

Internal Audit Report

Flooding and Surface Water Management

13 May 2025

PL2408

**Overall
Assessment**

**Substantial
Assurance**

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This Internal Audit review is conducted for the City of Edinburgh Council under the auspices of the 2024/25 internal audit plan approved by the Governance, Risk and Best Value Committee in March 2024. The review is designed to help the City of Edinburgh Council assess and refine its internal control environment. It is not designed or intended to be suitable for any other purpose and should not be relied upon for any other purpose. The City of Edinburgh Council accepts no responsibility for any such reliance and disclaims all liability in relation thereto.

The internal audit work and reporting has been performed in line with the requirements of the Global Internal Audit Standards (UK Public Sector) and as a result is not designed or intended to comply with any other auditing standards.

Although there are specific recommendations included in this report to strengthen internal control, it is management's responsibility to design, implement and maintain an effective control framework, and for the prevention and detection of irregularities and fraud. This is an essential part of the efficient management of the City of Edinburgh Council. Communication of the issues and weaknesses arising from this audit does not absolve management of this responsibility. High and Critical risk findings will be raised with senior management and elected members as appropriate.

Executive Summary

Overall
Assessment

Substantial
Assurance

Engagement conclusion and summary of findings

There is a sound system of governance, risk management and control in place surrounding the strategy, prevention and management controls, and incident preparedness for Flooding and Surface Water Management.

Some scope for improvement was highlighted which may put at risk the achievement of objectives. The following areas for improvement which aim to strengthen the control environment were identified:

- the Clearance and Repair Schedule should be published annually in line with legislative requirements, and a process introduced to review and sign-off inspection documentation
- Flood Action Packs should be routinely reviewed, as well as after each flooding event and the outcomes of debriefs following flooding events should be formally recorded
- administrative support should be considered to assist the flood management team during flood events.









Areas of effective practice

- there is a clear strategic approach to flooding and surface water management which is aligned to legislation and statutory obligations and is data driven

- the team supported development of the Climate Ready Edinburgh Plan and will have a key role in delivering the actions
- a Team Plan is in place which sets out the focus of the team, how they will achieve their objectives, and how the actions align to other Council initiatives (such as the 2050 Vision, City Mobility Plan etc.)
- there is clear evidence of progress towards the delivery of actions agreed and coordinated with partners at a national, regional, and local level such as SEPA and the Forth Estuary Local District partnership
- there is an effective system of monitoring for the early warning signs of flooding, and a Flood Response team available 24/7 to prepare for and respond to flooding events
- there are procedures for both day-to-day operational processes as well as respond to flooding events (such as flood gate closure procedures)
- risk management is incorporated into processes from the wider strategy and assessment of flood risks across the city (such as the recent Surface Water Management Plan), to the day to day operational risks
- the team have an advisory role in planning applications with procedures and guidance available to planning applicants covering responsibilities for assessing and mitigating flood risk in new developments in the city.

Audit Assessment

[See Appendix 1 for Control Assessment and Assurance Definitions](#)

Audit Area	Control Design	Control Operation	Findings	Priority Rating
1. Strategic Approach			No issues identified	N/A
2. Flood Prevention and Surface Water Management Controls			Finding 1 – Inspection Documentation	Medium Priority
3. Flood Incident Preparedness and Resilience			Finding 2 – Flooding Events Documentation	Medium Priority
4. Risk Management			No issues identified	N/A

Background and scope

The Scottish Environmental Protection Agency (SEPA) defines flooding as a temporary covering by water, from any source, on land not normally covered by water. Every 6 years, SEPA identifies Potentially Vulnerable Areas (PVA) where significant flood risk exists now, or are likely to occur in the future, and they help Scotland to understand and prioritise where additional infrastructure could benefit the most. The latest PVA work is due to be completed in December 2024. Three key pieces of legislation set out the Council's statutory duties in relation to flooding and surface water management:

- [The Flood Risk Management \(Scotland\) Act 2009](#) requires the Council to mitigate the risks and impact of flooding on communities and infrastructure, and places responsibility for preparing and implementing flood risk strategies, working alongside the Scottish Environment Protection Agency ([SEPA](#)) and other stakeholders. It emphasises a coordinated and sustainable approach to managing flood risks, including the preparation of Local Flood Risk Management Plans and the promotion of natural flood management techniques
- [The Water Environment and Water Services \(Scotland\) Act 2003](#) incorporates the principles of the EU Water Framework Directive and places duties on Council's to manage surface water. This requires Council's to ensure sustainable urban drainage systems are implemented in new developments and to oversee the maintenance of existing drainage infrastructure

[Civil Contingencies Act 2004](#) mandates preparedness and response planning for emergencies. Councils are required to identify vulnerable areas, maintain communication with affected communities, and collaborate with emergency services during flood event. Under the Civil Contingencies Act, Local Authorities are designated as 'Category 1' responders and as such are subject to specific statutory duties alongside other core emergency responders such as police, ambulance, fire and rescue services, NHS, SEPA and more.

The Council's [Flood Management Team](#) undertake routine inspections and maintenance of all watercourses. Assets under their management also include reservoirs, flood walls and embankments, coastal defences, and water and rainfall sensing equipment.

The [Corporate Resilience Team](#) are responsible for ensuring that robust, effective and resilient arrangements are in place for responding to any serious emergency that might affect all or part of the city. They also advise Directorates on the coordination, development, and validation of their own resilience data, arrangements, and protocols. Directorates have a range of scenario-specific, risk-based, resilience arrangements and protocols in place, the maintenance and validation of which are the responsibility of the relevant Service Area. This includes operational resilience arrangements.

Scope

The objective of this review was to assess the adequacy of design and operating effectiveness of the key controls established to ensure a strategic approach to the management of flooding and surface water, as well as to support the ongoing work to mitigate the risks presented by a changing climate and increased flooding and surface water incidents. In addition, the audit considered the Council's preparedness and ability to respond effectively to a major flooding incident.

Alignment to Risk and Business Plan Outcomes

The review considers assurance in relation to the following Corporate Leadership Team risk categories:

- Health and Safety (including public safety)
- Resilience
- Service Delivery
- Regulatory and Legislative Compliance
- Reputational Risk.

Business Plan Outcomes:

- Edinburgh is a climate adapted city, with biodiverse green spaces, and cheaper cleaner networks for energy use.

Limitations of Scope

The following areas were excluded from scope:

- the wider Council's response to major resilience incident as a focused audit of Operational Resilience is included in the 2025/26 audit plan. Testing was restricted to the Flood Management team's response only.

Reporting Date

Testing was undertaken between 27 January 2025 and 27 March 2025.

Audit work concluded on 3 April 2025, and the findings and opinion are based on the conclusion of work as at that date.

Findings and Management Action Plan

Finding 1 – Inspection Documentation

Finding
Rating

Medium
Priority

Section 18 Schedule of Clearance and Repair Works

Section 18 of the [Flood Risk Management \(Scotland\) Act 2009](#) requires the Council to prepare and publish an annual schedule of works which indicates both planned works of clearance and repair (sections 18(1) and (2)), and planned future assessments (section 18(3)). While the annual Section 18 schedules were prepared each year, they were not published on the Council's website since 2019-20.

Oversight of Inspection Documentation

Inspections are carried out by engineers and technicians in the Flood Management team, in line with the above schedule, with the outcomes discussed with management. Sample testing of inspection actions confirmed that they had been completed or noted for future years' maintenance schedules. However, there is no process in place for management to formally review and sign off inspection documentation to confirm that they are complete and that all identified actions have been addressed.

Risks

- **Regulatory and Legislative Compliance** – failure to comply with the Flood Risk Management (Scotland) Act 2009 if the Section 18 Schedule is not published annually
- **Service Delivery** – reduced confidence of effective service delivery if inspections are not performed correctly
- **Health and Safety (including public safety)** – increased likelihood of an effect on public safety if inspections have not been performed correctly.

Recommendations and Management Action Plan: Inspection Documentation

Ref.	Recommendation	Agreed Management Action	Action Owner	Lead Officers	Timeframe
1.1	The Section 18 Clearance and Repair Schedule should be published annually in line with legislative requirements.	Section 18 Schedule will be published annually.	Interim Executive Director of Place	Transport Manager - Flood Management	30/06/2025
1.2	A process to review and sign-off inspection documentation should be implemented to confirm completeness of inspections and that all actions identified have been addressed.	Inspection review and sign off will be incorporated into the 2025/26 inspection schedules.			31/03/2026

Finding 2 – Flooding Events Documentation

Finding
Rating

Medium
Priority

Review of Action Packs

Action Packs set out the key information required by the Flood Response Team when responding to potential or actual flooding events, including geographical information, details of potential road closures, the construction of sandbag walls, data to be gathered and reported back to the 'Flood Control Room', action to be taken at specific sites with photos and access information, and contact details of residents and businesses where required (e.g. for access).

The action packs had not been formally reviewed since 2022, until this audit prompted a full review of Action Packs in January 2025. Routine review of action packs would support contingency planning, recruitment/onboarding, and mandatory training.

Documenting Responses to Flooding Events

The response to flooding events across the city historically involved representatives from relevant teams (Roads, Structures, and Business Support) convening in a 'Flood Control Room' to coordinate the response. Since Covid this response has been coordinated remotely, with no Business Support involvement. While this does not limit Flooding officers' ability to effectively respond to flooding events, the lack of administrative support available results in a lack of formal evidence of information gathered and decisions taken.

In addition, debriefs are held after flooding events to discuss officer wellbeing, health and safety, and issues faced during the response, however the outcomes of these discussions are not formally recorded.

Risks





- **Resilience** – there is an increased likelihood that flood events are not managed effectively, and lessons learned are not captured
- **Health and Safety (including public safety)** – increased risk that flood event responses are not effective, leading to a risk to public safety
- **Reputational Risk** – if flood events are not managed effectively then this increases reputational risk for the Council
- **Service Delivery** – if action packs do not fully reflect lessons learned then there may be an ineffective response to flood events.

Recommendations and Management Action Plan: Flooding Events Documentation

Ref.	Recommendation	Agreed Management Action	Action Owner	Lead Officers	Timeframe
2.1	Flood Action Packs should be reviewed routinely (e.g. annually), as well as after each flood event, to confirm that the response information is complete and accurate.	Action packs were formally reviewed in January 2025 and will be reviewed both on an ad-hoc basis as required and fully every 2 years.	Interim Executive Director of Place	Transport Manager - Flood Management	Complete

2.2	The team should consider if administrative support is required to assist the Flood Management team remotely during flooding events. This could aim to assist with capturing data, recording key decisions taken, and assisting with coordinating the response such as liaising with partners and Council services.	Following review of action packs, it has been determined that there is no requirement for specific administrative support during flood events.	Interim Executive Director of Place	Transport Manager - Flood Management	Complete
2.3	The outcomes of debriefs following flood events should be formally recorded. Any lessons learned should be noted in action packs where relevant.	The Corporate Resilience Debrief Template will be used to record debrief outcomes and actions going forward.			Complete

Appendix 1 – Control Assessment and Assurance Definitions

Control Assessment Rating		Control Design Adequacy	Control Operation Effectiveness
Well managed		Well-structured design efficiently achieves fit-for purpose control objectives	Controls consistently applied and operating at optimum level of effectiveness.
Generally Satisfactory		Sound design achieves control objectives	Controls consistently applied
Some Improvement Opportunity		Design is generally sound, with some opportunity to introduce control improvements	Conformance generally sound, with some opportunity to enhance level of conformance
Major Improvement Opportunity		Design is not optimum and may put control objectives at risk	Non-conformance may put control objectives at risk
Control Not Tested	N/A	Not applicable for control design assessments	Control not tested, either due to ineffective design or due to design only audit

Overall Assurance Ratings	
Substantial Assurance	A sound system of governance, risk management and control exists, with internal controls operating effectively and being consistently applied to support the achievement of objectives in the area audited.
Reasonable Assurance	There is a generally sound system of governance, risk management and control in place. Some issues, non-compliance or scope for improvement were identified which may put at risk the achievement of objectives in the area audited.
Limited Assurance	Significant gaps, weaknesses or non-compliance were identified. Improvement is required to the system of governance, risk management and control to effectively manage risks to the achievement of objectives in the area audited.
No Assurance	Immediate action is required to address fundamental gaps, weaknesses or non-compliance identified. The system of governance, risk management and control is inadequate to effectively manage risks to the achievement of objectives in the area audited.

Finding Priority Ratings	
Advisory	A finding that does not have a risk impact but has been raised to highlight areas of inefficiencies or good practice.
Low Priority	An issue that results in a small impact to the achievement of objectives in the area audited.
Medium Priority	An issue that results in a moderate impact to the achievement of objectives in the area audited.
High Priority	An issue that results in a severe impact to the achievement of objectives in the area audited.
Critical Priority	An issue that results in a critical impact to the achievement of objectives in the area audited. The issue needs to be resolved as a matter of urgency.

Appendix 2 – Areas of Audit Focus and Control Objectives

Audit Area	Control Objectives
Strategic approach	<ul style="list-style-type: none"> the Council has established a clear, informed, timebound, and financed strategic approach to flooding and surface water management, which includes but is not limited to alignment to legislation and national guidance; known gaps in controls and the approach to resolving these, e.g. capital expenditure issues; expert guidance; partnership working; local and national climate goals; clearly defined roles and responsibilities the strategy aligns to and considers the action required as per the Council's Climate Ready Action Plan and has been approved by a governance forum.
Flood prevention and surface water management controls	<ul style="list-style-type: none"> an implementation plan is in place for the flooding and surface water strategy, which includes actions to be taken, timescales, and named responsible officers the current state of repair of all Council operated flood and surface water management systems is known, with repair, maintenance, and expenditure plans in place gaps in infrastructure are known, and plans are in place to resolve them in a timely manner there are clearly stated responsibilities for teams involved, including partner organisations, for monitoring and maintaining the infrastructure, allowing for streamlined prevention and response monitoring controls are in place to provide early warnings of potential flooding events, with clear reporting lines in place to all relevant officers and partner organisations.
Flood incident preparedness and resilience	<p>Planning and preparation for a major flooding incident</p> <ul style="list-style-type: none"> plans are in place for flooding and surface water incidents which set out how the Council will respond the plans are tested and practiced periodically, ensuring all key stakeholders are prepared, understand their roles and responsibilities, and are equipped to respond to an incident if significant flooding were to occur at any time of the day impact assessments for the various types of flooding and surface water incidents are performed regularly by experienced officers, with the assessments also being provided in response to planning applications. <p>Response, clean-up and debrief after a major flooding incident</p> <ul style="list-style-type: none"> individuals and businesses impacted by flooding and surface water incidents and decisions are kept informed, where appropriate responses to events are timely, effective, and aligned to flooding plans

	<ul style="list-style-type: none"> following major flooding and surface water incidents, there is a process of debrief and lessons learned with partners to enable continuous improvement.
Risk Management	<ul style="list-style-type: none"> risks related to flooding and surface water management are identified, recorded and managed within service risk registers, and regularly reviewed to ensure appropriate mitigating actions are in place and remain effective, with escalation to divisional and directorate level risk committees where required.