

## **Terms of Reference and Commission for Investigation Denbighshire County Council**

### **Flooding events – 26<sup>th</sup>/27<sup>th</sup> November 2012**

#### Flood & Water Management Act 2010

Under the terms of the Flood & Water Management Act 2010, Denbighshire County Council, acting lead local flood authority intends to undertake an investigation into the flooding events of 26<sup>th</sup>/27<sup>th</sup> November 2012. These include flooding at Rhuddlan, St Asaph, Brookhouse and Glasdir, Ruthin.

In commissioning the investigation, the Council wishes to understand:

- Why the flooding occurred
- What the likelihood of recurrence may be
- What can/should be done by all relevant flood risk management authorities to minimise flood risk to properties in future events

The purpose of this report is not to allocate blame or fault but to investigate the cause(s) of the flood in order to determine what actions should be taken.

#### Terms of Reference

The overall investigation will address the following points:-

- a) The weather conditions during and preceding the flood events.
- b) The degree to which flood defences and other alleviation/management measures operated as intended, including specifically any factors that may have prevented their full operation.
- c) The overall flood risk assessments for the affected areas and the continued adequacy of these in the light of the flood events. This should include assessment of whether changes to river patterns and/or flood management measures have changed flood risks since earlier assessments.
- d) Whether, in the light of the flooding experienced on 26<sup>th</sup>/27<sup>th</sup> November 2012, relevant flood risk management authorities should implement modifications or additions to their flood defence, alleviation and management measures to minimise risk of future flooding to an acceptable level.

More detailed questions for the investigation are suggested in Appendix 1

#### Relevant Flood Risk Management Authorities

For the purposes of this investigation, Denbighshire County Council has identified the relevant flood risk management authorities as:-

- Denbighshire County Council, as flood management authority responsible for surface flooding and minor water courses, and also as Highways Authority for county roads
- Environment Agency Wales, as flood management authority responsible for main rivers

- Welsh Government, as Highways Authority for the A494 & A55 trunk roads

In addition, whilst not a flood risk management authority, Taylor Wimpey North West will require to input to the investigation as currently responsible for the unadopted surface water drainage system at the Glasdir estate, Ruthin.

#### Additional Independent Investigation – Glasdir, Ruthin

Whilst the impact of flooding across the County on 26<sup>th</sup>/27<sup>th</sup> November 2012 was significant, specific complexities and issues pertain to the flooding event at the Glasdir housing development in Ruthin.

To this end, Denbighshire County Council is additionally commissioning an independent investigation of the flooding at Glasdir. As well as addressing the more general points outlined above in relation to Glasdir, the Council wishes the investigator to review specifically:-

- i. The planning process relating to the development of the Glasdir site, Ruthin, including the flood risk and consequence analyses undertaken, the adequacy of these, the degree to which they were incorporated into permissions given, and adhered to during construction.
- ii. The maintenance and management regimes in place for all relevant flood risk management authorities, the adequacy of those arrangements and the degree to which such arrangements were adhered. This should include flood alert and warning systems as well as physical measures in place to mitigate and manage flood risks.
- iii. The conclusions reached by the Environment Agency in its analysis of the possible causes of flooding at Glasdir, Ruthin, and specifically whether any other contributory factors and/or mitigating measures should be taken into account.

The independent investigation report is expected to fully explore the points raised, and any relevant associated issues, and to present findings and conclusions that arise. The report is also expected to make recommendations of any further action advised for relevant flood risk management authorities to minimise to an acceptable level, the risk of significant future flooding events at Glasdir specifically.

All surveys and studies relevant to these Terms of Reference already undertaken by or on behalf of both Denbighshire County Council or the Environment Agency in relation to Glasdir will be made available to the Independent Investigator. Should s/he consider them necessary to answer the points outlined above, the Independent Investigator will also have the power, in consultation with Denbighshire County Council, to commission additional technical studies, surveys or other such analyses.

#### Independent Review of Findings

While the Council will carry out the investigation of the causes of flooding at locations other than at Glasdir, the Independent Investigator will undertake a review of the findings and conclusions from those investigations, to provide assurance of their adequacy.

### Timescale

The investigations are expected to take 3 months to complete. A final report on all parts of the investigation is therefore expected by late April 2013.

### Governance

The investigations will be co-ordinated by an officer working group chaired by the Corporate Director for Economic & Community Ambition. Membership will reflect the relevant flood risk management authorities - Highways & Planning services for Denbighshire County Council, Environment Agency Wales and Welsh Government.

The role of the working group will be to investigate the overall flood events and also to support, through the provision of relevant information and evidence, the independent investigation into the specific events affecting Glasdir.

A Stakeholder Reference Group will also be established to ensure relevant interested parties are informed about progress with the investigations and offered the opportunity to contribute and comment. The Stakeholder Reference Group will comprise the following groups:

- Local Members
- Cabinet Lead Member for Environment & Public Realm
- Leader of the Council
- Resident and business representatives from the affected communities
- Representatives from Ruthin, & Rhuddlan Town Councils and St Asaph City Council
- For Glasdir only, Tai Clywd Housing Association & Taylor Wimpey North West Ltd

### Reporting

The final report from the Investigations will be presented to full Council at its meeting on 7 May 2013.

### Exclusions

The investigations will cover the causes of the flooding events on 26th/27th November 2012, the exercise by the relevant flood risk management authorities of their responsibilities and whether those authorities need to take any specific action to minimise the risk of future significant flooding.

The investigations will not evaluate the emergency response to or recovery from the flooding events. These are separately covered in reviews being conducted by North Wales Resilience Forum. The findings from the Resilience Forum reviews will help to improve the Council and its partners' emergency response to and recovery from any future incidents, and will be reported to Members once completed.

**Detailed Questions – Flooding Event, 26<sup>th</sup>/27<sup>th</sup> November 2012**

Rainfall, Weather and Conditions

1. What were the weather, ground and river conditions that led to the flooding event?
2. Were they exceptional?
3. How likely are they and flooding of this magnitude to recur?
4. Are there any warning signs/triggers for future risk management?

Flood Alert & Risk Management

5. Are flood alert procedures and mechanisms sufficient? Did they operate as expected on 26/27 November?
6. Does the flooding event of 26/27 November raise any particular issues to be addressed by any relevant flood risk management authority?

Flood Protection & Mitigation Measures

7. Who has responsibility for the various flood protection and mitigation measures involved in the flood event?
8. Are current flood protection and mitigation measures adequate? What scale of flood can they be expected to protect against?
9. What level of flood protection is considered to be 'acceptable'? What, if anything, is needed to deliver that level of protection?
10. What was the cause of flooding at each of the affected locations?
11. Is there any evidence that blockages (in culverts or more generally on the river) caused the flood waters to overtop defences?
12. Is blockage/debris inevitable during a flood? Are flood defences designed to operate with an anticipated level of blockage?
13. What (more) can be done to minimise the risk of unmanageable levels of debris/blockage?

Glasdir issues

14. Were planning permissions for the Glasdir development granted in line with recognised practice and in accordance with relevant planning policy, guidance and regulation?
15. Were flood mitigation recommendations appropriately incorporated into the permissions granted?
16. Were the flood mitigation measures required by the planning permissions adhered to during construction?
17. Was the expert advice sought on flood risk adequate?
18. Did the sequential nature of applications for the Glasdir site affect the quality of advice given or flood mitigation measures recommended?
19. Do the culverts have sufficient capacity to manage a 1:1000 event with or without a reasonable level of blockage?
20. Should flood mitigation recommendations have specified works downstream of the culverts to direct the subsequent flow of diverted flood waters?
21. Did the design of the link road exacerbate flooding at Glasdir once the bund had been overtopped?

22. Did the surface water drainage system exacerbate flooding at Glasdir once the bund had been overtopped?
23. Could downstream blockages have contributed to the flooding at Glasdir? Specific reference has been made to the bridge/weir just north of Glasdir.
24. Are there any specific measures that need to be taken to reduce the risk of flooding at Glasdir to an acceptable level?
25. Is protection against a 1 in 1000 flood event at Glasdir achievable?

St Asaph/Rhuddlan issues

26. Did the tide contribute to flooding at St Asaph or Rhuddlan?
27. Did construction works at Foryd Harbour contribute to flooding at St Asaph or Rhuddlan?
28. Could anything more have been done to prevent overtopping of the defences at St Asaph?
29. Are defences/flood mitigation measures at both locations adequate to provide a reasonable level of protection from flooding?
30. Should additional measures be put in place at St Asaph or Rhuddlan?