

18 JULY 2016

REPORT TITLE	<i>FLOOD & WATER MANAGEMENT ACT: SIGNIFICANT FLOOD INVESTIGATION: AUGUST 22ND TO SEPTEMBER 2ND 2015</i>
REPORT OF	<i>HEAD OF ENVIRONMENT AND REGULATION</i>

REPORT SUMMARY

This report provides an update on the findings of the Flood and Water Management Act Section 19 Flood Investigation which covered the flood events from 22nd August 2015 to 2nd September 2015

A Section 19 Investigation is a statutory requirement under the Flood and Water Management Act to allow Wirral, as Lead Local Flood Authority to manage of flood and coastal erosion risk. The recommendations of the Section 19 Investigation impact directly on the following Environment Pledges in the Wirral Plan 20/20 Vision:

- **Wirral's neighbourhoods are safe:** Flooding and coastal erosion can increase the risk to life and property. By managing these risks in a strategic manner then the risks to neighbourhoods can be minimised.
- **Wirral residents live healthier lives:** The immediate impact on health following flooding is apparent however for those that live with the risk of flooding or coastal erosion the longer term health effects can be as serious. The LFRMS sets out a strategic approach, including on-going community engagement to allow those at risk to become involved in the management of flood risk.

This matter affects all Wards within the Borough.

This is not a key decision.

RECOMMENDATION/S

Members are requested to:

- (1) Note the findings of the report with regard to each relevant Risk Management Authority (RMA);
- (2) Note the recommendations in the report to allow Wirral Council, as the Lead Local Flood Authority (LLFA), to improve its response with regard to flood risk management;
- (3) Note the issue of the Flood Investigation Report to the public in accordance with the statutory requirement under Section 19 of the Flood and Water Management Act (FWMA).

SUPPORTING INFORMATION

1.0 REASON/S FOR RECOMMENDATION/S

- 1.1 The reason for the above recommendation is to enable Wirral Council, as LLFA to meet its statutory requirement under Section 19 of the FWMA 2010 to publish the results of an investigation into significant flooding in the Wirral area.
- 1.2 Section 19 of the FWMA also requires Wirral to investigate and report on the roles of other RMAs in response to the significant flood event.
- 1.3 The events of 22nd August to 2nd September 2015 are classed as “significant” when measured against the criteria set out in the Flood Investigation Policy approved by Cabinet on 12th April 2012 (minute 417 refers).

2.0 OTHER OPTIONS CONSIDERED

- 2.1 The flooding events of 22nd August to 2nd September meet the criteria of “significant” events and as such must be investigated and reported upon in order for Wirral Council to meet its statutory obligations as LLFA. No other options have therefore been considered.

3.0 BACKGROUND INFORMATION

- 3.1 On 2nd September 2015 approximately 80% of the average September rainfall total fell between 02:00 and 14:00 across the Wirral. Widespread flooding was been reported covering all areas of the Wirral. Flooding to property and highways was recorded from multiple sources, the most high profile being fluvial flooding from the Arrove Brook in Moreton. Sewer flooding was reported across the Wirral, as was surface water flooding which was particularly apparent at Greasby.
- 3.2 On 22nd August 2015 intense rainfall was also experienced in the south-east of the Wirral from Rock Ferry through to Bromborough. There were reports of sewer and surface water flooding affecting property and priority highways. Additionally isolated reports of flooding were received between these dates. As a result this flooding investigation covered the period from 22nd August 2015 to 2nd September 2015 inclusive.
- 3.3 A Flood Debrief session with Key Agencies and Risk Management Authorities was held on Tuesday 15th September and all parties were informed of the flood investigation. Additionally a Flooding Drop-In session for the public was also held on Wednesday 16th September at Moreton Community Centre, hosted by Wirral Council, the Environment Agency, United Utilities, Magenta Housing and the Citizen’s Advice Bureau. Attendees were informed of the Council’s obligation to investigate and report on the flooding incident.
- 3.4 Due to the scale of the flooding incidents and limited internal resource to undertake the investigation a decision was taken to appoint an independent consultant to carry out all investigation work, liaise with all involved RMAs and produce the final

Section 19 Flood Investigation Report. Mini-bids were invited from consultants registered on the Environment and Sustainability Lot of the North West Construction Hub via The Chest, in line with extant contract procedure rules. A single quotation was received and accepted and AECOM were commissioned to undertake the Section 19 investigation and report.

3.5 The commission was split into four key tasks:

Task 1: Review of Flood Events

This task required AECOM to obtain and analyse rainfall and river level data from all relevant agencies in order to define the severity of the events using the probability of occurrence in any one year. This “return period” is important in understanding how drainage systems coped during the flood events and whether the flooding caused was as a result of design standards being exceeded or whether operational issues caused the flooding.

In addition a Flood Defence Consent for a temporary crossing on the Arrowe Brook was in place and reported in the local media. This task also required AECOM to review all data relating to the crossing, which was constructed by a contractor to United Utilities, to determine whether it had an impact on river flow rates and levels upstream at Moreton.

Task 2: Identify Flooding Locations, Types and Causes of Flooding

Task 2 required AECOM to collate and combine all recorded data relating to flooding. All RMAs represented at the flooding de-brief in September were contacted and the resultant data was combined into a single dataset. Data was then analysed to identify areas that had not been subject to investigation on site and to identify clusters of flood areas.

Task 2 also required AECOM to undertake site visits to verify flooding information and also to provide advice to householders where necessary. Site visits were supplemented with a questionnaire hosted online. Residents identified as having been affected by the flood incidents were written to individually and directed to the online questionnaire to provide additional information to aid the investigation. The online questionnaire was also written to gauge whether residents had a knowledge of flood risk and whether they had become more resilient as a consequence of the flood events.

A meeting with the Environment Agency and United Utilities was also held to discuss and agree the initial findings arising from Task 2.

Task 3: Review of Flood Risk Management Agencies' Actions

Task 3 considered the actions taken (or not taken) by the relevant RMAs and required AECOM to collate and produce a timeline of the incident by combining information already produced by RMAs. Any gaps identified were to be subject to further investigation.

Task 4: Recommendations for Action

The conclusion of the investigation and report is the production of recommendations for all RMAs to take forward to improve their response to flood risk management. AECOM were also required to identify areas where Regional Flood and Coastal Committee Levy could be used to provide quick wins in delivering some of these recommendations.

3.6 AECOM started their commission in early November 2015, however Tasks 2 and 3 were delayed as a consequence of other RMA resources being allocated to deal with flooding in Lancashire and Cumbria during December 2015.

3.7 The draft findings of the Section 19 Flood Investigation were presented at the Wirral Flood and Water Management Partnership Meeting on 19th April 2016. A two week opportunity was provided for additional comments from all RMAs and the report was finalised on 13th May 2016. The full Section 19 Flood Investigation Report is attached as Appendix 1.

3.8 The findings of the Section 19 Report are as follows:

- The assessment of rainfall that fell in two pulses on 1st and 2nd September 2015 equates to a rainfall rarity event of 1:84 (1.2% chance of occurrence in any one year). As a guide the Water Industry Act requires sewers to be designed to a minimum of a 1:20 year return period.
- No rainfall data has been made available for the 22nd August 2015 event.
- The Met Office predictions of rainfall and risk did not warrant issue of a National Severe Weather Warning Service for rainfall.
- The Environment Agency (EA) flood warning service for Moreton is triggered by river levels measured at Greasby. The trigger level was not reached on 2nd September and in accordance with procedure, no warning was issued for Moreton.
- The EA issued a flood alert for the Birket catchment at 14:26 on 2nd September when the trigger level at the Great Culvert at Bidston was reached.
- Flooding at east Greasby (Joan Avenue, Greasby Road) was caused by a combination of surface water overland flows and exceedance of the surface water sewer network as a consequence of the high intensity and volume of rainfall (1:84 rarity event)
- Flooding at central Greasby (Rigby Drive, Howell Avenue, Lloyd Drive, Arrowe Road, Rylands Hey) was caused by a combination of surface water overland flows and exceedance of the surface water sewer network as a consequence of the high intensity and volume of rainfall (1:84 rarity event)
- Flooding at west Greasby (Rowan Close) was caused by a blockage on surface water sewer and the capacity of the ordinary watercourse being exceeded.
- Flooding in Moreton has been subject to hydraulic modelling by both EA and United Utilities (UU) to determine the likely effect of the consented Arrowe Brook crossing downstream. The model reports have been reviewed by AECOM and they conclude that the flooding was caused by high river levels as a consequence of a backwater effect due to high river levels in the downstream River Birket. At Moreton high river levels exceeded the bank capacity leading to fluvial flooding and also caused surface water sewers to be unable to discharge. Additionally rainfall intensity and volume caused the capacity of the surface water sewer network to be exceeded.
- At North Cheshire Trading Estate fluvial flooding occurred due to the capacity of the open sections of watercourse (Prenton Brook) being exceeded as a consequence of the high intensity and volume of rainfall (1:84 rarity event). Flooding was

compounded by a low spot in the access road retaining floodwater until the adjacent Prenton Brook had sufficient capacity.

- Flooding at Irby, Thingwall and Pensby was caused by the hydraulic capacity of surface water sewers being exceeded as a consequence of the high intensity and volume of rainfall (1:84 rarity event). Local variations in highway layout exacerbated internal flooding by directing surface water towards property.
- In total 73 properties are verified as having internal flooding on 2nd September with 57 locations of external flooding. 138 flooding reports remain unconfirmed. Critical infrastructure in the form of key transport links were also affected.
- 7 properties are verified as having internal flooding on 22nd August with 3 locations of external flooding. 10 flooding reports remain unconfirmed. Critical infrastructure in the form of key transport links were also affected.
- Despite the flooding events, door to door enquiries from all agencies and the flooding drop-in session, the findings of the flooding questionnaire highlight that the majority of residents affected by flooding still do not know how to better prepare for future flooding incidents.

3.9 The Section 19 Report has also identified a series of recommendations to improve the response to flood risk during future events. These wide-area recommendations apply to various RMAs and are detailed in full in the Section 19 Report, but summarised below:

- Improve communication and encourage residents to report flooding issues.
- Investigate capacity change at Wirral's call centre and / or linking to EA Floodline Direct service.
- Ensure recording systems accurately capture flooding details
- Work with communities to improve awareness of flood risk.
- Develop local flood groups to ensure flood risk is better understood.
- Review flood forecasting arrangements for Moreton
- Investigate and identify sewer capacity issues
- Improve contingency planning, particularly at North Cheshire Trading Estate
- Investigate and encourage the implementation of Sustainable Drainage, through the planning process, but also at east Greasby.
- Increase take-up of property level protection
- Prioritise investigation for repeat flooding locations

3.10 The Section 19 Report also identified site specific recommendations to improve flood risk management. These, and the area-wide recommendations above will form part of an Action Plan to be delivered through Wirral's Operational Flood Group which brings together the RMAs involved in the production of the Section 19 Report. Wirral's Flood and Water Management Partnership will monitor progress on the delivery of the recommendations.

3.11 The Section 19 Report also identifies a series of "Quick Wins". The Regional Flood and Coastal Committee provided Local Levy of £50,000 to the Merseyside Strategic Flood Partnership to deliver quick wins with regard to flood risk management. The Merseyside Partnership agreed, in October, that the Merseyside allocation could be used to deliver quick wins identified as part of the Section 19 Flood Investigation into the Wirral Floods. Use of the £50,000 funding will also be monitored through the Wirral Flood and Water Management Partnership.

4.0 FINANCIAL IMPLICATIONS

- 4.1 The Section 19 Investigation and Report was funded through the Lead local Flood Authority allocation that Wirral receives to fulfil its duties under the Flood and Water Management Act. The total cost of the commission was £21,793.
- 4.2 Local Levy of £50,000 has been made available by the Regional Flood and Coastal Committee to help deliver some of the “Quick Wins” identified in the investigation report to improve community resilience.
- 4.3 The recommendations of the report identify areas for further investigation which may ultimately lead to scheme delivery to reduce flood risk. Grant Aid, administered by the EA, for studies and works is available but is subject to submission of a satisfactory business case. Furthermore Local Levy provided by the RFCC is available but also subject to the same economic appraisal. Both funding streams are unlikely to provide 100% scheme or study costs and further “Partnership Funding” contributions will be required to address the shortfalls.
- 4.4 After the Winter Storms of 2014/14 the government introduced a package of Flood Support Schemes to enable householders and businesses recover from flooding. In 2014 the government extended the schemes retrospectively to 1st April 2013 so that anyone affected by flooding that year was not disadvantaged. In December 2015 the government re-introduced the Flood Support Schemes in response to the flooding caused by storms Desmond and Eva. Application was made to the Department of Communities and Local Government and through the RFCC to retrospectively extend the schemes to cover the period of the Wirral Floods. The applications have not been successful and there is no opportunity for residents to avail themselves of grants up to £5000 to improve their properties’ resistance and resilience.

5.0 LEGAL IMPLICATIONS

- 5.1 By investigating and reporting on the significant flood events of 22nd August 2015 to 2nd September 2015 the Council, as Lead Local Flood Authority is fulfilling its statutory obligations under the Flood and Water Management Act 2010.

6.0 RESOURCE IMPLICATIONS: ICT, STAFFING AND ASSETS

- 6.1 The recommendations of the Section 19 Report identify two areas where there may be future resource implications for the Council:
 - Investigate capacity change at Wirral’s contact centre. The investigation noted that on 2nd September the contact centre was unable to cope with the volume of calls.
 - Community Flood Groups. Building on the messages from the online questionnaire about the lack of understanding around flood risk and improving community resilience more work is required within the flood affected communities to improve awareness. This work would be best suited for delivery with the Constituency Teams.
- 6.2 Flood risk is managed through a number of different types of assets (gullies, drains, sewers, watercourses and main rivers) with responsibility falling across many Risk Management Agencies. The report recommendations identify issues with assets and these will be addressed as part of the duties of the relevant Risk Management Authority.

7.0 RELEVANT RISKS

- 7.1 The Flood and Water Management Act creates a statutory obligation on Wirral as Lead Local Flood Authority to investigate and report on significant flooding events. In April 2012 Cabinet agreed the policy which identifies when to undertake an investigation. The policy and Flood and Water management Act specify that the investigation report must be made publically available.
- 7.2 Failure to approve the 22nd August to 2nd September 2015 Flood Investigation Report for publication would put Wirral, as Lead Local Flood Authority, in breach of its statutory obligations.

8.0 ENGAGEMENT/CONSULTATION

- 8.1 The Section 19 investigation required engagement with local residents and also with key stakeholders including Risk Management Authorities. A full list of key stakeholders is included within the Section 19 Report.
- 8.2 The first draft of the Section 19 Report was shared with the Environment Agency and United Utilities for initial comment. The second draft of the report has been shared with all stakeholders that attended the flooding de-brief in September 2015 and also attendees of the Wirral Flood and Water Partnership.

9.0 EQUALITY IMPLICATIONS

- 9.1 There are no equalities implications associated with this report.

REPORT AUTHOR: *Neil Thomas*
Team Leader – Highway Assets
telephone: 0151 606 2333
email: neilthomas@wirral.gov.uk

APPENDICES

Wirral Borough Council:
Section 19 Flood Investigation: 22nd August and 2nd September 2015 (AECOM)

REFERENCE MATERIAL

Wirral Council Section 19 Flood Investigation Policy (April 2012)

SUBJECT HISTORY (last 3 years)

Council Meeting	Date
Cabinet Member Briefing Report – Environmental Protection Flood & Water Management Act : Significant Flood Investigation : August 22nd to September 2nd 2015	23 May 2016