



From mountain to sea



Inverurie Flood Study and Future Plans

14th February 2019

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Principal Engineer
Flood Risk and Coast Protection
Aberdeenshire Council



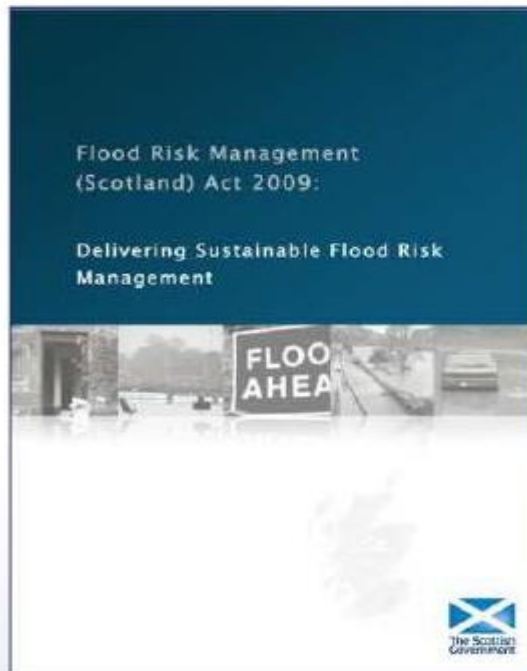
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Introduction

- Community Council and Garioch Resilience Group – Thank you
- FRM Act 2009 – PVAs and NE LPD
- Local Flood Risk Management Plan 2016 - 2022
- Flood Recording January 2016
- Meetings
- Current Position



Flood Risk Management (Scotland) Act 2009



.... a risk-based, sustainable and **plan-led approach** to managing floods - delivered at the **catchment scale**



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Flood Risk Management Strategy

- SEPA published the Flood Risk Management Strategy and was approved by the Environment Minister in December 2015
- A strategy is available for each of the 14 Local Plan Districts in Scotland
- <http://apps.sepa.org.uk/FRMStrategies/>



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Flood Risk Management (Scotland) Act 2009 North East Local Plan District

Local Flood Risk Management Plan 2016 – 2022

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SEPA
Scottish Environment
Protection Agency

ABERDEEN
CITY COUNCIL



Scottish
Water

CAIRNGORMS
COUNCIL

Abstract

This is the first Local Flood Risk Management Plan for the North East Local Plan District, describing the actions which will contribute to managing the risk of flooding and recovering from any future flood events. The task for local authorities, Scottish Water, the Scottish Environment Protection Agency (SEPA), the Scottish Government and all other responsible authorities and public bodies is to deliver this plan.

Published by Aberdeenshire Council, June 2016



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North East Local Flood Risk Management Plan 2016 - 2022

- 6 year plan
- Take forward the objectives and actions set out in Flood Risk Management Strategies
- Provides detail on the funding, timeline of delivery, arrangements and co-ordination of actions



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North East Local Flood Risk Management Plan 2016-2022

[North East Local Flood Risk Management Plan 2016-2022](#)

North East LFRMP Individual PVA's

1. [Portgordon](#)
2. [Portsoy](#)
3. [Banff](#)
4. [Macduff](#)
5. [Fraserburgh and Rosehearty](#)
6. [Newmill](#)
7. [Turriff](#)
8. [Peterhead](#)
9. [Methlick](#)
10. [Huntly](#)
11. [Insch](#)
12. [Ellon](#)
13. [Inverurie and Kintore](#)
14. [Heugh-head](#)
15. [Aberdeen City - Bridge of Don](#)
16. [Aberdeen City - Denmore](#)
17. [Westhill](#)
18. [Aberdeen City - Deeside](#)
19. [Peterculter](#)
20. [Aboyne](#)
21. [Banchory and Torphins](#)
22. [Ballater](#)
23. [Stonehaven](#)



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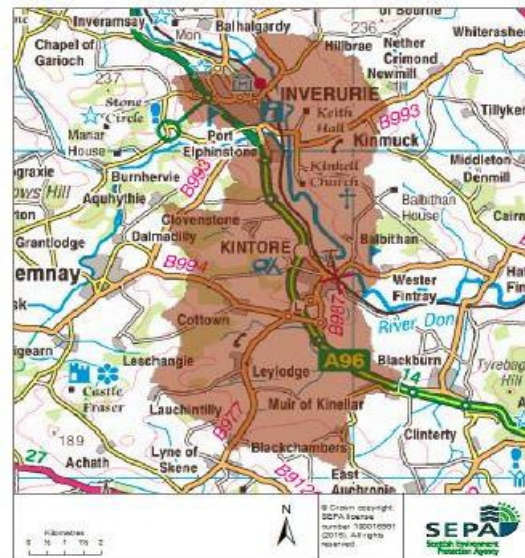
2.3.13 Inverurie and Kintore (Potentially Vulnerable Area 06/13)

Local Plan District	Local authority	Main catchment
North East	Aberdeenshire Council	River Don

Background

This Potentially Vulnerable Area includes Inverurie and Kintore. It is approximately 60km².

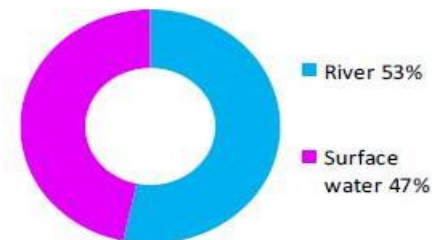
The A96 and the Aberdeen to Inverness railway pass through the area.



The main watercourses are the River Don and the River Urie. There are several smaller watercourses including the Strath Burn which is mainly culverted through Inverurie.

There are approximately 230 residential and 190 non-residential properties at risk of flooding.

The Annual Average Damages are estimated to be £510,000 with the majority caused by river flooding.



Annual Average Damages by flood source



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Actions to manage flooding in Potentially Vulnerable Area 06/13

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 Inverurie and Kintore Potentially Vulnerable Area.

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



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Action (ID):	FLOOD PROTECTION STUDY (6013010005)		
Objective (ID):	Reduce flood risk in <u>Inverurie</u> and Port Elphinstone from the River <u>Urie</u> (601302)		
	Reduce flood risk in <u>Inverurie</u> and Port Elphinstone from the River Don (601301)		
Delivery lead:	Aberdeenshire Council		
Priority:	National:	Within local authority:	
	57 of 168	2 of 12	
Status:	Scheduled	Indicative delivery:	2019
Description:			
<p>Aberdeenshire Council will undertake a flood protection study to evaluate options for flood management to reduce the risk of flooding in <u>Inverurie</u> and Port Elphinstone from the River Don and River <u>Urie</u>. The study will build upon previous studies and it is currently estimated that the study will be completed by Summer 2019.</p> <p>The study has the potential to benefit 120 residential properties and 35 non-residential properties and sections of road network at risk of flooding in this location, with potential damages avoided of up to £6.8 million. Additionally, three utility sites (energy/electricity sites) could benefit from the study. A reduction in flood risk would have a positive benefit to the health and wellbeing of the community and socially vulnerable people located within the study area and may also contribute to enhanced biodiversity and economic activity.</p> <p>The study will take a sustainable and integrated approach by coordinating with the river basin management plan. It will be undertaken with due consideration to internationally, nationally and locally designated sites including listed buildings. It will also explore opportunities for enhancing biodiversity and for promoting economic activity and social wellbeing.</p> <p>Aberdeenshire Council will coordinate with SEPA, Scottish Water, SNH, The Crown Estate, landowners and community groups as well as other relevant agencies and organisations. Aberdeenshire Council will undertake the study through the Local Planning District (LPD) partnership and / or through separate agreements.</p>			



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Potential impacts	
Economic:	The study could benefit 120 residential and 35 non-residential properties at risk of flooding in this location, with potential damages avoided of up to £6.8 million.
Social:	The development of flood protection works following the study would potentially reduce risk to 264 people. A reduction in flood risk would have a positive benefit to the health and wellbeing of the community and socially vulnerable people. Three utility sites (energy/electricity sites), roads (including the B9170) and the railway line could benefit from flood protection works. Negative impacts through disturbance to the local community during the construction phase should be considered.
Environmental:	Flood protection studies should consider the positive and negative impacts of proposed actions on the ecological quality of the environment. Opportunities to mitigate any environmental impacts may include design and timing of works. The flood protection study should consider how to avoid or minimise potential negative effects such as loss or disturbance of sediment, disruption to natural processes and loss of habitat. Six cultural heritage sites could benefit from the flood protection works identified in the study, however this will depend on the final location and extent of the works.

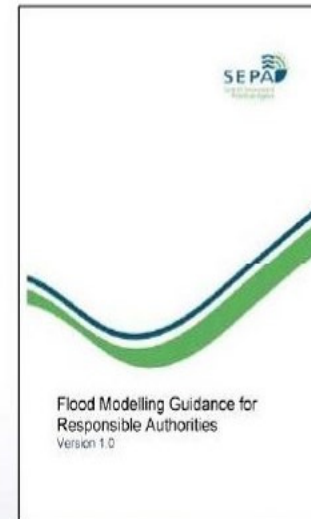


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Inverurie Flood Protection Study

- The flood study will consist:
 - Data collection and surveys
 - Hydrological analysis
 - Detailed modelling
 - Recommended actions to reduce flood risk
 - Economic appraisal (benefit/cost analysis)





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Possible recommendations from Study

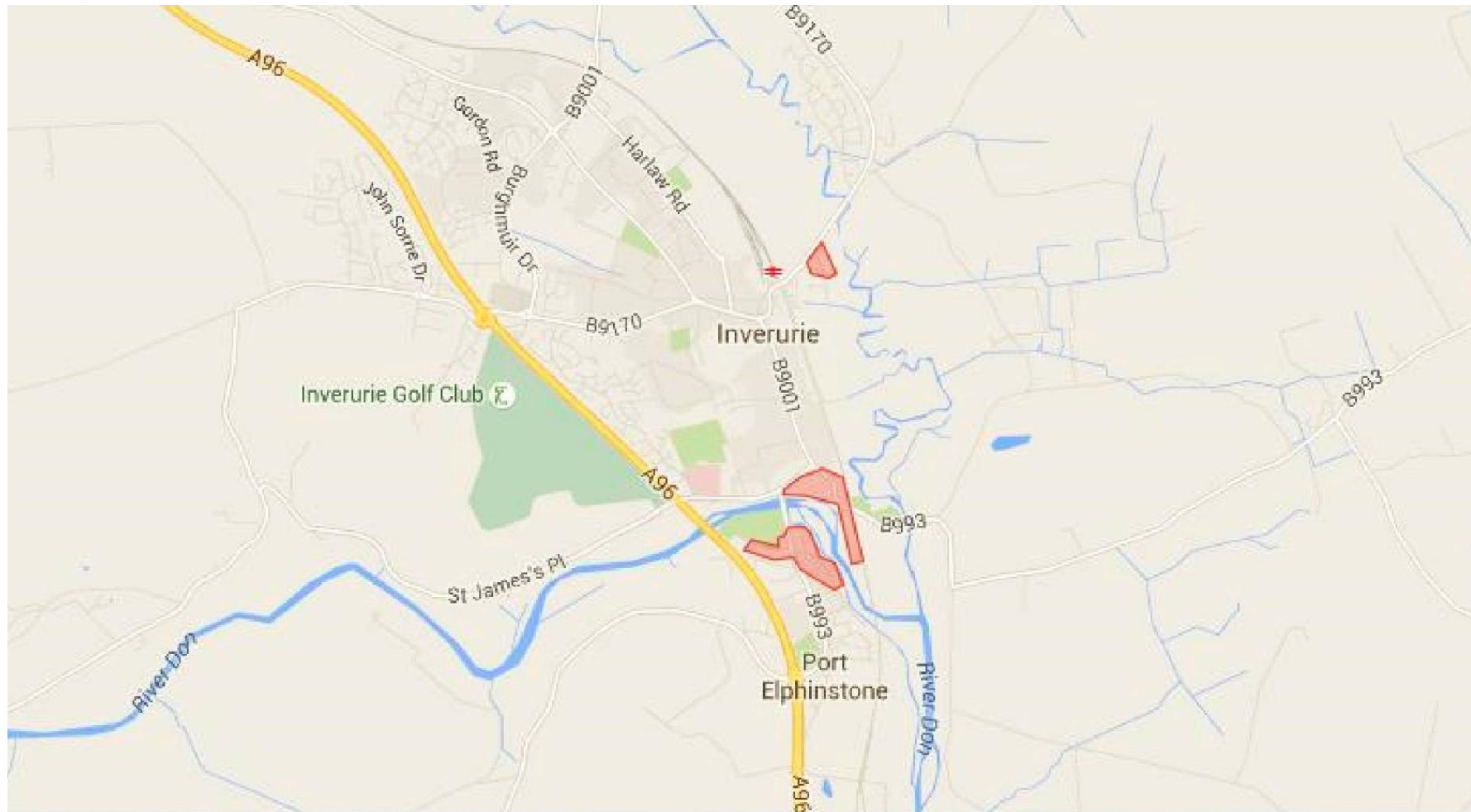
- Possible actions to reduce flood risk:
 - Direct defences
 - Upstream storage
 - Natural flood management
 - Property level protection
- Any formal Flood Protection Scheme would be taken forward in the next Flood Risk Management Planning Cycle 2022 – 2027.

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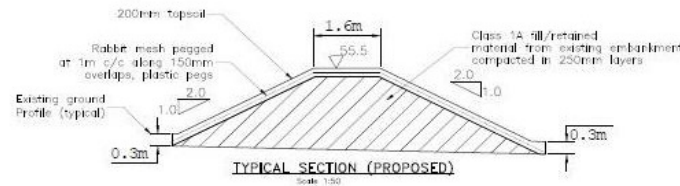
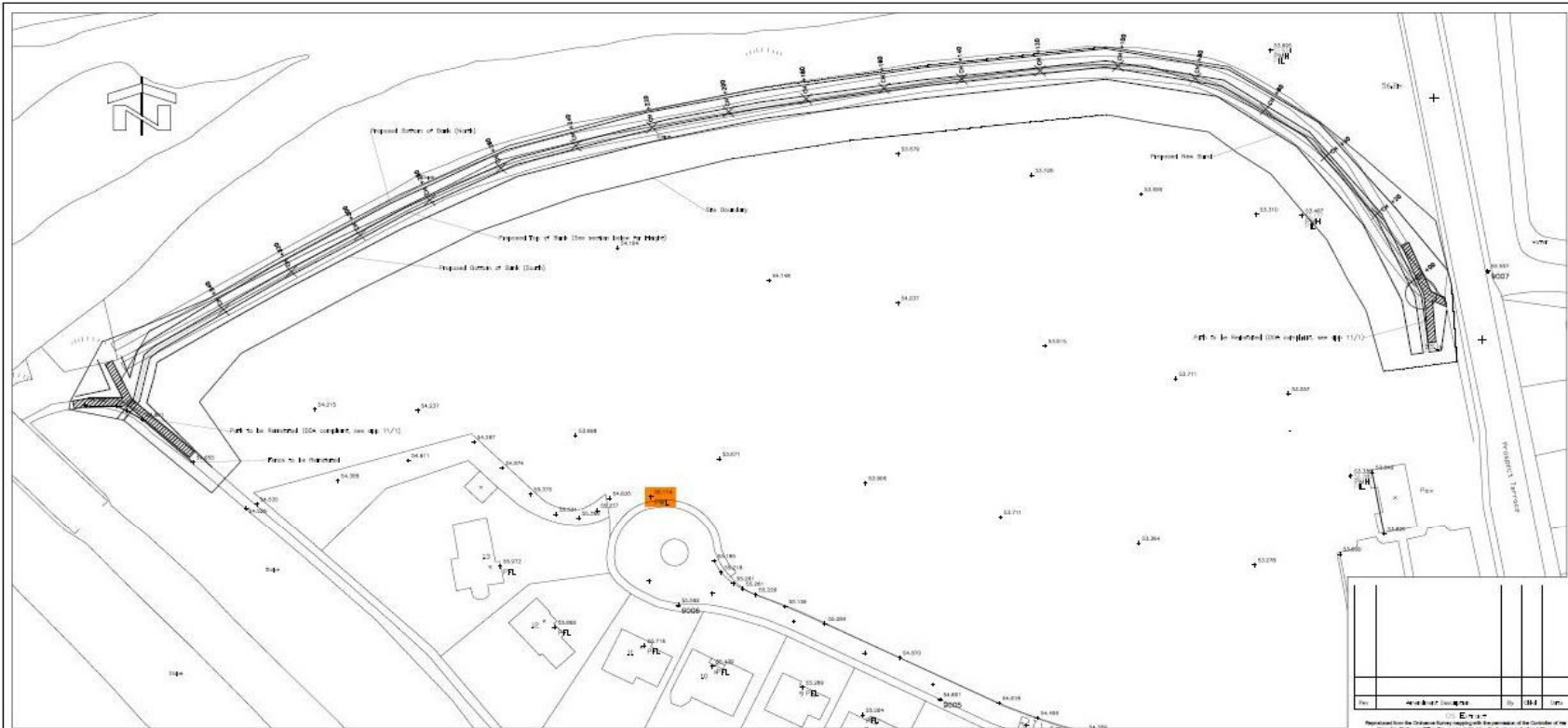
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Rev	Description	By	Date

DESIGNED BY: [Name]
 APPROVED BY: [Name]

PROJECT TITLE: [Title]

CLIENT: [Client Name]

LOCATION: [Location]

DATE: [Date]

SCALE: [Scale]

PROJECT NO: [Project No]

DATE OF ISSUE: [Date of Issue]

ISSUED FOR: [Issued For]

PROJECT NO: [Project No]

DATE OF ISSUE: [Date of Issue]

ISSUED FOR: [Issued For]

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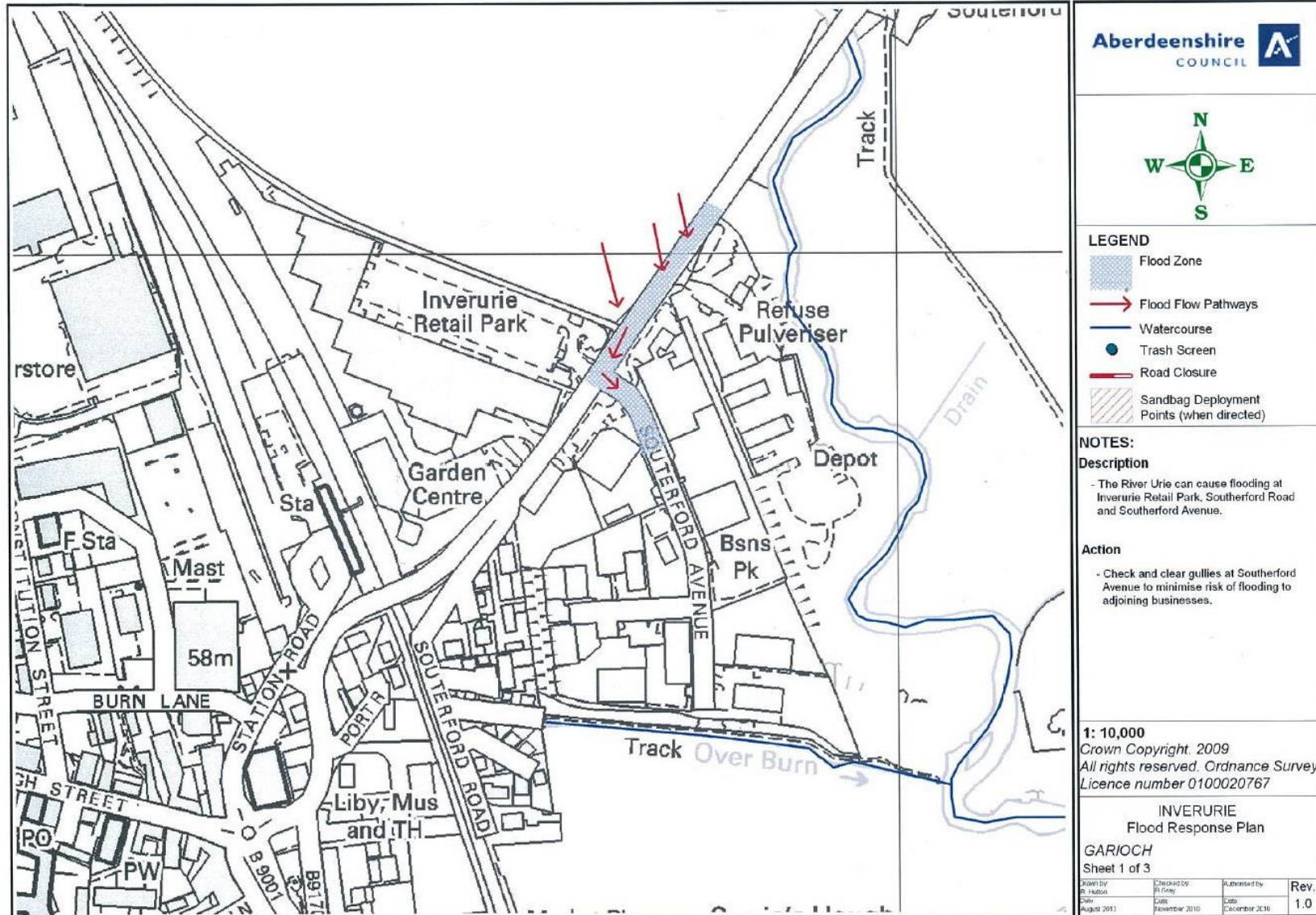
ISSUED FOR: [Issued For]



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Meetings and Current Position

- Davidson Park Flood Bank Stabilisation Work – Oct/Nov 2016
- Gillian Martin MSP meeting – 28th November 2016
- Scottish Water meeting Keithhall Road Bund – 7th Dec 2016
- Keithhall Road Bund Stabilisation work complete – March 2017
- Landscape Services Maintenance meeting – 21st Feb 2018
- Consultants, Councillors, residents walkover – 12th April 2018
- Garioch Residence Group meeting – 5th June 2018
- Flood Study - Public Engagement Event 1 – 14th February 2019
- Stakeholder Meeting – Spring 2019
- Flood Study - Public Engagement Event 2 – Summer 2019
- Flood Study – Completion – Summer 2019



- LEGEND**
- Flood Zone
 - Flood Flow Pathways
 - Watercourse
 - Trash Screen
 - Road Closure
 - Sandbag Deployment Points (when directed)

NOTES:

Description

- The River Urie can cause flooding at Inverurie Retail Park, Southernford Road and Southernford Avenue.

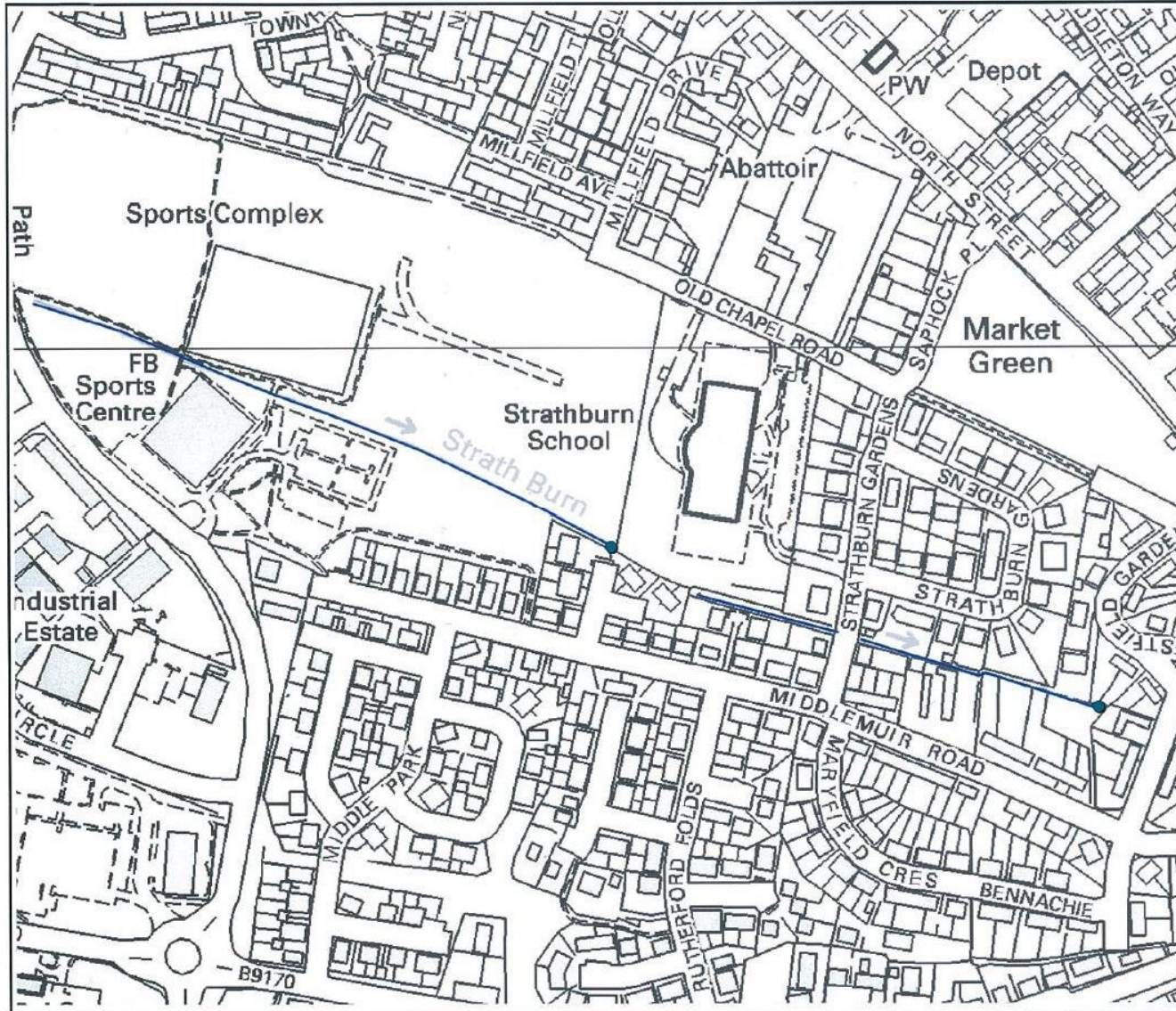
Action

- Check and clear gullies at Southernford Avenue to minimise risk of flooding to adjoining businesses.







1: 10,000
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INVERURIE
Flood Response Plan
GARIOCH
Sheet 1 of 3

Drawn by	Checked by	Submitted by	Rev.
R. Hudson	PI. Gray		1.0
Date	Date	Date	
August 2011	November 2010	December 2010	



LEGEND

-  Flood Zones
-  Flood Flow Pathway
-  Watercourse
-  Trash Screen
-  Road Closure (when required)
-  Sandbag Deployment Points (when directed)

NOTES:

Description

- The trash screens on the Strath Burn can cause flooding to properties when the grills become blocked.

Action

- Check and clear any debris from the Trash Screens on the Strath Burn.

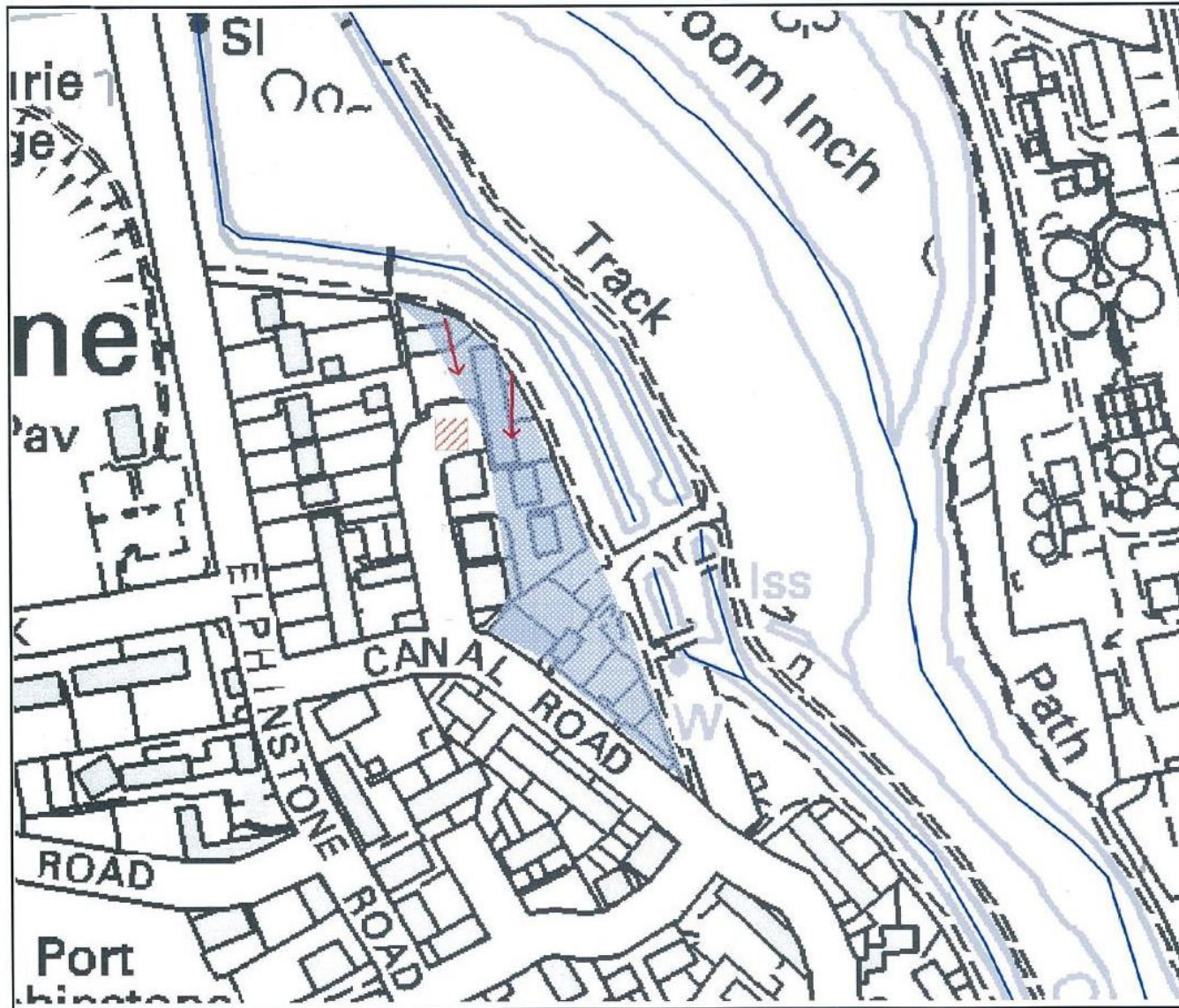
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Inverurie
Flood Response Plan

GARIOCH
Sheet 2 of 3

Drawn by	Checked by	Authorised by	Rev.
B. Hutson	B. Gray		1.0
Date: August 2013	Date: November 2010	Date: December 2010	



- LEGEND**
- Flood Zones
 - Flood Flow Pathway
 - Watercourse
 - Trash Screen
 - Road Closure (when required)
 - Sandbag Deployment Points (when directed)

NOTES:
Description
- During prolonged heavy rainfall the Old Canal can overtop resulting in flooding of properties on Canal Road.

Action
- Deploy sandbags to Canal Road when required.

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INVERURIE
Flood Response Plan
GARIOCH
Sheet 3 of 3

Drawn by	Checked by	Approved by	Rev.
H. Hubson	R. Gray	A. Burns	1.0
Date: 23/10	Date: November 2010	Date: December 2010	



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Locations of current Sandbag Deployment Points

- Roads Depot (outside) Harlaw Road

Additional Sandbag Deployment points (when directed)

- Canal Crescent



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C.C. Storage container for emergency response

- 20ft container at Ballater Primary School
- 250m of HESCO Jackbox barrier
- 3 pallets of new, heavy-duty pre-filled polypropylene sandbags





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Promoting Resilience - Property-Level Protection

- Flood protection products to homes and businesses
- Flood gates, vent guards and FloodSaxs
- Reduced reliance on council supplied sandbags





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Thank you

Questions?

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Flood Risk and Coast Protection

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