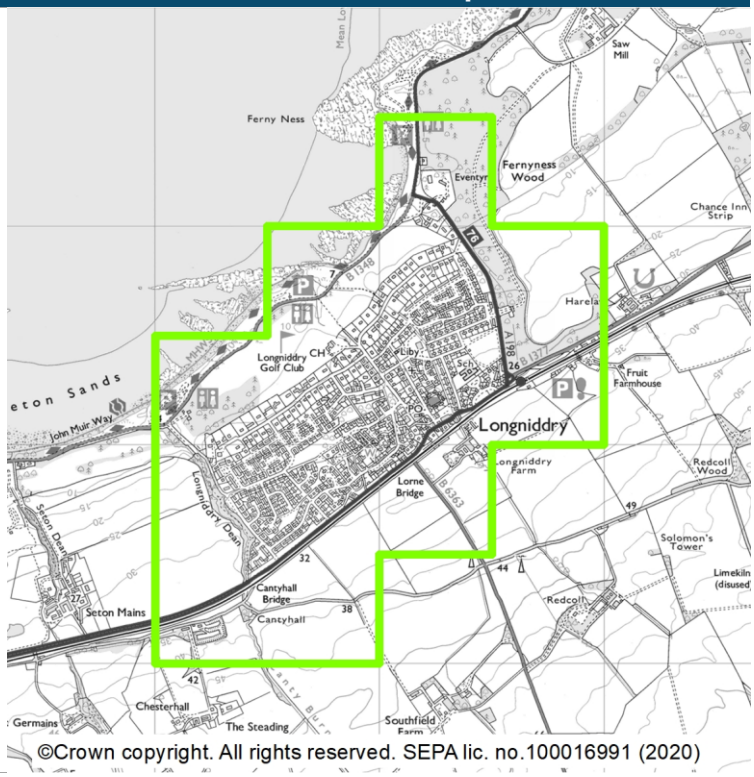
Flood risk management plan datasheet

Longniddry (target area 297)

Summary

Longniddry is located on the southern shore of the Firth of Forth, in the East Lothian Council area. The main sources of flooding are river and surface water flooding, however there is also a risk from coastal flooding. There are approximately 200 people and 110 homes and businesses at risk from flooding. This is estimated to increase to 230 people and 120 properties by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for surface water flooding is improved by a sewer flood risk assessment. Coastal flooding is managed by the operation of flood defences along the B1348. There are limited records of flooding in this area with 1 flood reported. The B6363 junction with the A198 flooded under the railway bridge following heavy rain in 2019.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2971	Avoid flood risk	Avoid inappropriate development that increases flood risk in Longniddry
2972	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the coastal flood defences along the B1348.
2973	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Longniddry
2974	Reduce flood risk	Reduce the risk of river flooding in Longniddry.

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Flood study (Ref: 29701)
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Action detail	The cycle 1 flood study covering Cockenzie, Port Seton, Longniddry and Prestonpans should be completed as planned. The study should consider flood risk from the small burns in Longniddry and coastal flood risk and should include mapping and modelling. If flood risk is confirmed, potential options to address flood risk should be investigated. Current and long term flood risk should be considered and include the assessment of the potential impacts of climate change.
Coordination	Action delivery lead is East Lothian Council and coordination will be determined once the actions have been finalised.

	Sewer flood risk assessment (Ref: 29702)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes the Edinburgh sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Flood defence maintenance (Ref: 29703)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	The existing coastal flood defences along the B1348 should continue to be maintained by East Lothian Council where required. The management and performance of the existing defences should be included in the development of a climate change adaptation plan.
Coordination	Action delivery lead is the asset owner and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

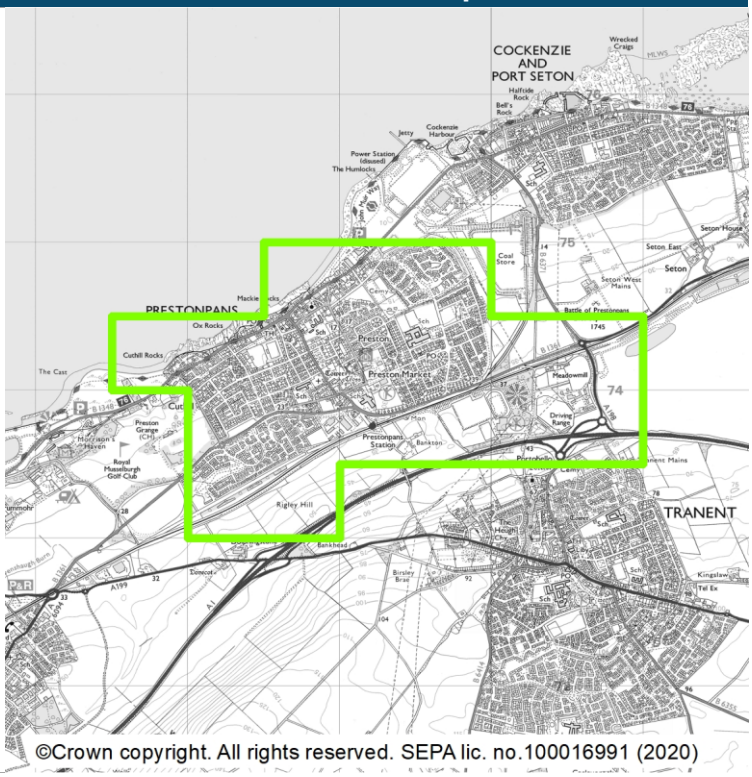
Flood risk management plan datasheet

Prestonpans (target area 309)

Summary

Prestonpans is a small town located on the south shore of the Firth of Forth, in the East Lothian Council area. The main source of flooding in Prestonpans is surface water, however there is also risk from coastal flooding. There are approximately 700 people and 350 homes and businesses currently at risk from flooding. This is likely to increase to 840 people and 420 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for surface water flooding is improved by an integrated catchment study and a sewer flood risk assessment. There are some records of flooding in this area. In August 2011 flooding affected a children's respite centre causing damage to rooms and in December 2013, high tides and a storm surge caused flooding.
The Dynamic coast project has shown that parts of the shoreline in or adjacent to this target area are subject to erosion at present or are considered likely to erode in the future. Consideration should be given to how erosion might impact flood risk. Any actions taken should aim to support building natural resilience to flooding and not lead to an increase in erosion.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
3091	Avoid flood risk	Avoid inappropriate development that increases flood risk in Prestonpans
3092	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the coastal flood defences.
3093	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Prestonpans
3094	Reduce flood risk	Reduce the risk of coastal and surface water flooding in Prestonpans.

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Flood study (Ref: 30901)
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Action detail	The cycle 1 flood study is to be carried out to improve understanding of flood risk. If flood risk is confirmed, potential options to address flood risk should be investigated. Current and long term flood risk should be considered and include assessment of the potential impacts of climate change.
Coordination	Action delivery lead is East Lothian Council and coordination will be determined once the actions have been finalised.

	Sewer flood risk assessment (Ref: 30902)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes the Edinburgh sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 30903)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	The development of the cycle 1 surface water management plan for Presponpans should continue following the outcomes of the integrated catchment study to address local surface water flooding issues.
Coordination	Action delivery lead is East Lothian Council in coordination with Scottish Water.

	Flood defence maintenance (Ref: 30904)
Action	The existing flood defences are to be maintained by the asset owner to ensure they are in good condition.
Action detail	The existing flood defences should continue to be maintained by East Lothian Council. Updates to maintenance regime should be made based on findings of the flood study. The management and performance of the existing defences should be included in the development of climate change adaptation planning.
Coordination	Action delivery lead is East Lothian Council and coordination will be determined once the actions have been finalised.

	Flood warning maintenance (Ref: 30905)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the Firth of Forth and Tay coastal flood warning scheme. The scheme should be investigated for improvement and/or recalibration.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

	Strategic mapping improvements (Ref: 30906)
Action	SEPA will continue to update flood maps based on new information.
Action detail	SEPA will be undertaking a review of coastal flood modelling in this target area to identify where it may be appropriate to include the impact of waves on coastal flooding. We will progress with improved flood modelling and mapping in the highest priority areas taking account of availability of data to support the modelling work.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

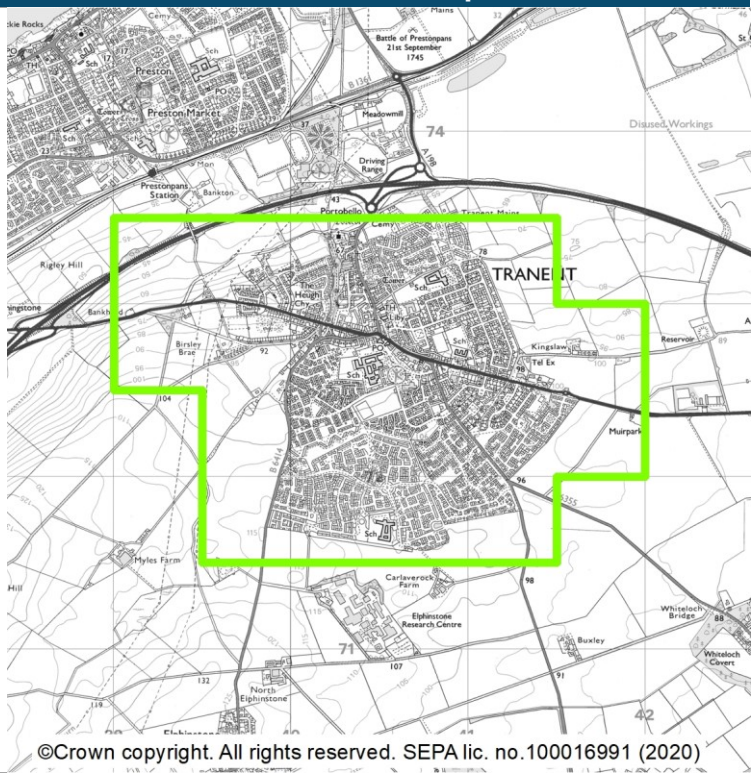
Flood risk management plan datasheet

Tranent (target area 319)

Summary

Tranent is a town located 14km east of Edinburgh, within the East Lothian Council area. The main source of flooding in Tranent is surface water, however there is also a risk from river flooding. There are approximately 500 people and 260 homes and businesses currently at risk from flooding. This is estimated to increase to 590 people and 310 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment for surface water flooding is improved by an integrated catchment study and a sewer flood risk assessment. There are several records of flooding in this area. In August 2011 flooding caused damage to a local school. A recent flood was recorded in May 2014, when surface water flooding inundated a shop.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
3191	Avoid flood risk	Avoid inappropriate development that increases flood risk in Tranent
3192	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Tranent
3193	Reduce flood risk	Reduce the risk of surface water flooding in Tranent
3194	Reduce flood risk	Reduce the risk of river flooding from the Harry's Burn in Tranent.

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Sewer flood risk assessment (Ref: 31901)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes the Edinburgh sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 31902)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	The development of the cycle 1 surface water management plan should continue following the outcomes of the integrated catchment study to address local surface water flooding issues.
Coordination	Action delivery lead is East Lothian Council in coordination with Scottish Water.

	Flood study (Ref: 31903)
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Action detail	The scheduled cycle 1 flood study should be carried out to improve understanding of river flood risk. If flood risk is confirmed, potential options to address flood risk should be investigated. Current and long term flood risk should be considered and include the assessment of the potential impacts of climate change.
Coordination	Action delivery lead is East Lothian Council and coordination will be determined once the actions have been finalised.

	Flood study (options appraisal) (Ref: 31904)
Action	In areas where flood risk is confirmed, a range of possible options to manage flood risk are to be identified, including natural flood management actions where suitable, and a preferred approach is to be chosen. This should include adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	Joint study to identify potential options to reduce surface water and sewer flooding is ongoing through the integrated catchment study optioneering project. Outputs from this study will be received during public consultation and this action will be updated prior to final publication dependent on study outcomes.
Coordination	Action delivery leads are Scottish Water and East Lothian Council and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

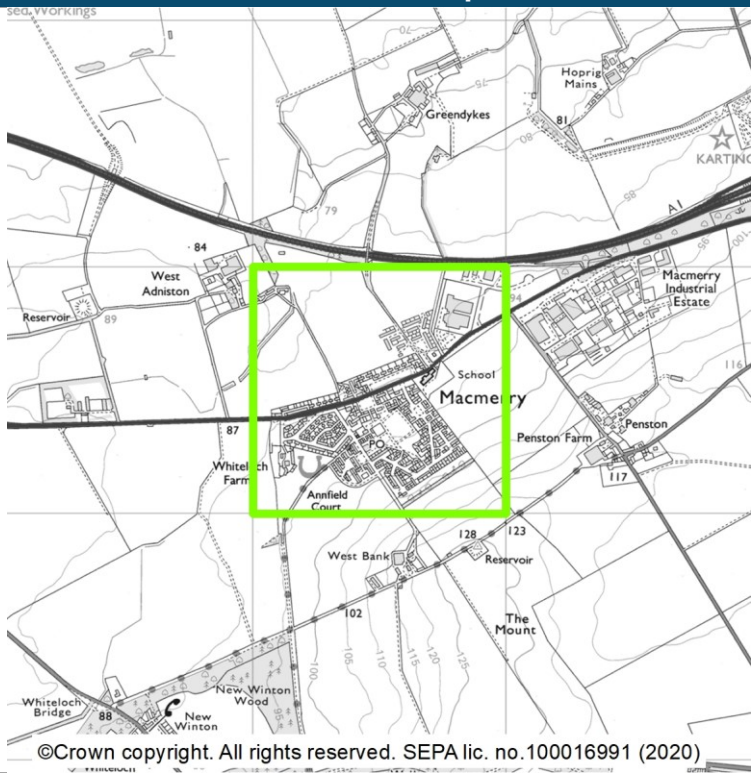
Flood risk management plan datasheet

Macmerry (target area 31900)

Summary

The village of Macmerry is located east of Tranent within the East Lothian Council area. The main source of flooding in Macmerry is surface water. There are approximately 80 people and 40 homes and businesses currently at risk from flooding. This is likely to increase to 90 people and 50 homes and businesses by the 2080s, due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources and this information has highlighted the risk of flooding in this target area. The national level assessment is the main source of flood risk information in this area. A number of floods have been recorded in this area. The first flood recorded in the area occurred in February 2011, when fields and footpaths were inundated with floodwaters. A notable flood occurred in June 2012, when 3 houses in Macmerry were damaged by surface water flooding.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
319001	Avoid flood risk	Avoid inappropriate development that increases flood risk in Macmerry
319002	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Macmerry
319003	Reduce flood risk	Reduce the risk of surface water flooding in Macmerry.

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Flood study (Ref: 3190001)
Action	An understanding of flood risk and associated issues in the area is to be developed, which may include surveys and modelling and should consider the impacts of climate change on flood risk.
Action detail	A flood study has been proposed in this area to improve understanding of flood risk and look at options to manage this risk. The existing study for Tranent has been extended to incorporate Macmerry. The study should include modelling and high level appraisal of actions. If flood risk is confirmed, potential options to address flood risk should be investigated. Current and long term flood risk should be considered and include the assessment of the potential impacts of climate change.
Coordination	Action delivery lead is East Lothian Council and coordination will be determined once the actions have been finalised.

	Flood study (options appraisal) (Ref: 3190002)
Action	In areas where flood risk is confirmed, a range of possible options to manage flood risk are to be identified, including natural flood management actions where suitable, and a preferred approach is to be chosen. This should include adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	Joint study to identify potential options to reduce surface water and sewer flooding is ongoing through the integrated catchment study optioneering project. Outputs from this study will be received during public consultation and this action will be updated prior to final publication dependent on study outcomes.
Coordination	Action delivery leads are Scottish Water and East Lothian Council and coordination will be determined once the actions have been finalised.

	Sewer flood risk assessment (Ref: 3190003)
Action	The volume of water that would overwhelm the sewer system and cause flooding from man-holes or inside our homes is to be assessed, to support understanding of the performance of the urban drainage network
Action detail	Scottish Water will carry out an assessment of sewer flood risk within the highest priority sewer catchments, which includes the Edinburgh sewer catchment in this target area. This will help to improve knowledge and understanding of potential surface water flood risk. Funding for this action is secured through Scottish Water's strategic planning commitments.
Coordination	Action delivery lead is Scottish Water in coordination with the local authority and SEPA.

	Surface water management plan (Ref: 3190004)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	A surface water management plan should be drawn up following the outcomes of the integrated catchment study to address local surface water flooding issues.
Coordination	Action delivery lead is East Lothian Council in coordination with Scottish Water.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

02/10/30 (Haddington)

This area is designated as a Potentially Vulnerable Area due to flood risk to Haddington. The main source of flooding is the River Tyne and there is also risk from surface water. There is a long history of flooding in this area, with recent river flooding from the River Tyne and surface water.

There is 1 area in this Potentially Vulnerable Area, which has been the focus of further assessment, this is identified below. Further information on the proposed objectives and actions to manage flood risk within this area is provided below.

List of target areas

Haddington	(target area 233)

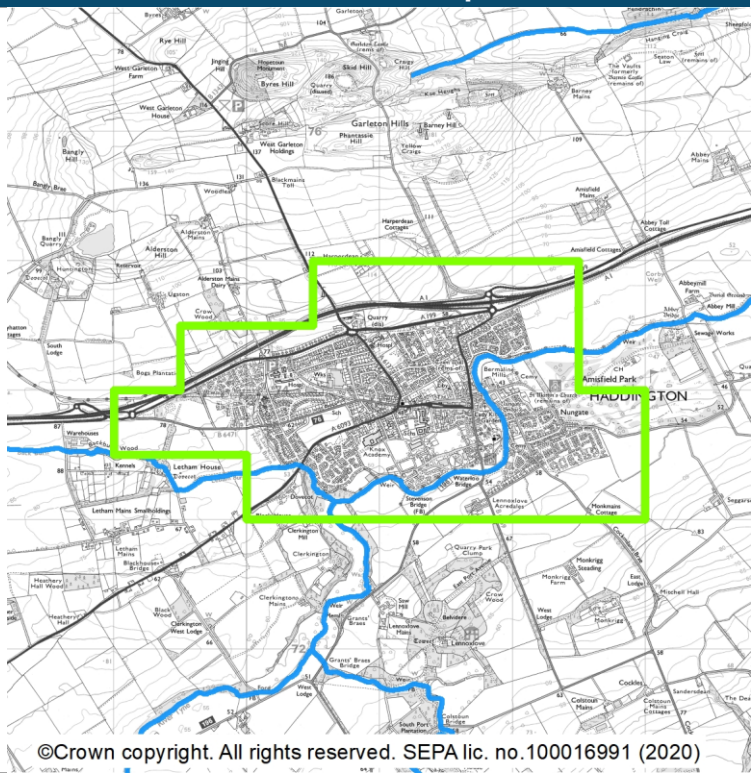
Flood risk management plan datasheet

Haddington (target area 233)

Summary

The town of Haddington is situated on the banks of the River Tyne in the East Lothian Council area. The main source of flooding in Haddington is from the River Tyne, however there is also a risk from surface water. There are approximately 1,300 people and 800 homes and businesses currently at risk from flooding. This is likely to increase to 2,000 people and 1,200 homes and businesses by the 2080s due to climate change.

Location map



What is the current understanding of flood risk?

This section provides a summary of information, which has helped to develop an understanding of flood risk in the area. Since 2011 SEPA has developed and updated national level assessments of flooding from rivers, surface water and coastal sources. The national level assessment is improved for river flooding by a flood study in support of the flood protection scheme for the River Tyne which is currently under development. The national level assessment for surface water flooding is improved by a sewer flood risk assessment. There is a long history of flooding in this area with frequent flooding from the River Tyne. A notable flood occurred in September 2009 when the River Tyne burst its banks, flooding local roads, schools, businesses, a pub and 1 residential property. Flooding of streets and roads occurred when the river burst its banks in July 2012.

What are the objectives for the area?

In each target area, SEPA and the responsible authorities have set objectives for the management of flood risk. In some locations, the objectives provide a short-term direction that will be reviewed and updated when more information is available. In others they provide a long-term direction for the management of flooding within a community. The objectives along with the current understanding of flood risk help to identify the actions that are required in the short and long term. It may take several years or multiple 6 year cycles to achieve the identified objectives, but they set a common goal for multiple agencies. The following package of objectives have been established for this area. The objectives must be considered alongside national principles to manage flood risk. These include:

• Take a long term, risk-based approach to flood risk management decisions and one that considers the impacts of and adaptability to climate change.

• Deliver coordinated and integrated flood risk management by engaging with communities and working in partnership, sharing data, expertise, services, and resources.

• Consider whole catchments and coastlines and work with natural processes and the environment to deliver multiple outcomes.

Objective ref	Objective type	Objective description
2331	Avoid flood risk	Avoid inappropriate development that increases flood risk in Haddington
2332	Avoid flood risk	Avoid an increase in flood risk by the appropriate management and maintenance of the Haddington flood protection scheme.
2333	Prepare for flooding	Prepare for current flood risk and future flooding as a result of climate change in Haddington
2334	Reduce flood risk	Reduce the risk of river flooding from the River Tyne in Haddington.
2335	Reduce flood risk	Reduce the risk of surface water flooding in Haddington.

What actions are proposed for this area?

This section provides information on the draft proposed actions for this target area. The proposed actions take account of the understanding of flood risk and the package of objectives set for the area. Actions will be coordinated to achieve maximum benefit; this will be determined once the actions have been finalised. The proposed actions are draft for consultation and are provided for comment. Your comments will help shape future flood risk management. The delivery of the proposed actions is subject to available funding and resources.

Actions proposed to start before June 2028

	Flood scheme or works design (Ref: 23301)
Action	The selected preferred approach for managing flood risk is to be designed following the completion of the flood study, including consideration of the long-term impacts of climate change. These can include small scale works or works to improve catchment management. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	Haddington Flood Protection Scheme was allocated funding as part of cycle 1. The development of the flood protection scheme should continue as scheduled, and be progressed through detailed design. Current and long term flood risk should be considered and how the scheme and the area will adapt to changes in flood risk due to climate change.
Coordination	Action delivery lead is East Lothian Council and coordination will be determined once the actions have been finalised.

	Flood scheme or works implementation (Ref: 23302)
Action	The flood scheme/works is to be built following agreement of the design, costs and timescales.
Action detail	The Haddington Flood Protection Scheme was allocated funding as part of cycle 1. The scheme is to progress to construction once detailed design is complete. As built drawings will be made available to SEPA for consideration in the Scottish Flood Defence Asset Database, flood map updates and flood warning scheme updates. Routine inspections and maintenance of the Haddington Flood Protection Scheme would commence when the scheme is complete in accordance with the inspection and maintenance regime.
Coordination	Action delivery lead is East Lothian Council and coordination will be determined once the actions have been finalised.

	Community engagement (Ref: 23303)
Action	Community engagement is to continue to be carried out in the area by the responsible authorities to raise awareness of flood risk.
Action detail	Community engagement should be taken forward based on the outcomes of the flood protection scheme development and surface water management plan.
Coordination	Action delivery lead is East Lothian Council in coordination with the Scottish Flood Forum and SEPA.

	Surface water management plan (Ref: 23304)
Action	Areas at risk of heavy or prolonged rainfall causing flooding due to water ponding on man-made surfaces or overwhelming the drainage system are to be identified. These priority areas will provide a baseline for the identification of next steps in managing water ponding or over-whelmed drainage systems. This should guide adaptive planning to allow for the impacts of climate change to be monitored, understood and managed.
Action detail	The development of the cycle 1 surface water management plan for Haddington should continue in order to better understand surface water flood risk and mechanisms, and in the longer term look at possible action to manage the risk. The results of the sewer flood risk assessment should be considered. Current and long term flood risk should be considered and if climate change impacts are found to be significant, surface water management should include adaptation planning.
Coordination	Action delivery lead is East Lothian Council in coordination with Scottish Water.

	Flood warning maintenance (Ref: 23305)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should maintain the River Tyne flood warning scheme.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

Actions proposed after June 2028

The following actions are proposed to take place after June 2028. These will be reviewed in 2026, considering added information at that time, to ensure they are still the most appropriate actions for the community.

	Flood warning maintenance (Ref: 23306)
Action	The Floodline flood warning service is to be kept operational through maintenance to the existing system and updates being undertaken as required.
Action detail	SEPA should investigate improvements to the River Tyne flood warning scheme in the Haddington area.
Coordination	Action delivery lead is SEPA and coordination will be determined once the actions have been finalised.

SEPA and responsible authorities carry out actions in all areas which help to manage current and future flooding. These actions help to ensure that key aspects of flood risk management are taken forward in all locations. They ensure that for example new housing developments occur in the right places, and that critical flood risk information is developed and updated for all areas. A description of these actions is included in the Local Plan District section at the start of this document.

What are the opportunities for joint working?

Working in partnership is at the heart of flood risk management, responsible authorities and SEPA regularly work together in all areas to improve the coordination of flood management. Working across organisations and groups contributes to sustainable ways of managing current and future flood risk in a community. The potential for joint working will be further explored following the consultation feedback.

Flood Risk Management Glossary

July 2021

Scottish Environment Protection Agency
Buidheann Dìon Àrainneachd na h-Alba

Term	Definition
Accretion	Accumulation of sediment.
Actions	Activities undertaken to reduce the impact of flooding. Actions describe where and how flood risk will be managed. These actions have been set by SEPA and agreed with flood risk management authorities. The actions presented in the consultation are draft and will be finalised after the 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 plans 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 costs, benefits, risks and uncertainties before a decision is made. The flood risk management plans appraisal method is designed to set objectives and identify the most sustainable combination of actions to tackle flooding from rivers, the sea and surface water.
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 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.

Term	Definition
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 of 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), wetlands, rivers, canals (and their banks) and all watercourses.
Business and services	Properties that are not used for people to live in, such as shops or other public, commercial or industrial buildings.
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.
Channel improvement	Where work has been carried out on the river's 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 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.

Term	Definition
Community facility	Within the flood risk management plans this term includes: Emergency Services (Police, Fire, Ambulance, Coastguard, and 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.
Cross Border Advisory Group (CBAG)	The Cross Border Advisory Group is a statutory group made up of representatives from the Environment Agency, SEPA, Scottish Water and the four lead local flood authorities located within the Solway Tweed River Basin District.
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 flood risk management plans, 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.

Term	Definition
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, 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 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.

Term	Definition
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 Flood Risk Management 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.
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 and embankments, 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 flooding 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 Flood Risk Management Act, hazard refers to the characteristics (extent, depth, velocity) of a flood.
Flood hazard map	Flood hazard maps are required by the Flood Risk Management 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 Flood Risk Management 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.

Term	Definition
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 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	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 Flood Risk Management 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 Risk Management Local Advisory Groups	Flood risk management 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 Plan (FRM Plans)	A term used in the Flood Risk Management Act. Flood risk management plans set out a long-term vision for the overall management 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 within Potentially Vulnerable Areas.
Flood Risk Management Strategy (FRM Strategy)	The term used for the first set of flood risk management plans, which were published in December 2015. These are now referred to as the flood risk management plans to keep consistency with the Flood Risk Management Act and other areas of the UK.

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 Target Area (FWTA)	A Flood Warning target area is where SEPA operates a formal Flood Monitoring Scheme to issue targeted flood warning messages for properties located in the area.

Term	Definition
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 measures to reduce this flood risk.
Floodplain	Area of land that borders a watercourse, an estuary or the sea, over which water flows in time of flood, or would 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.
Fluvial flooding	Flooding from a river or other watercourse.
Gabion	A metal cage filled with rocks often used in river bank protection.
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’.
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.

Term	Definition
Likelihood of flooding	The chance of flooding occurring. **High likelihood**: A flood event is likely 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 event is likely 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 event is likely 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 plans. They will provide detail on the funding, timeline of delivery, arrangements and co-ordination of actions at the local level during each six year, flood risk management 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 designate local nature reserves using their powers under the National Parks and Access to the Countryside Act 1949.
Local Plan District	Geographical areas for the purposes of flood risk management planning. There are 14 Local Plan Districts (LPDs) in Scotland.
Local Plan District Partnerships	Each LPD has established a local partnership comprised of local authorities, SEPA and Scottish Water and others as appropriate. These partnerships are distinct from the flood risk management plans local advisory groups and they retain clear responsibility for delivery of the flood risk management 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 flood risk management plans and Local flood risk management plans.
National Flood Risk Assessment (NFRA)	A national analysis of flood risk from all sources of flooding which also considers climate change impacts. First published 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 was reviewed and updated for the second cycle of flood risk management planning in 2018.

Term	Definition
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'.
Options appraisal study	An options appraisal study looks to identify and assess a range of options that achieve flood risk management objectives whilst delivering other economic, social and environmental benefits. This helps to inform the decision-making process and identify how options work together to identify a preferred option for managing flooding within an area.
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 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 2011 National Flood Risk Assessment and were the focus of the first flood risk management planning cycle. There are 233 PVAs identified for the 2018 National Flood Risk Assessment.
Preferred option	A preferred option identifies the collection of flood management options which combined offer the most suitable way of managing flooding within an area. Based on the economic, social and environmental benefits of the options.

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 which 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 Flood Risk Management (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).

Term	Definition
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 flood risk management plans 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.

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.

Term	Definition
Source of flooding	The type of flooding. This can be coastal, river, surface water or groundwater.
Special Area of Conservation (SAC)	Special Areas of Conservation are strictly protected sites 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.
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.
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 improvements	Strategic mapping improvement 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.
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 plan / study	The management of flooding from surface water sewers, drains, small watercourses and ditches that occurs, primarily in urban areas, during heavy rainfall. Flood risk management plan actions in this category include: Surface Water Management Plans, Integrated Catchment Studies and assessment of flood risk from sewerage systems (Flood Risk Management Act, Section 16) by Scottish Water. These have been selected as appropriate for each Potentially Vulnerable Area.
Term	**Definition**
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.
Target area	Target areas are based on communities at risk of flooding. These are situated within Potentially Vulnerable Areas and should benefit from actions to reduce flood risk. To benefit the community, actions may apply to outside the target area. National flood risk management efforts and funding should be targeted to benefit these target areas.

UK Climate Change Projections (UKCP18)	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 RCP8.5 emission scenario. See the UKCP18 climate change projections report for details.
Utility assets	Within the flood risk management plans 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.