

DENBIGHSHIRE COUNTY COUNCIL

FLOOD INVESTIGATION

STAKEHOLDER BRIEFING: 2

This is the second briefing note summarising progress with the Flood Investigation work being carried out by Denbighshire County Council into the incidents of flooding across Denbighshire on 26/27 November 2012. The Council is working in partnership with Environment Agency Wales and North and Mid Wales Trunk Roads Authority. The Investigation Working Group has met twice since the last Briefing note.

As a reminder, the purpose of the investigation work is to clarify:

- Why the flooding happened
- How likely it is for that scale of flooding to happen again
- Whether any improvement actions are needed to ensure flood risk in the County is appropriately managed in future

Investigation Criteria

As set out in the first Briefing note, incidents are being investigated if they meet at least one of the following criteria:

- One or more properties with internal flooding
- Disruption to critical infrastructure, e.g. roads or utilities
- A repeated 'near miss' of either of the above.

NB: The 'near miss' category has been clarified as locations with repeat 'near misses', i.e. where a pattern of new flooding may be emerging.

The Investigation Working Group is exploring whether a criteria should be included to investigate new patterns of flooding of agricultural or other open land. This is proving far from straightforward and is a topic of national, not just local, debate. Environment Agency colleagues have been participating in national discussions with representatives from the farming and private landowner sector, which may help.

The purpose of investigation work is to understand new and emerging risks and/or unexpected incidents that may need to be managed. Any criteria therefore need to be able to distinguish these from historical known and accepted flood risks. Work on this continues.

Flood Incidents under Investigation

On the basis of the agreed criteria, the following flood incident locations are being investigated:

- Rhuddlan
- St. Asaph, including properties along Lower Denbigh Road
- Brookhouse
- Gellifor
- Llanynys
- Llanbedr DC
- Park Place / Mwrog Street / Maes Ffynnon, Ruthin
- Glasdir, Ruthin
- Corwen
- Loggerheads
- Sarn Lane **NEW** (disruption to critical infrastructure)
- Glyndyfrdwy **NEW** (internal property flooding)

Investigations

The investigation work continues at all locations. Initial findings from a number of locations are summarised separately below.

Overall, hydrological and meteorological analysis suggests that the combination of a prolonged period of intense rainfall on already heavily saturated ground in the Clwyd and Elwy river catchment areas created river events with a likelihood of between 1 in 100 and 1 in 200 (or 1% and 0.5%) of happening in any given year and so are quite rare.

Data shows that the River Elwy was at its highest ever recorded level while the River Clwyd recorded its second highest level and the highest since the floods in 2000. There is no evidence that tidal conditions had any impact on the flooding.

A recent Welsh Government Flood Summit confirmed that last November's flooding in Denbighshire was the 11th worst ever recorded in England and Wales.

Initial Findings by Location

(a) Rhuddlan

Initial findings suggest that the flooding in Marsh Road & Station Road was caused by the River Elwy overtopping its banks upstream of Rhuddlan towards St Asaph. The flood water appears to have bypassed the flood defence bunds and instead flowed across agricultural land parallel to the river. The flood water then travelled along Station Road and Marsh Road, flooding lower lying properties as it did.

A total of 10 properties (residential and commercial) have been confirmed as experiencing flooding, with a maximum height of 60 cms flood water recorded in the lower lying properties.

Investigations are now focusing on whether improvements or extensions to the flood defence bunds upstream towards St Asaph are required, and also whether better channelling of potential future flood water away from properties is needed. The requirement for individual property protection is also being reviewed.

(b) St Asaph

As noted above, the River Elwy recorded its highest ever level on 26/27 November 2012. This was due to prolonged heavy rainfall and saturated ground conditions that limited the ability of the open land to absorb that rainfall. As a result the river overtopped both its banks and the flood defence bunds, leading to the flooding. The flood defences were designed to protect against a 1 in 100 likelihood event. Evidence suggests that this event was beyond that.

It is important to note that, due to the severity of the forecast weather, this overtopping was predicted and consequently it was possible to give residents an advance evacuation alert. The pattern of flooding was as anticipated in the Environment Agency's flood models for an event of this magnitude.

A number of residents have asked whether the bridge at Spring Gardens contributed to the flooding. Initial findings suggest that while the bridge does create a 'constriction' on the flow of water, in this instance it did not contribute significantly to the flooding. Data shows that the height of the water was so significantly above the level of the flood defence bunds that they would have been overtopped even if the bridge had not been in place. What is not yet clear is whether flood waters would also have overtopped in a less rare flood event and if so, what can be done to minimise that risk. Investigations on this are continuing.

Investigations have, however, ruled out any connection between operations at Llyn Aled or Aled Isaf reservoirs and the flooding that occurred. Dwr Cymru/Welsh Water has confirmed that there were no releases of water from the reservoirs and that all agreed operating procedures were adhered to.

Initial findings from the investigations of the slightly separate flood incident on Lower Denbigh Road indicate that flooding was as a result of the river overtopping its banks. A total of 21 properties were flooded. All were in known flood risk areas for 1 in 100 probability events.

c) Brookhouse

Flooding occurred to 7 residential and 1 commercial properties on the Brookhouse terrace. Initial findings are that the River Ystrad, a tributary of the River Clwyd broke its bank, with flood water entering properties through their gardens. A number of properties had already invested in individual property protection and while this does seem to

have limited flood depths, water did still enter the properties and further investigation of the reasons for this is required.

Initial findings also suggest that backflow of flood waters through the drainage system of the adjacent pedestrian tunnel under the A525 may have contributed to the incident.

d) Gellifor

1 residential property experienced internal flooding at Gellifor. Initial indications suggest that culverts containing an ordinary watercourse at this location, mostly in private ownership, were not sufficient to cope with the volume of water. Recommendations are likely to include improved maintenance to reduce the risk of future blockage, further studies of road levels and the upstream catchment, and elements of individual property protection.

e) Llanynys

Investigations are at early stages at Llanynys. Letters have been sent to all properties and replies are awaited. No findings are available yet.

f) Llanbedr DC

1 residential property at this location experienced internal flooding, there were 2 near misses and disruption was also caused to the A494 Trunk Road, although it did not require to be closed.

Initial findings indicate that the watercourse in Llanbedr DC was unable to retain flows within its banks due to a number of circumstances. These included both under-capacity and restrictions in some of the older culverts. As a result, both Lon Cae Glas and the A494 flooded. Once on the A494, initial indications are that there was not a clear channel for flood water to return to the watercourse and flood water flowed towards the flooded property. 2 other residential properties were 'near misses'.

There is also a suggestion of a slightly separate flood incident above the village on the A494. There is limited information available on this flooding. The problem may be linked to highway drainage and the Council is currently liaising with the Trunk Roads Agency on possible solutions.

g) Park Place/Mwrog Street/Maes Ffynnon, Ruthin

Initial findings have identified a low spot in the flood defence bund at Cae Ddol that allowed flood waters to overtop the defence. This has since been made good.

There is also an indication that flood waters may have backed up in parts of the Mwrog Street Flood Alleviation scheme leading to the overtopping experienced in Park Place/Mwrog Street. Non return

valves are being arranged for 3 specific gullies in Park Place & Mwrog Street.

h) Glasdir, Ruthin

The independent investigators have received their first batch of information relating to the flooding incident at Glasdir and the history of the site's development. We are awaiting their feedback on estimated timescales for completion of the investigation work.

A first meeting between the investigators and representatives of the Glasdir residents has also taken place.

Whilst not part of the investigation, the Council and Environment Agency supported Taylor Wimpey Ltd in an information session with mortgage valuers. The session was intended to help valuers prepare for how they advise mortgage lenders in the future. All valuers represented confirmed that the results of the independent investigation will be critical in determining their future position and advice, and were pleased that the work was being carried out.

i) Corwen

Flooding occurred from the River Dee and affected Green Lane, resulting in a road closure that separated the north and south sides of the town. Flooding at Green Lane is a regular occurrence and will be a difficult issue to resolve.

A second flood incident on the A5 in front of the Police, Ambulance and Fire Station has now been confirmed and is under investigation. The source of flooding is believed to be different from Green Lane.

j) Loggerheads

A single (Council owned) property has been confirmed as experiencing internal flooding despite individual property protection being fitted. Investigations are continuing.

k) Sarn Lane

Investigations are at an early stage. The location has been added to the investigation due to the impact on the road to Ysbyty Glan Clwyd. The source of flooding is thought to be separate from that affecting St Asaph and Rhuddlan.

l) Glyndyfrdwy

Investigations are at an early stage. The location has been added following confirmation of internal flooding at a residential property.

Other issues

As well as confirming initial findings for each of the locations under investigations, the Flood Investigation Working Group is also starting to consider possible solutions.

For Glasdir, the operating procedures in the event of any future flood warning have been revised and documented. This is of particular importance while we await the outcome of the independent investigations to ensure that risks, particularly of blockage of the culverts, are minimised.

Installation of a temporary water gauge in the culvert channel at Glasdir has now also been agreed to provide early warning of water entering the system, and should be in place by the end of the month.

More generally, the Working Group is sourcing best practice advice on use of individual property protection equipment, including sandbags, investigating options for easily deployable temporary flood protection systems, and understanding from Environment Agency Wales their current position on river maintenance regimes. It is anticipated that the final investigation report will include comments and recommendations on all of the above.

As set out in the first Briefing Note, while the main focus for the independent investigators is the Glasdir flood event, they are also undertaking a review of findings for the investigations carried out by the Council and Environment Agency. Clive Onions, one of the independent investigators, has now started this work for the investigations completed so far.

Timescale

The Investigation Working Group is still working towards a reporting deadline of the Council meeting in May, although this is proving challenging and may slip to June. As noted above, we are awaiting feedback from the independent investigators on the timescale for concluding the Glasdir element of the work.

A progress report will be made to Partnerships Scrutiny Committee at its meeting in April.

Rebecca Maxwell
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