

# Ellesmere Port Main Report Details

Project:	Storm Christoph Section 19 Main Report		
Area:	Ellesmere Port		
Date:	10/08/2022	Project No.:	5150735

## Document history

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
1.0	Draft for RMA Comment	SF	TS	EJG	EJG	10/08/22
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## Client signoff

Client	Cheshire West and Chester Council
Project	Storm Christoph Section 19 Main Report
Project No.	5150735
Client signature / date	

# Ellesmere Port Main Report Details

This Ellesmere Port specific Main Report should be read in conjunction with the Section 19 Flood Investigation – Main Report (January 2021 Storm Christoph Flooding Event).

## 1. Background

Ellesmere Port is a town on the south eastern edge of the Wirral Peninsula, approximately 10km north of Chester. To the north of the town is the River Mersey. To the west of the town Rivacre Brook runs northwardly before discharging to the River Mersey. Both the River Mersey and Rivacre Brook are classified as main rivers and are therefore under the responsibility of the Environment Agency (EA). The Shropshire Union Canal also runs through the east of the town.

Rivacre Brook originates in Capenhurst, close to the Capenhurst Industrial and Commercial Park. The brook flows eastwards towards the A41. A culverted section flows beneath St Martins Drive and Foxall Way before an open channel section immediately west of the A41, at which point another open channel joins from the north. Rivacre Brook then flows beneath the A41 and Spinney Drive, through twin 1.2m diameter pipes, and emerges in an open channel parallel to Ascot Drive at which point a surface water drain from the Archers Brook School discharges. Rivacre Brook continues beneath Chase Way through what appears to be a brick culvert, subsequently opening out at the rear of properties on Ascot Drive before flowing beneath Baker Drive to the north. An EA stage gauge is located immediately upstream of the Chase Way culvert.

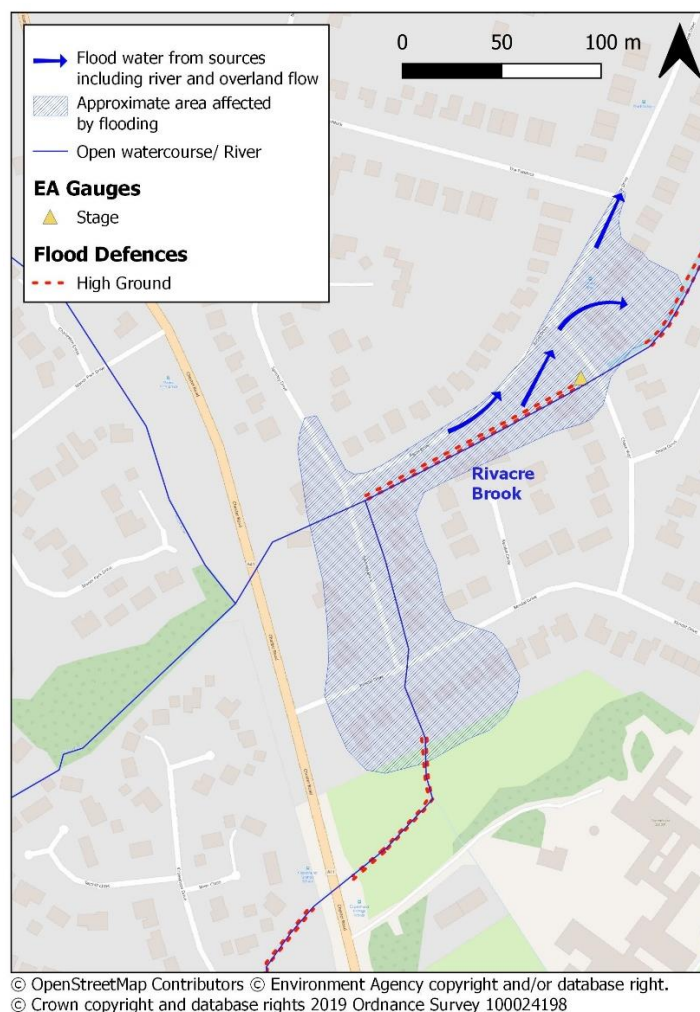
The drainage network in the area is mostly a United Utilities (UU) combined system in addition to Cheshire West and Chester Council (CWaC) highway drainage.

Flooding occurs regularly in Great Sutton during heavy rain. Most of the affected properties are located within EA Flood Zones 2 and 3, and within the low to high surface water flood risk zones (Appendix I).

## 2. Flood Review

Flooding of properties was reported in Great Sutton, an area of Ellesmere Port through which Rivacre Brook runs. Property flooding was also reported in Wolverham and Overpool, however the exact details of the flooding are not known. Highway flooding in Ellesmere Port was reported on Ledsham Hall Lane and Little Stanney Lane (under the M53 bridge).

Flooding occurred at Great Sutton due to the capacity of the channel being insufficient for the volume of water, which led to overtopping which combined with surface water to cause extensive flooding. Flooding was reported at properties on Kendal Drive, Spinney Drive, Ascot Drive and Chase Way. The exact details of the flooding at properties on Kendal Drive and Spinney Drive are not known. Figure 1 shows details of the flood route for properties on Ascot Drive and Chase Way, developed in consultation with CWaC, as Lead Local Flood Authority (LLFA), and the affected property owners.



**Figure 1 - Great Sutton Flooding Overview**

It is reported that Ascot Drive regularly floods during heavy rain; water often pools at the low-lying section of the road where road gullies are unable to cope with heavy rain. The road gullies discharge to Rivacre Brook.

The Rivacre Brook catchment responds very quickly to heavy rainfall meaning that there is very little time between rain falling and the water flowing through the brook. During the Storm Christoph event, levels rose rapidly in Rivacre Brook, which then backed up at the culvert under Chase Way and overtopped the bank. The overbank flow then joined with the surface water flooding on Ascot Drive. Flood water travelled past properties on Chase Way and down Ascot Drive, the water flowed down driveways and through rear gardens of properties on Ascot Drive to re-enter the Rivacre Brook Channel downstream of Chase Way.

Residents reported that:

- They did not receive a flood warning on the day of the event prior to water coming out of bank, this reportedly occurred when water was already close to entering properties.
- Residents took down fence panels at the rear of gardens on Ascot Drive to allow flood water to re-enter the channel downstream of Chase Way.
- Traffic on Ascot Drive and Chase Way sent waves of flood water into properties. During the event residents contacted the police to try and get the roads closed, however it reportedly took 10 hours before police visited the area to close the roads.
- Water levels were up to 600mm deep within properties.
- Residents are concerned that upstream development in the catchment is contributing additional flows during storm events. They are particularly concerned of the impact of the development of up to 2,000 homes on land near Ledsham Road in Little Sutton.

- Residents have raised concern that operators on the business park at Capenhurst may release large volumes of water into the system during storm events as observational accounts report that the river levels rise extremely quickly as if water has suddenly been released upstream (LLFA to consult with EA to understand whether this could be due to the flashy nature of the catchment).
- The right bank of Rivacre Brook downstream of Chase Way was eroded during the high flows of Storm Christoph.
- Residents report that garden waste is sometimes disposed of into Rivacre Brook channel downstream of Chase Way.
- There are safety concerns regarding children playing in and around the culvert openings.

Figure 2 and Figure 3 illustrate the severity of the flooding at Great Sutton.



**Figure 2 - Ascot Drive. 20/01/21 15:05.**

Source: Resident



**Figure 3 - Rear garden of Ascot Drive Property. 20/01/21 16:14.**

Source: Resident

## 2.1. Area Summary

Key statistics of the Storm Christoph Flooding in Ellesmere Port are summarised in Table 1. A detailed timeline of the flood event can be found in Appendix II.

**Table 1 - Flood Impact Summary**

Residential properties affected:	Commercial premises affected:	Number of properties evacuated:	Number of properties flooded:	Number of domestic properties flooded:	Number of commercial premises flooded:	Comment
30	0	7	18	18	0	As reported to CWaC prior to publishing

Table 2 provides a brief summary of the flood event, impact and response in Ellesmere Port.

**Table 2 – Ellesmere Port**

Ellesmere Port	
Date	<ul style="list-style-type: none"> <li>20<sup>th</sup> January 2021</li> </ul>
Affected Roads	<ul style="list-style-type: none"> <li>Great Sutton: Kendal Drive, Spinney Drive, Chase Way, Ascot Drive</li> <li>Wolverham: Malvern Avenue</li> <li>Overpool: Christleton Drive, Blakemere Court, Merseyton Road, Myrtle Street</li> <li>Highway Flooding: Ledsham Hall Lane, Little Stanley Lane</li> </ul>
Flood Alert / warning issued?	<ul style="list-style-type: none"> <li>Wirral catchment with Heswall, Ellesmere Port, Bebington, Hoylake and Wallasey 18/01/21 20:34 (Alert)</li> <li>Rivacre Brook at Great Sutton 20/01/21 14:29 (Warning)</li> </ul>
Flooding Impacts and Observations	<ul style="list-style-type: none"> <li>Property damage</li> <li>Risk to life</li> </ul>

Summary of Flooding Incident Response During Event	<ul style="list-style-type: none"> <li>• Displacement of residents for up to 6 months while property repairs occurred</li> <li>• Additional stress and mental anguish on the community over such an event happening again</li> <li>• Residents used their own sandbags to protect their properties</li> <li>• Fire service visited the area before the peak of the flooding to check if residents needed help evacuating and to ensure residents turned their gas and electricity off</li> <li>• Residents called police to close Ascot Drive and Chase Way but was reported that the road closures did not occur until after damage had already been caused by traffic</li> <li>• Environment Agency Community information Officers attended site on 23rd January to speak to residents and collate flood information.</li> </ul>
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The following actions have been undertaken since the event:

- Meeting on site with affected residents 14<sup>th</sup> October 2021 with CWaC, as LLFA.
- Some residents have taken steps towards protecting their own properties through installation of property level protection such as non-return valves on toilets, flood gates on doors and sealing air bricks.
- Residents has established a community led group to coordinate communications and actions associated with Storm Christoph and flood prevention and mitigation.
- The EA has attended site alongside members of the local community.

## 3. RMA Response

This section outlines the RMA) response to the flood event at Ellesmere Port. Consultations with participating RMAs and local residents have informed this assessment. The responses taken have been differentiated between actions taken during and immediately after the event and the longer-term actions taken.

### 3.1. During and Immediately after Storm Christoph

- The police were asked to close the affected roads on Ascot Drive and Chase Way but were unable to complete these closures during the peak of flooding which allowed vehicles to pass, pushing water into property.
- EA Community information Officers attended EA site on 23rd January to speak to residents and collate flood information.
- The EA has continued to maintain the debris screens at Chase Way, including the removal of debris from the screen, they have surveyed Rivacre Brook and continue to remove any reported blockages from the channel.
- CWaC has undertaken investigation and maintenance activities of the highway drainage system to ensure all of the highways gullies are in good condition and operating at full capacity.
- During CCTV investigations it was discovered that an outfall into Rivacre Brook had been blocked by upstream of the culvert on Chase Way. This slab has been removed and a headwall will be installed to formalise this outfall.
- The FloodHub has been promoted at several engagement events and during site visits with affected residents. A link is also included from the Flood pages of the CWaC website.
- Residents have been encouraged to sign up to the EA flood warning service.

### 3.2. Strategic Response

- A public engagement event was held on the 10<sup>th</sup> February 2022 at which CWaC and it's RMA partners invited questions and concerns before providing answers.

- CWaC, as LLFA, is moving towards a risk-based approach to gully maintenance; increasing the frequency of cleansing to those gullies identified in areas at risk of flooding.
- The CWaC planning team has confirmed that the construction work undertaken at Archers Brook School was completed in accordance with the relevant planning permission and does provide the required attenuation on site. The EA undertook enforcement activity to support this.
- The CWaC planning team has confirmed that the development at The Chase has been constructed as set out in the relevant planning permission with the required attenuation being provided.

CWaC, as LLFA, have consulted with URENCO regarding discharge from the Capenhurst Industrial Site to Rivacre Brook. URENCO have confirmed that:

1. All discharges from the site are within permitted limits.
2. Adhoc discharges do sometimes occur associated with operational and maintenance activities, these can be managed to align with wider environmental conditions such as rainfall events.
3. Recent developments on site have all met with planning requirements to ensure that there is no increase in surface water discharge from the site post construction. Therefore, no increase in flow associated with construction projects is expected to have occurred.
4. Works were undertaken in 2019 to reinstate drains carrying Rivacre Brook onto and through the site. It is considered that this work may have increased flow rates through the site to the receiving Rivacre Brook downstream.
5. Foul water from the site is treated at the Capenhurst Sewage Effluent Treatment Plant (SETP) on site before discharge to Rivacre Brook.
6. Flow rates from the flow meter at the final outfall from the site are recorded by means of hand records. URENCO intend to install a data logger to automatically record flow rates.

## 4. Recommended Actions

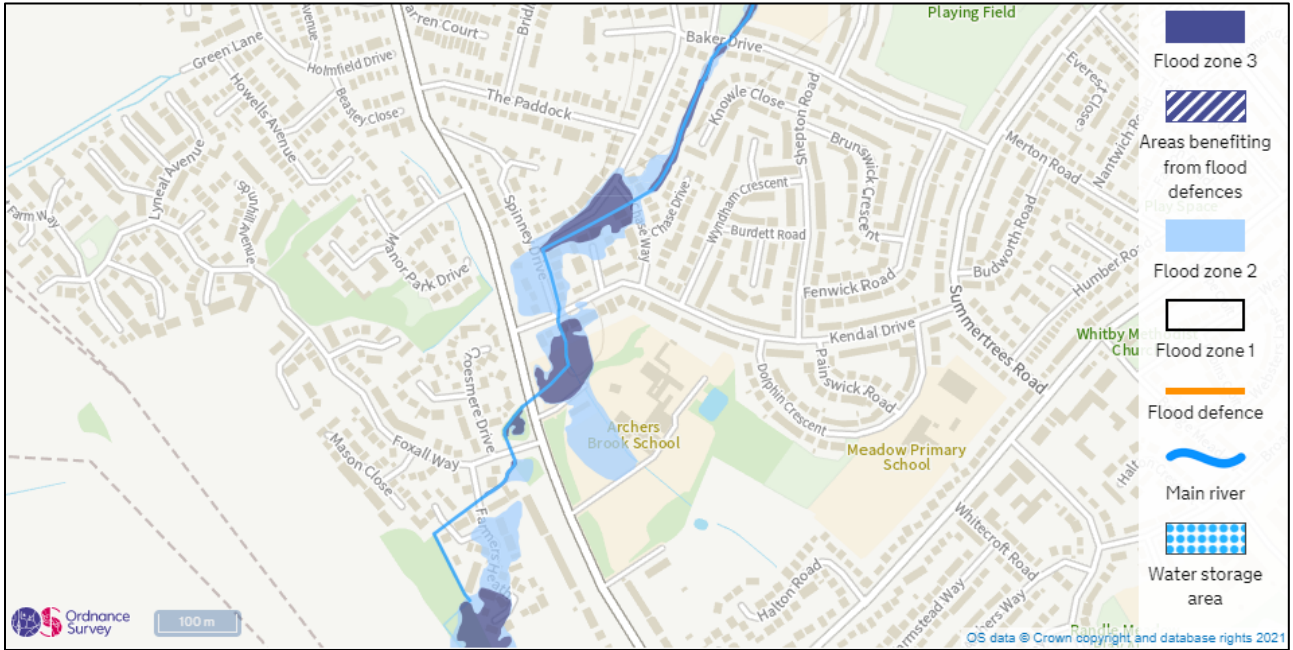
The following actions are recommended:

- LLFA to support affected residents further explore opportunities for individual property protection measures.
- LLFA to encourage the residents' group to put in place a localised community resilience plan.
- LLFA and the EA to liaise with the local community about safety concerns that may exist regarding access to culverted watercourses. The EA have identified the possibility to provide some safety around water events with local schools.
- Given the rural nature of the catchment to the west of the A41 between the residential area and the Capenhurst site, there may be opportunities to implement some form of attenuation. Similarly, there may be opportunities for attenuation between Archers Brook School and the properties on Kendal Drive. It is recommended that the LLFA, alongside the EA, assess whether there are viable options to provide attenuation in these areas to delay water entering and progressing through the system.
- The combination of flood water sources, reportedly backing up or because of insufficient capacity of the highways drainage system in combination with out of bank flow from Rivacre Brook, indicates that improvements to the capacity of the highway drainage system could be beneficial. However, before doing so it is necessary to understand the influence of water levels in Rivacre Brook on the highway drainage and whether flooding from insufficient drainage capacity alone would occur. Similarly, given that UU surface water systems discharge directly to the brook in this area too, these drains should also be assessed. It is recommended, therefore, that CWaC continue to work in partnership with relevant RMAs to undertake an investigation to determine whether there are sufficient benefits associated with increasing the capacity of the drainage systems and if so, assess viable options.
- CWaC, as Planning Authority, to continue to give high degrees of scrutiny to the impact of future development on the rates of surface water runoff and the subsequent impact to flood risk, making recommendations for appropriate levels of on-site attenuation and controlled discharge rates. This will apply to the proposed Agawate development.

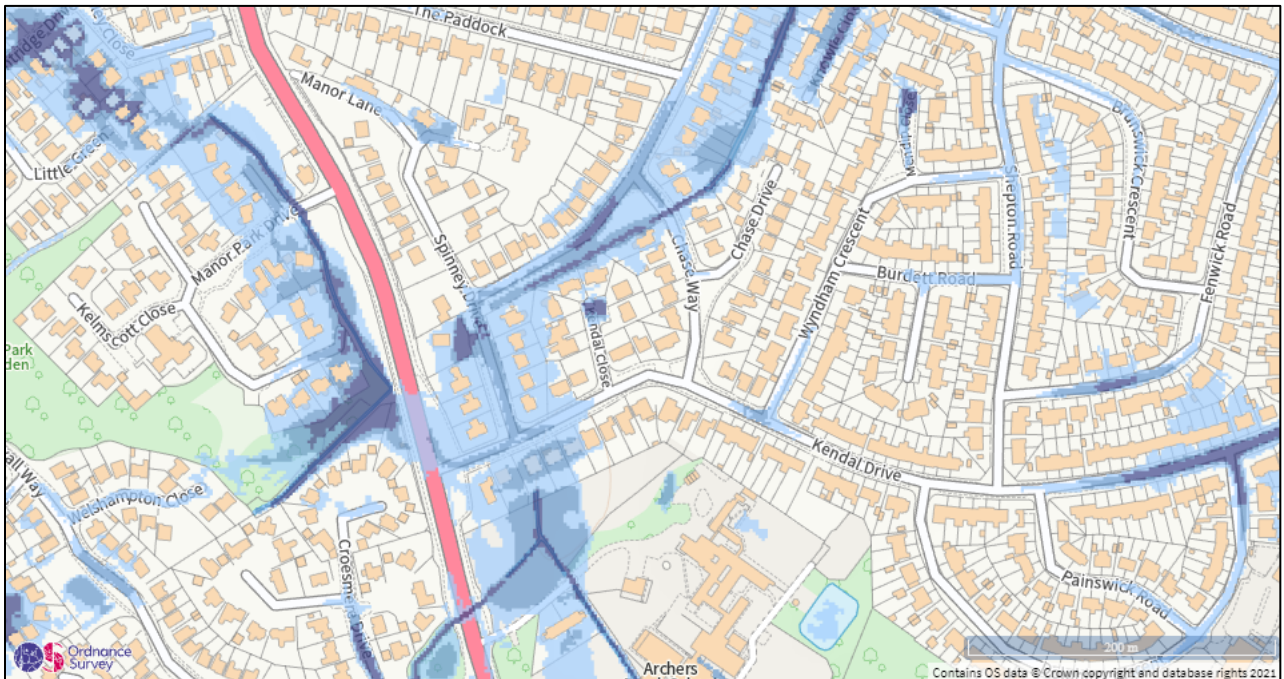
- LLFA and the EA to continue to liaise with URENCO to understand the discharge regime from the site in more detail and investigate whether adhoc discharges could be made outside of rainfall events. Consideration of potential environmental impact may be required.
- A more proactive traffic management strategy should be adopted for the affected area. The LLFA should take the lead in developing this strategy in collaboration with residents and the emergency services to ensure vehicles do not push water towards, and into, property.
- The EA is developing a strategy to communicate the responsibilities of riparian landowners whose land borders a watercourse. This needs to communicate the need to avoid placing garden waste or other waste into watercourses as it can lead to blockages at structures and or reduce capacity.
- LLFA to liaise with the EA to request their inspection of the Rivacre Brook culvert beneath Chase Way to assess whether there is the opportunity to increase the opening and if so, whether this is likely to increase the capacity of the culvert.



# Appendix I - Map



Source: EA



Extent of flooding from surface water

- High
- Medium
- Low
- Very low

Source: EA

## Appendix II – Timeline

Time	Great Sutton
20 <sup>th</sup> Jan 12:00	Flood water ponding at low point of Ascot Drive
20 <sup>th</sup> Jan 14:00	Flood water had started to flow up Ascot Drive and was beginning to flow down driveways of properties on Ascot Drive
20 <sup>th</sup> Jan 16:00	Water was up to 600mm depth within properties
20 <sup>th</sup> Jan 18:00	Residents had, or were, evacuating as no more could be done to mitigate flood damage