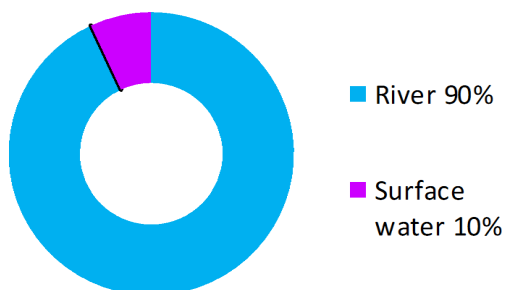


## Pow Burn catchment (Potentially Vulnerable Area 12/10)

Local Plan District	Local authority	Main catchment
Ayrshire	South Ayrshire Council	Pow Burn

### Summary of flooding impacts



#### At risk of flooding

- 410 residential properties
- 20 non-residential properties
- £940,000 Annual Average Damages

(damages by flood source shown left)

Summary of flooding impacts

### Summary of objectives to manage flooding

Objectives have been set by SEPA and agreed with flood risk management authorities. These are the aims for managing local flood risk. The objectives have been grouped in three main ways: by reducing risk, avoiding increasing risk or accepting risk by maintaining current levels of management.

Many organisations, such as Scottish Water and energy companies, actively maintain and manage their own assets including their risk from flooding. Where known, these actions are described here. Scottish Natural Heritage and Historic Environment Scotland work with site owners to manage flooding where appropriate at designated environmental and/or cultural heritage sites. These actions are not detailed further in the Flood Risk Management Strategies.

Objectives

### Summary of actions to manage flooding

The actions below have been selected to manage flood risk.

<i>Flood protection scheme/works</i>	<i>Natural flood management works</i>	<b>New flood warning</b>	<i>Community flood action groups</i>	<i>Property level protection scheme</i>	<i>Site protection plans</i>
<i>Flood protection study</i>	<i>Natural flood management study</i>	<i>Maintain flood warning</i>	<b>Awareness raising</b>	<b>Surface water plan/study</b>	<b>Emergency plans/response</b>
<i>Maintain flood protection scheme</i>	<b>Strategic mapping and modelling</b>	<b>Flood forecasting</b>	<b>Self help</b>	<b>Maintenance</b>	<b>Planning policies</b>

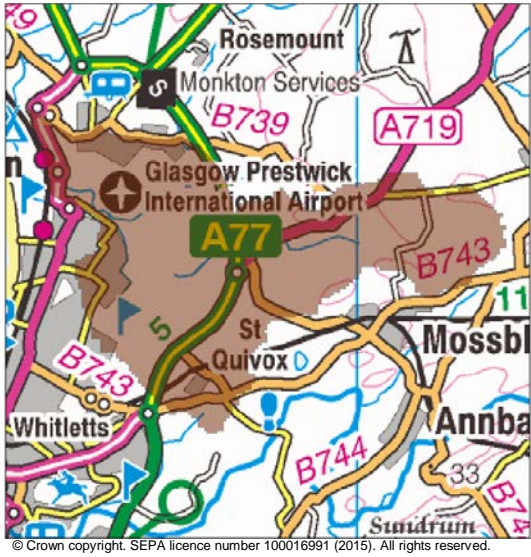
Actions

# Pow Burn catchment (Potentially Vulnerable Area 12/10)

Local Plan District	Local authority	Main catchment
Ayrshire	South Ayrshire Council	Pow Burn

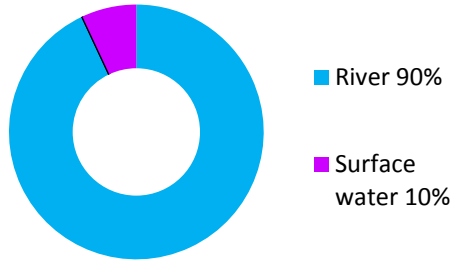
## Background

This Potentially Vulnerable Area is located on the west coast of the Ayrshire Local Plan District, east of Prestwick and is approximately 10km<sup>2</sup>. It includes Prestwick Airport (shown below).



The area has a risk of river and surface water flooding. The majority of damages are caused by river flooding, predominately from the Ladykirk Burn and the Pow Burn.

There are approximately 410 residential properties and 20 non-residential properties at risk of flooding. The Annual Average Damages are approximately £940,000.



**Figure 1: Annual Average Damages by flood source**

## Summary of flooding impacts

Flooding from the Ladykirk Burn is predicted at Shields and Prestwick, where it discharges to the Pow Burn. Flooding from the Pow Burn is predicted to impact Prestwick Airport and residential properties around Newdykes. The Ladykirk and Pow Burns are culverted at Prestwick Airport and through Prestwick, which may contribute to flooding.

Surface water flooding is predicted to directly impact residential properties in the area south of Newdykes, Prestwick St Cuthbert Golf Course and at the eastern boundary of the airport where the Ladykirk Burn is culverted. Interaction between river and surface water flooding is likely to occur in the residential area south of Newdykes. The areas at highest risk from surface water flooding will require the preparation of surface water management plans.

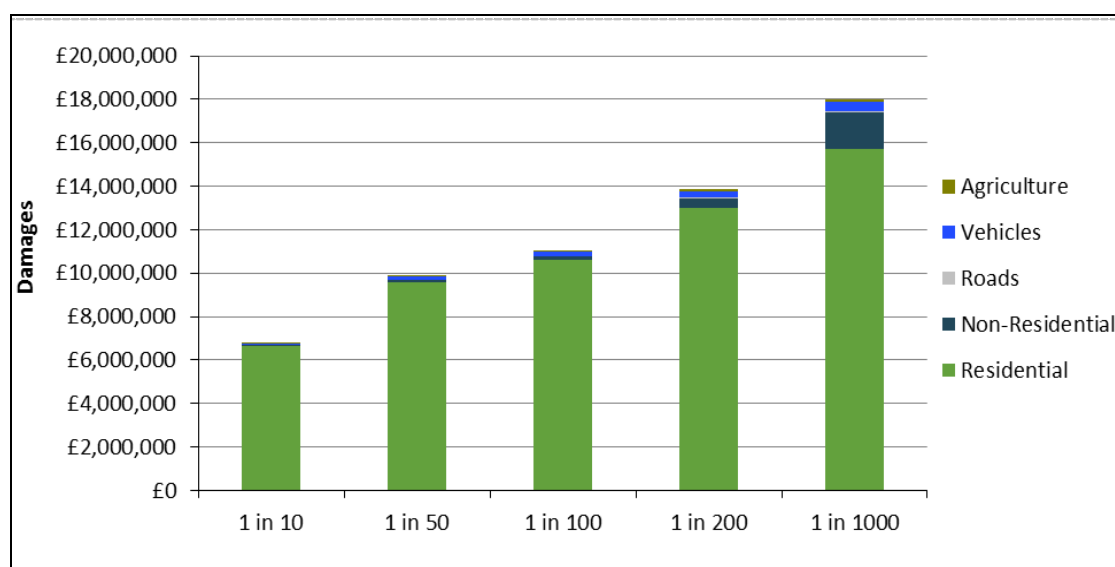
The risk of flooding to people and property, as well as to community facilities, utilities, the transport network, designated sites and agricultural land is summarised in Table 1. The damages associated with floods of different likelihood are shown in Figure 2. Residential properties affected by river flooding experience the highest economic impact at approximately 90% of the damages.

Within this Potentially Vulnerable Area it is estimated that climate change will increase the number of residential properties at risk of flooding from approximately 410 to 490.

The location of the impacts of flooding is shown in Figure 3. Most of the impact is located near Prestwick International Airport with flooding to properties and infrastructure.

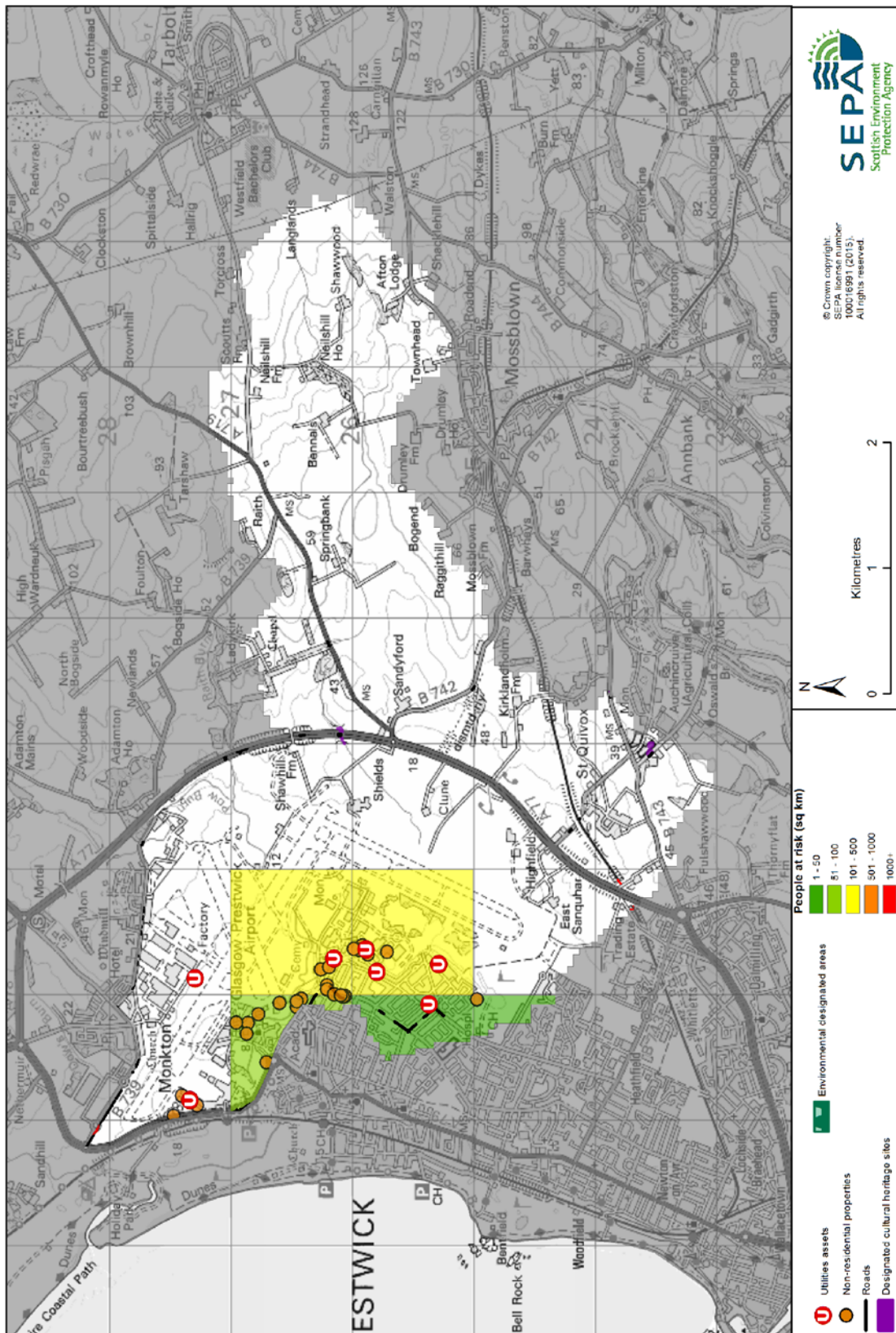
	1 in 10 High likelihood	1 in 200 Medium likelihood	1 in 1000 Low likelihood
Residential properties (total 1,900)	240	410	490
Non-residential properties (total 190)	10	20	30
People	540	920	1,100
Community facilities	0	0	<10 Educational buildings
Utilities assets	<10	<10	<10
Transport links - roads (km)	0.3 (of which <0.1 is A road)	0.9 (of which <0.1 is A road)	0.9 (of which <0.1 is A road)
Transport links - rail (km)	<0.1	<0.1	<0.1
Transport links - airports	0	1	1
Environmental designated areas (km <sup>2</sup> )	0	0	0
Designated cultural heritage sites	2	2	2
Agricultural land (km <sup>2</sup> )	3.0	5.8	0.6

**Table 1:** Summary of flooding impacts<sup>1</sup>



**Figure 2:** Damages by flood likelihood

<sup>1</sup> Some receptors are counted more than once if flooded from multiple sources



**Figure 3: Impacts of flooding**

## History of flooding

Prestwick International Airport was closed on the 20 December 2012 when heavy rains flooded the runway, resulting in delays and flights being diverted to Edinburgh. The Pow Burn, which runs under the main runway, flooded causing extensive problems in the airport vicinity and the surrounding area. The A77 was also closed between the Meiklewood interchange and the Dutchhouse roundabout.

## Objectives to manage flooding in Potentially Vulnerable Area 12/10

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. Target areas have been set to focus actions; they do not necessarily correspond to areas at risk in SEPA's flood map. The objectives below have been set for the Pow Burn catchment Potentially Vulnerable Area.

Target area	Objective	ID	Indicators within PVA
Prestwick and Ayr	Reduce the economic damages and risk to people from surface water flooding in Prestwick and Ayr	12043	* See note below
Applies across Ayrshire Local Plan District	Avoid an overall increase in flood risk	12039	<ul style="list-style-type: none"> <li>• 410 residential properties</li> <li>• £940,000 Annual Average Damages</li> </ul>
Applies across Ayrshire Local Plan District	Reduce overall flood risk	12082	<ul style="list-style-type: none"> <li>• 410 residential properties</li> <li>• £940,000 Annual Average Damages</li> </ul>
Applies across Ayrshire Local Plan District	Organisations such as Scottish Water, energy companies and Historic Environment Scotland actively maintain and manage their own assets, including the risk of flooding. These actions are not detailed further in the Flood Risk Management Strategies.		

\* This objective will be monitored using surface water flood risk across the Potentially Vulnerable Area. For 12/10 there are 40 residential properties at risk and Annual Average Damages of £59,000.

## Actions to manage flooding in Potentially Vulnerable Area 12/10

Actions describe where and how flood risk will be managed. These actions have been set by SEPA and agreed with flood risk management authorities following consultation. Selection of actions to deliver the agreed objectives was based on a detailed assessment and comparison of economic, social and environmental criteria. The actions shaded and then described below have been selected as the most appropriate for the Pow Burn catchment Potentially Vulnerable Area.

Selected actions					
<i>Flood protection scheme/works</i>	<i>Natural flood management works</i>	<b>New flood warning</b>	<i>Community flood action groups</i>	<i>Property level protection scheme</i>	<i>Site protection plans</i>
<i>Flood protection study</i>	<i>Natural flood management study</i>	<i>Maintain flood warning</i>	<b>Awareness raising</b>	<b>Surface water plan/study</b>	<b>Emergency plans/response</b>
<i>Maintain flood protection scheme</i>	<b>Strategic mapping and modelling</b>	<b>Flood forecasting</b>	<b>Self help</b>	<b>Maintenance</b>	<b>Planning policies</b>

<b>Action (ID):</b>	<b>NEW FLOOD WARNING (120820010)</b>		
<b>Objective (ID):</b>	Reduce overall flood risk (12082)		
<b>Delivery lead:</b>	SEPA		
<b>Status:</b>	<b>Not started</b>	Indicative delivery:	<b>2016-2021</b>
<b>Description:</b>	The area under consideration includes properties in Prestwick affected by flooding from the Pow Burn. Further feasibility assessment will be required to assess the delivery potential of a flood warning scheme in this location.		

<b>Action (ID):</b>	<b>SURFACE WATER PLAN/STUDY (120432018)</b>		
<b>Objective (ID):</b>	Reduce the economic damages and risk to people from surface water flooding in Prestwick and Ayr (12043)		
<b>Delivery lead:</b>	South Ayrshire Council		
<b>Status:</b>	<b>Not started</b>	Indicative delivery:	<b>2016-2021</b>
<b>Description:</b>	The area must be covered by a surface water management plan or plans that set objectives for the management of surface water flood risk and identify the most sustainable actions to achieve the objectives.		

<b>Action (ID):</b>	<b>SURFACE WATER PLAN/STUDY (120432019)</b>		
<b>Objective (ID):</b>	Reduce the economic damages and risk to people from surface water flooding in Prestwick and Ayr (12043)		
<b>Delivery lead:</b>	Scottish Water in partnership with South Ayrshire Council		
<b>Status:</b>	<b>Ongoing</b>	Indicative delivery:	<b>2016-2021</b>
<b>Description:</b>	An integrated catchment study for Prestwick and Ayr is under development which will assess the most sustainable combination of actions to mitigate flooding.		

<b>Action (ID):</b>	<b>STRATEGIC MAPPING AND MODELLING (120820016)</b>		
<b>Objective (ID):</b>	Reduce overall flood risk (12082)		
<b>Delivery lead:</b>	SEPA		
<b>Status:</b>	<b>Not started</b>	Indicative delivery:	<b>2016-2021</b>
<b>Description:</b>	SEPA will seek to incorporate additional surface water data into the flood maps to improve understanding of flood risk. Approximately 1,300km <sup>2</sup> of improved surface water data is currently available within this Local Plan District. The inclusion of additional surface water hazard data resulting from the completion of local authority surface water management plans and Scottish Water Integrated Catchment Management Studies will be considered as these projects are completed.		

<b>Action (ID):</b>	<b>STRATEGIC MAPPING AND MODELLING (120820019)</b>		
<b>Objective (ID):</b>	Reduce overall flood risk (12082)		
<b>Delivery lead:</b>	Scottish Water		
<b>Status:</b>	<b>Not started</b>	Indicative delivery:	<b>2016-2021</b>
<b>Description:</b>	Scottish Water will review the assessment of flood risk within the highest risk sewer catchments to improve knowledge and understanding of surface water flood risk.		



<b>Action (ID):</b>	<b>FLOOD FORECASTING (120820009)</b>		
<b>Objective (ID):</b>	Reduce overall flood risk (12082)		
<b>Delivery lead:</b>	SEPA		
<b>Status:</b>	<b>Existing</b>	Indicative delivery:	<b>Ongoing</b>
<b>Description:</b>	The Scottish Flood Forecasting Service is a joint initiative between SEPA and the Met Office that produces daily, national flood guidance statements which are issued to Category 1 and 2 Responders. The service also provides information which allows SEPA to issue flood warnings, giving people a better chance of reducing the impact of flooding on their home or business. For more information please visit SEPA's website.		

<b>Action (ID):</b>	<b>SELF HELP (120820011)</b>		
<b>Objective (ID):</b>	Reduce overall flood risk (12082)		
<b>Delivery lead:</b>	—		
<b>Status:</b>	<b>Existing</b>	Indicative delivery:	<b>Ongoing</b>
<b>Description:</b>	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 level protection, signing up to Floodline and Resilient Communities initiatives, and ensuring that properties and businesses are insured against flood damage.		

<b>Action (ID):</b>	<b>AWARENESS RAISING (120820013)</b>		
<b>Objective (ID):</b>	Reduce overall flood risk (12082)		
<b>Delivery lead:</b>	Responsible authorities		
<b>Status:</b>	<b>Existing</b>	Indicative delivery:	<b>Ongoing</b>
<b>Description:</b>	SEPA and the responsible authorities have a duty to raise public awareness of flood risk. Improved awareness of flood risk and actions that prepare individuals, homes and businesses for flooding can reduce the overall impact. From 2016 SEPA will work towards raising awareness of flood risk through partnership activities with Transport Scotland and local infrastructure operators. Local authorities will be undertaking additional awareness raising activities. Further details will be set out in the Local FRM Plan.		

<b>Action (ID):</b>	<b>MAINTENANCE (120820007)</b>		
<b>Objective (ID):</b>	Reduce overall flood risk (12082)		
<b>Delivery lead:</b>	South Ayrshire Council, asset / land managers		
<b>Status:</b>	<b>Existing</b>	Indicative delivery:	<b>Ongoing</b>
<b>Description:</b>	Local authorities have a duty to assess watercourses and carry out clearance and repair works where such works would substantially reduce flood risk. They produce schedules of clearance and repair works and make these available for public inspection. Scottish Water undertake inspection 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.		

<b>Action (ID):</b>	<b>EMERGENCY PLANS/RESPONSE (120820014)</b>		
<b>Objective (ID):</b>	Reduce overall flood risk (12082)		
<b>Delivery lead:</b>	Category 1 and 2 Responders		
<b>Status:</b>	<b>Existing</b>	Indicative delivery:	<b>Ongoing</b>
<b>Description:</b>	Providing an emergency response to flooding is the responsibility of many organisations, including local authorities, the emergency services and SEPA. Effective management of an emergency response relies on emergency plans that are prepared under the Civil Contingencies Act 2004 by Category 1 and 2 Responders. The emergency response by these organisations is co-ordinated through regional and local resilience partnerships. This response may be supported by the work of voluntary organisations.		

<b>Action (ID):</b>	<b>PLANNING POLICIES (120390001)</b>		
<b>Objective (ID):</b>	Avoid an overall increase in flood risk (12039) Reduce overall flood risk (12082)		
<b>Delivery lead:</b>	Planning authority		
<b>Status:</b>	<b>Existing</b>	Indicative delivery:	<b>Ongoing</b>
<b>Description:</b>	Scottish Planning Policy and accompanying Planning Advice Notes set out Scottish Ministers' priorities for the operation of the planning system and for the development and use of land. In terms of flood risk management, the policy supports a catchment-scale approach to sustainable flood risk management and aims to build the resilience of our cities and towns, encourage sustainable land management in our rural areas, and to address the long-term vulnerability of parts of our coasts and islands. Under this approach, new development in areas with medium to high likelihood of flooding should be avoided. For further information on the application of national planning policies see Annex 2.		