

**KINCARDINE & MEARNIS AREA COMMITTEE 27 APRIL 2010**

**STONEHAVEN FLOOD 1 November 2009**

**1 Purpose of Report**

- 1.1 This report advises the Committee of the outcome of work undertaken or ongoing in relation to the floods in Stonehaven on 1 November. The investigations cover the build up and cause of the flood, the emergency response, the recovery and future prevention and resilience.

**2 Background**

- 2.1 On Sunday 1 November 2009 Stonehaven experienced very serious flooding as a result of the River Carron overtopping its banks upstream of the Green Bridge. This was caused by over 50mm of rain (2/3<sup>rd</sup> the monthly average) falling in a period of 13 hours with the intensity increasing dramatically late afternoon. The ground was already saturated following a fortnight of exceptionally wet weather. The flood water settled in Cameron Street, Barclay Street, Allardice Street, Evan Street, Bridgefield, Arbuthnott Place and High Street affecting around 100 properties, many of which had to be evacuated in the night.
- 2.2 Following this event there have been various public meetings and debriefings and an ongoing Flood Recovery Committee. This report has drawn on and summarises:
1. Minute of Debriefing held in Stonehaven 13 November 2009
  2. Minute of Strategic Debriefing held 1 December 2009.
  3. Schedule of 60 questions asked by Stonehaven and District Community Council and associated answers.
  4. Summary of investigation to date by Principal Engineer Flooding and Coast Protection.
  5. The Strategic Coordinating Group update on flooding events in Grampian, September and November 2009.
  6. Report to Policy and Resources Committee, 14 January 2010
- 2.3 Over 50 locations across Aberdeenshire experienced flooding affecting property during this weekend. This report looks specifically at Stonehaven, although lessons learned will be shared across the Council.

**3 Discussion**

- 3.1 The key findings and any actions flowing from this are discussed below under the headings of:

Cause of the Flood  
Emergency Response  
Recovery

## Prevention and Resilience

Learning points and actions are set out in Appendix 1.

### 3.2 Cause of the Flood

3.2.1 It is now acknowledged (and assessed by Scottish Environment Protection Agency, (SEPA)) that the rainfall of 56mm on 1 November coupled with existing saturation was a 1 in 200 year event. The continuous rain all day became more intense in late afternoon on an already saturated catchment. The Carron and Cowie Rivers burst their banks at around 1800. The peak flow recorded in the nearby Bervie of 120 cumecs was 30% higher than the previous 1985 record.

3.2.2 It can be concluded that this was a very exceptional event.

3.2.3 The Carron overtopped on both its north and south banks with water flowing down Carron Terrace/Cameron Street and Low Wood Road/Dunnottar Avenue. The flood water settled at the low points, with Cameron Street, Market Square area, Arbuthnott Place and High Street being particularly badly affected with over a metre of water in places. It is important to note that road gullies are designed to efficiently remove rain water that has fallen on the road, and are not designed to have capacity to deal with river flood water. During the event significant debris was washed into the road drainage system leading to gullies becoming blocked, even although they had been cleared in August and again after heavy rain in October. While blocked gullies would not have had a major effect on the degree of flooding, it may certainly have affected the time for the water to disperse.

### 3.3 Emergency Response

3.3.1 The Council's Emergency Plans relied, at that time, on a rota whereby one Director or Area Manager is the Duty Emergency Response Coordinator (DERC) and available to be contacted by the Grampian Emergency Planning Unit (GEPU), who in turn are alerted to an emergency situation by the Police. The Transportation and Infrastructure Service also have a Duty Officer who can be called by the Police following reports of flooding, road defects, accidents etc. This person dealt with a huge number of calls across Aberdeenshire and directed resources accordingly. In Kincardine and Mearns, based in Spurryhillock, there was a supervisor and 7 Operatives on duty with primary responsibility of ensuring the safety of the road network.

3.3.2 The report of the River Carron overtopping came via the Police to the Roads Duty Officer and subsequently the Duty Emergency Response Coordinator was alerted, by the GEPU, the normal line of communication, to the fact that an evacuation was required.

3.3.3 An operational decision was taken on the ground to open Stonehaven Town Hall and in line with the Emergency Response Procedures, Mackie Academy was opened up as a Rest Centre but subsequently not required as the Town Hall fulfilled the function satisfactorily. There was a significant amount of voluntary input and the Royal Hotel provided catering and made available rooms for the

night. The WRVS were also deployed in accordance with procedures and a Housing Officer was present to assist with any requirements for accommodation.

- 3.3.4 At the debriefing in Stonehaven, it was agreed that the Rest Centre arrangements worked very satisfactorily.
- 3.3.5 Over 800 sandbags were issued from the Spurryhillock Depot. However demand outstripped supply, and Council staff had to be deployed elsewhere for road network safety reasons, their primary function requiring the depot to close temporarily, although sandbags were left outside.
- 3.3.6 The Force Operations and Coordination Centre (FOCC) stood down at 0030, Grampian Fire and Rescue Service (GFRS) were still responding to calls at 0200. The rest centre in the Town Hall was closed at 0145. At that time no arrangements were made for continuing support or actions on the following morning.

#### 3.4 Recovery

- 3.4.1 Although water, particularly in the High Street, took some time to drain away the subsequent clean up was prompt and effective.
- 3.4.2 The following morning, a number of organisations offered immediate help and had a very successful outcome. This included the Churches (who opened a soup and sandwich centre at St Bridgets), housing staff, roads and waste staff to clear and sweep the streets, GFRS to continue to pump out houses, and environmental health staff to visit premises and give advice.
- 3.4.3 Subsequently an information sheet was compiled and issued to every property in the flooded area. A meeting was convened with a range of community interests and the Scottish Flood Forum. Plans were put in place for a Support Centre, establishment of a fund, and a furniture Give-to-Bring Service, all of which run on a voluntary basis.
- 3.4.4 This was the first major flood and evacuation that had been experienced in the life of Aberdeenshire Council and, although there have been compliments about the way in which the recovery has been handled, a number of learning points emerged, relating to information, communications and rest centres. These have been addressed.
- 3.4.5 Council Officers attended an open meeting of Stonehaven Business Association a few days after the flood and the following week, also (along with representatives from Scottish Water, SEPA, Grampian Police and Grampian Fire & Rescue Service) attended an open meeting hosted by the Community Council where in excess of 50 questions were asked. These have all been logged along with the responses and any action. The document, referred to in para 2.2 above, has been added to as a result of further questions being asked at Community Council meetings. There was also the involvement of the Communications Team who ensured that clear and concise messages went out in the media.

- 3.4.6 Guidance was given and arrangements made should any businesses require temporary accommodation. However this was not taken up other than the

relocation of one business to a vacant Council property. However, this guidance can be available should there be another incident anywhere in Aberdeenshire.

- 3.4.7 The Flood Support Centre was established, hosted at the Maritime Rescue Institute (MRI) assisted with funding from the Area Committee and run by the Scottish Flood Forum with support from volunteers and has proved a very effective way of providing advice and support to people affected. An exhibition has been held to assist people with preparing and protecting their properties and becoming more resilient to flooding should it happen in the future. There has been regular meetings of the Flood Recovery Committee and a 'Stonehaven is Back In Business Day' is planned for 15 May, funded partially by Aberdeenshire Council through Economic Development.

### **3.5 Future Prevention and Resilience**

- 3.5.1 As soon as possible after the flood, emergency repairs were carried out in and around the Carron Burn. This included the removal of dislodged rocks from the bed and repairs to the training walls. In addition debris was removed from the Green Bridge and other locations as soon as it was safe to do so. Work has also been carried out to remove the sediment bank and vegetation upstream of the Green Bridge and the riverbank on Carron Terrace has been strengthened.
- 3.5.2 Historical information has been gathered and analysed and a specialist engineering consultant has been employed to undertake detailed modelling between the Walker Bridge and the sea and look at the interaction of various structures and to assist in determining any feasible medium term works in the river. This also assists with specifying a flood warning system for the River Carron and discussions have taken place with SEPA in relation to this.
- 3.5.3 Subject to funding and subsequent committee approval, the investigations on the River Carron will be extended, at the conclusion of this work, to model further upstream and appraise a full range of flood alleviations options.
- 3.5.4 The Flood Risk Management (Scotland) Act, 2009 which is currently being introduced in stages has provision for improved coordination in flood management including, flood warning systems, flood resilience and medium to long term planning for flood alleviation, the area affected by those floods is the subject of preliminary discussions for a localised resilience scheme.
- 3.5.5 Advice given to residents in relation to resilience and protecting their properties through flood gates, vent guards etc coupled with the Councils subsidised scheme for the provision of flood gates will help residents to protect their properties in the future.

## **4 Policy Implications**

- 4.1 The Council's Policies and Procedures in relation to emergency response in flooding have been followed and the experiences in this incident help to refine policies, procedures and lines of communication for the future.

## **5 Area Implications**

- 5.1 This was a very major event affecting in particular Stonehaven but there were other locations across Kincardine and Mearns which experienced flooding and over 50 locations across Aberdeenshire where properties were affected by flooding on 1 November. Changes to procedures have to be considered in an Aberdeenshire wide context.

## **6 Staffing Implications**

- 6.1 There are no staffing implications arising from this report, although it should be noted that dealing with the aftermath of this flood event have stretched staff resources. The huge amount of commitment by volunteers has to be commended.

## **7 Sustainability Implications**

- 7.1 The work which is ongoing in relation to future flood prevention and resilience will help to make communities more sustainable.

## **8 Financial Implications**

- 8.1 There are no financial implications arising directly from this report however the cost of this flood has been significant to Aberdeenshire Council as well obviously to residents and businesses. Financial implications of any future schemes to assist with flood prevention will be reported separately.

## **9 Consultations**

- 9.1 Throughout, there have been extensive consultations, across all Council Services, partners such as Grampian Police, Grampian Fire & Rescue Service, SEPA, Scottish Water and of course the community, particularly through the Grampian Emergency Planning Unit, Community Council and the business community through Stonehaven Business Association.
- 9.2 This report has been the subject of consultation with the members of Management Team, the Section 95 Finance Officer and the Monitoring Officer within Corporate Services have been consulted and their comments incorporated.

## **10 Recommendations**

### **10.1 It is recommended that the Committee :**

- a. **Note the contents of this report and in particular the fact that this was an extreme event.**
  
- b. **Endorse the actions being taken as a result of the experiences in Stonehaven on 1 November.**
  
- c. **Recognise the efforts of the community, the voluntary sector, the Scottish Flood Forum, the Royal Hotel, the Churches, Council Officers, Police, Fire and Rescue, and others in dealing with this flood and its aftermath.**

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Area Manager

Kincardine and Mearns

Report prepared by William Munro, Area Manager Kincardine and Mearns 1 April



**Summary of Analysis of Stonehaven Flood, Response, Recovery, Prevention and Resilience**

**Appendix 1**

**Sunday 1 November 2009**

Issue	Comment and Action
<p><b>The Flood:</b></p> <p>The Cause</p> <ul style="list-style-type: none"> <li>• Over 50mm (2/3 of monthly average) rain fell in 13 hours on already saturated catchment.</li> <li>• Rain became very intense late afternoon.</li> <li>• River flow on the nearby River Bervie peaked at 120 cumecs (cubic metres per second) which is 20 cumecs higher than recorded in over 30 years and 30 cumecs higher than the last significant event in 1985.</li> <li>• Nearby weather stations recorded highest levels since records began in 1959, 1979, 1983, 1985, and 1989 respectively.</li> <li>• Eye witness accounts verify this.</li> <li>• At 1800hrs the River Carron overtopped both north and south banks at the Green Bridge. By this time some debris had collected here restricting capacity but the bridge had been clear of debris beforehand.</li> <li>• It has been assessed by SEPA as a 1/200 year event.</li> <li>• It is evident that this was a very exceptional event.</li> </ul>	<p>Note</p>
<p>Warning</p> <ul style="list-style-type: none"> <li>• Although this was a 1/200 year event, there has been comment from by public that there was lack of warning</li> </ul>	<ul style="list-style-type: none"> <li>• The system of communication within the emergency planning procedures has been reviewed.</li> <li>• Although not a factor on the night, more detailed weather forecasts are now more widely disseminated.</li> <li>• A possible future self resilience scheme will include</li> </ul>

<p>Capacity</p> <ul style="list-style-type: none"> <li>The river channel did not have capacity to cope with the flow, flood related debris caught under the green bridge and road gullies became blocked with debris, the sewerage system did however cope with the flows it had to carry.</li> </ul>	<p>warnings.</p> <ul style="list-style-type: none"> <li>See section 4 – a detailed assessment is being undertaken.</li> <li>Road gullies are intended to take rain water from the road and do not have capacity to carry flood water from a river. They had been routinely cleared in August and again after the October rainfall but became blocked with debris.</li> <li>Consideration to be given to how to prevent debris in gullies in such conditions.</li> <li>Subsequently a number of gullies which had been constructed as part of build outs in 1980's have been reconstructed to today's standards and will function better in the future.</li> </ul>
<p><b>The Response</b></p>	
<p>Rest Centre</p> <ul style="list-style-type: none"> <li>Operational decision taken on the ground by GFRS Incident Commander taken in consultation with the Chair of Community Council to use Town Hall as a 'Rest Centre'.</li> <li>Difficulties in obtaining key from the leisure centre and setting heating.</li> <li>Volunteers acted as Rest Centre staff with nobody in overall control until Council Housing Manager arrived.</li> <li>Official Rest Centre at Mackie opened, set up but not used.</li> <li>Transport between Town Hall and Mackie had not been secured by time decision taken to remain at Town Hall.</li> <li>Conclusion at the debriefing that that Rest Centre worked well in circumstances.</li> </ul>	<ul style="list-style-type: none"> <li>Since this event, the Rest Centre Plan has been reviewed. It will be based on a hub and spoke system using Primary Schools as muster points and Secondary Schools as longer term Rest Centres. There is always the need to make operational decisions.</li> <li>Although the Leisure Centre is not part of plans, staff there have now been briefed on what to do if the Town Hall is required in an emergency.</li> <li>As part of Rest Centre Plan identify, train and consider standby arrangements by Council employees to staff and manage Rest Centres across Aberdeenshire. This has already been done for Stonehaven and tested in a real situation for Bervie Braes.</li> <li>All designated Rest Centres to be equipped with a Rest</li> </ul>



	<p>Centre box which includes foil blankets</p> <ul style="list-style-type: none"> <li>As part of Rest Centre Plan, the Head of Service (Transportation) is reviewing and has put in place options for procuring transport between muster points and Rest Centres.</li> </ul>
<p>Sandbags</p> <ul style="list-style-type: none"> <li>Demand exceeded availability.</li> <li>NB first priority of Council is to protect road network from flooding.</li> <li>Depot was locked at times as all operatives were out on site but sandbags left outside.</li> <li>NB all available operatives were on duty.</li> <li>It is acknowledged that sandbags are not always the best answer.</li> <li>Other resilience measures e.g.gates worked well.</li> </ul>	<ul style="list-style-type: none"> <li>Grampian Strategic Coordinating Group, through Flooding Emergency Liaison Group Team considering this issue in the context of a review of the Flooding Response Plan which is in hand to reflect new legislation.</li> <li>Make sure people understand that protecting property is the responsibility of individuals.</li> <li>Utilise partners, staff resources as appropriate.</li> <li>Council bulk buy gates, vent guards and other flood resilience measures and pass on discount (agreed at Policy and Resources Committee).</li> <li>Flood Support Centre and Partners to disseminate information on resilience and protection. Regular advice is being given and an exhibition has been held.</li> </ul>
<p>Communications (for the public)</p> <ul style="list-style-type: none"> <li>Public were unclear about which number, in this situation to call and had difficulty in getting through.</li> <li>There has been comment from SDCC that it would be better if people had a better understanding of emergency plans, who is responsible for what.</li> </ul>	<ul style="list-style-type: none"> <li>Capacity is being looked at but the volume of calls on the night was unprecedented.</li> <li>Guidance to Duty Emergency Response Coordinators now requires Corporate Communications to be notified immediately in an emergency.</li> <li>Information will be made available to advise people what to do in an emergency and summarising emergency plans.</li> <li>Specific information will be made available to people in areas where there is a known risk (this has now been done successfully for the Bervie Braes and will be part of</li> </ul>

	the implementation of new legislation relating to flooding).
<p>Communications (within the response team)</p> <ul style="list-style-type: none"> <li>• Some Officers had to deal with a large numbers of calls (roads duty Officer had over 200) and these occurred at various stages.</li> <li>• The transition from closure of the emergency response to initiation of the recovery has received comment from SDCC.</li> </ul>	<ul style="list-style-type: none"> <li>• During winter there is a control room with more staff resource.</li> <li>• Consideration to more than one person on duty if extreme weather forecast.</li> <li>• All DERC now have very extensive contact lists.</li> <li>• It is now clear in the guidance for DERC at what point this transition occurs. Experiences gained will be useful in the future.</li> </ul>
<b>Recovery</b>	
<ul style="list-style-type: none"> <li>• Initial clear up swift and effective.</li> <li>• A lot of agencies and volunteers involved but initially somewhat uncoordinated.</li> <li>• People returned to the Town Hall to look for information.</li> <li>• Complaints that no information available</li> <li>• Difficulties in knowing where people were and how many properties/people affected. Followed up with door to door enquiries and other means and the creation of a database.</li> <li>• Scottish Flood Forum made contact, and a Flood Support Centre was set up.</li> <li>• There has been positive comment about the recovery arrangements and support.</li> <li>• The furniture bring to give scheme, run by volunteers, has been very successful.</li> <li>• The Flood Relief Fund has raised £20,000 for distribution to relieve hardship.</li> <li>• Resourcing the unplanned work involved in recovery is challenging.</li> </ul>	<ul style="list-style-type: none"> <li>• A meeting was held midday the following day involving public sector agencies and SDCC to ensure clean up and support, then later in the week involving a wide range of community organisations. Future guidance will recommend the latter is convened as soon as possible as it was very productive and led to full coordination of all recovery activity.</li> <li>• The Scottish Flood Forum has been a very useful resource and would be contacted for other situations.</li> <li>• In future, where a Rest Centre is set up, guidance to DERCs will be that it should be open the following morning with staff who can provide advice. This was done for the Bervie Braes evacuation and was open and staffed all night until mid morning but nobody presented after 9pm.</li> <li>• The importance of encouraging everyone affected to report to the rest centre/muster point will be emphasised so that details can be obtained. In risk areas a database can be set up ahead as has been done successfully for the Bervie Braes.</li> </ul>

	<ul style="list-style-type: none"> <li>• An information sheet was prepared and delivered by hand is now available for any location in Aberdeenshire and advice will be that this is done immediately.</li> <li>• The involvement of Corporate Communications at the outset will improve future information dissemination.</li> <li>• A helpline has now been set up and can be activated by the DERC if required.</li> <li>• Following this event, information availability, Rest Centre plans and resources, support for those affected are all now improved as for the future.</li> <li>• Consideration is being given to resourcing of recovery periods for the future. The emergency response arrangements have been changed with a larger pool of DERCs.</li> </ul>
<p><b>Prevention and Resilience</b></p>	
<ul style="list-style-type: none"> <li>• See section 1.</li> <li>• It was an exceptionally extreme event.</li> <li>• There are a range of opinions within the community over the cause of the flood, historical practices and infrastructure.</li> <li>• There are a range of opinions within the community about what could or should be done to prevent a reoccurrence.</li> </ul> <p>-</p>	<ul style="list-style-type: none"> <li>• Immediate action carried out to replace rocks dislodged during the spate and remove debris.</li> <li>• Work complete to remove sediment bank and vegetation upstream of Green Bridge.</li> <li>• Work complete to strengthen Carron Terrace bank.</li> <li>• Work complete to review historical records, eye witness accounts, data and other evidence. This has shown that work to widen Low Wood Road in the 1980's has introduced a constriction upstream of the Green Bridge, there is a constriction between White Bridge and Bridgefield, the high tide had no effect on that night, dredging was not done routinely in the past, and development was not a factor in this event.</li> <li>• Modelling of river from Walker Bridge to sea is underway and due to be complete end April, this will assess the channel capacity and the interaction of various</li> </ul>

structures, also provide specific river level flood warning data to inform a formal or informal flood warning system, siting of gauge boards.

- Modelling of river upstream is planned to start after this phase to consider and appraise alleviation and storage options.
- Discussions have been held between Council and SEPA regarding a flood warning system, if viable, it may take some time for a system to be installed, the nature of the catchment makes this difficult.
- There has been a correlation of water levels and flow which are measured on the nearby Bervie, to those on the Carron, this has proved to be fairly accurate.
- Initial discussions have taken take regarding a self resilience scheme for Stonehaven.