Section 19 Flood Investigation

Bootle and Seaforth 30th September 2024

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Executive summary

On the 30th September, 2024 prolonged heavy rainfall caused significant disruptions to communities in Bootle and Seaforth around Bulwer Street, Deepdale Avenue, Riverside Close, Bowles Street (Bootle) and Seaforth Road and Muspratt Street (Seaforth) where 62 flood reports were received of which 37 were internal flooding.

Sefton Council as the Lead Local Flood Authority (LLFA) has a role to carry out investigations into flooding incidents if they meet the set thresholds. The flood investigation policy can be accessed here Managing Flood & Coastal Erosion Risk in Sefton.

The LLFA will:

- Identify and explain the probable cause/s of flooding.
- Identify which authorities, communities and individuals have relevant flood risk management powers and responsibilities.
- Provide recommendations for each of those authorities, communities, and individuals to reduce future flood risk and increase property resilience; and
- Outline whether those authorities, communities or individuals have or will exercise their powers or responsibilities in response to the flooding incident.

The LLFA cannot:

- Resolve the flooding issues or provide designed solutions; or
- Force Authorities to undertake any of the recommended actions.

Whilst the area is known to have significant risk of flooding from surface water, the main cause of the flooding during this event was due to a failure of the automated control system in the combined sewer, operated by United Utilities.

The report provides recommendations to reduce the risk of future flooding in the area. These recommendations are not guaranteed to provide fail-safe measures in future occurrences as the environmental conditions may be different.

History of flooding

The following table details the records of flooding Sefton Council hold. More may have happened but may not have been reported directly to Sefton Council:

Date	Source / cause	Impacts
12/05/2010	Combined sewer flooding	2 properties flooded internally
27/06/2010	Combined sewer flooding	30 properties flooded internally
14/02/2020	Combined sewer flooding	Contained to highway

Table 1: Historic flooding events reported to Sefton Council

Incident

Overview

Rainfall data for the area showed that there was a heavy downpour on the evening of the 29th September at 6-7pm, this was followed by moderate/light rainfall throughout the night. At around 6am 30th September the rainfall rate rose above 4mm/hour and persisted above this rate until 5pm. The peak rates were at 10:15am at 14mm/hr and between 14:00 and 15:15 when the rate peaked at 17.5mm/hr (average 14.5mm/hr) (Figures 1 and 2).

Whilst the rainfall event was prolonged the rates of rainfall and volume of rain weren't extremely high, however, the location of the flooding is the meeting point of several large, combined sewers that then enter the Mersey Estuary Pollution Alleviation Scheme (MEPAS) sewer. Sewer converging here serve Litherland, Seaforth, north Bootle, approx. half of Netherton, and small areas of Crosby and Waterloo.

On the afternoon of the 30th September calls began to be received from residents and Merseyside Fire & Rescue Service to Sefton Council stating flooding of a significant depth was happening and entering residential properties and they wanted some assistance Figures 3. Residents had been advised by United Utilities (UU) to contact Sefton Council due to the heavy rain it will be surface water flooding. However, from past events in this area this extent of flooding has been caused by an issue on the combined sewer system. Sefton Council therefore contacted UU's incident room to explain this and advised them to send operatives to the site to investigate as foul sewerage was present.

Upon inspection by UU the flood waters were confirmed to be from the combined sewer system and UU took on the main responsibility of handling the flooding incident. It was observed that there was a failure on the system where the combined sewers and drains connect to the major drainage system called Mersey Estuary Pollution Alleviation Scheme sewer. At this junction, automated gates should operate on two outfalls which are designed to enable flows into the River Mersey when the system capacity would be exceeded, normally during storm conditions. Unfortunately, the gates in the outfalls operated by the automated system, appeared to be closed, causing the flood waters to back up and flood the highways and properties. The Fire Service, UU, Police and Sefton Council attended the area evacuating residents to safety and set up a rest centre for affected residents. UU enacted their manual override of the gates to open them, and the flood waters subsided quickly. Figures 3-8 show the impact of the event.

In the days following, UU had the automated system analysed for faults both electrical and software and ran various scenarios through the system to find out why the gates did not open. It was discovered that there was a coding issue under the scenario that happened during the event which confused the system which made it unable to open the gates. System failures of this nature only occur in very rare and exceptional circumstances, and this unfortunately was only discovered during this event at this location. Updates to the system have been made and are being monitored closely.

In terms of recovery, UU are leading with support from the Council with regards to the social housing that was affected during the event.

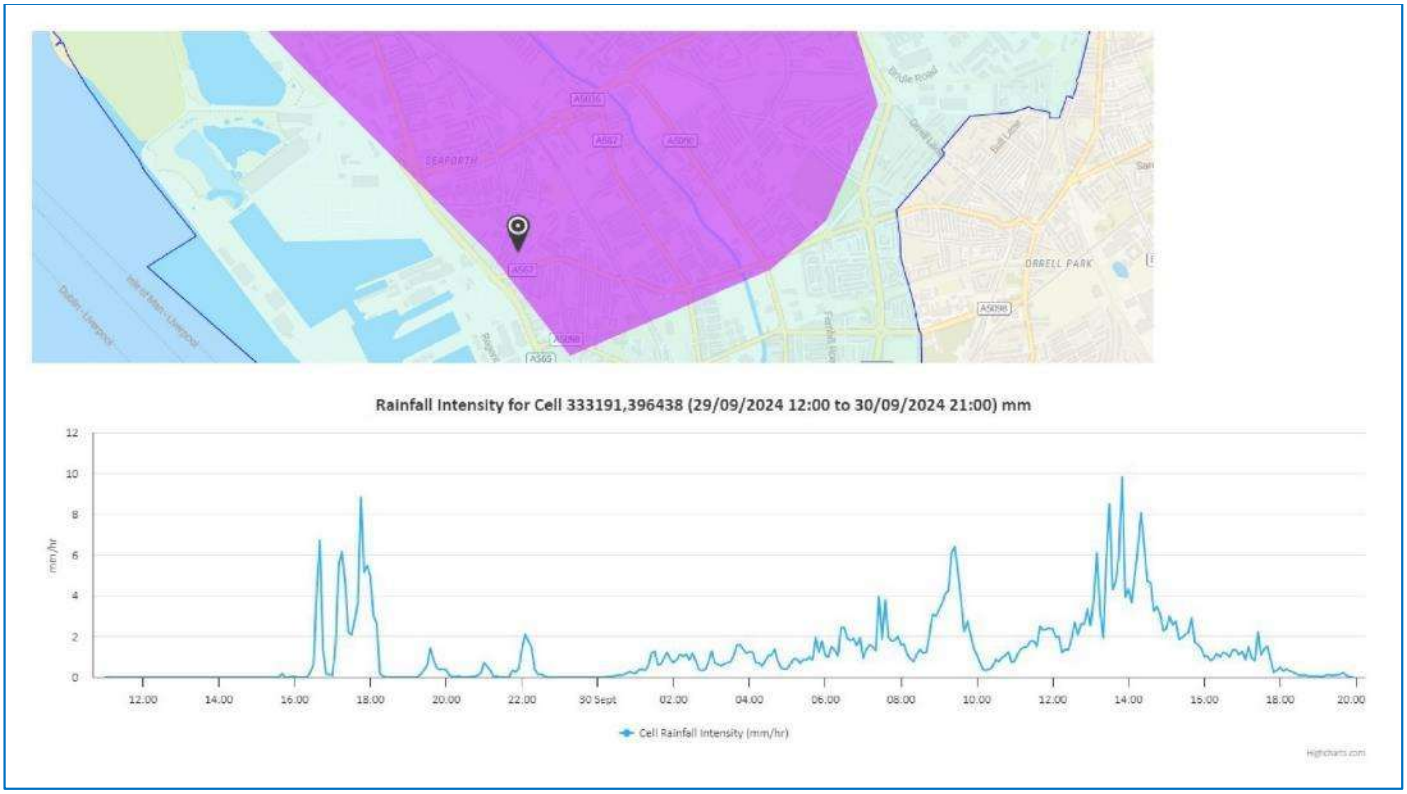

Figure 1: Bulwer Street with radar derived rainfall amounts for location and data showing rainfall amounts for the 29th and 30th October

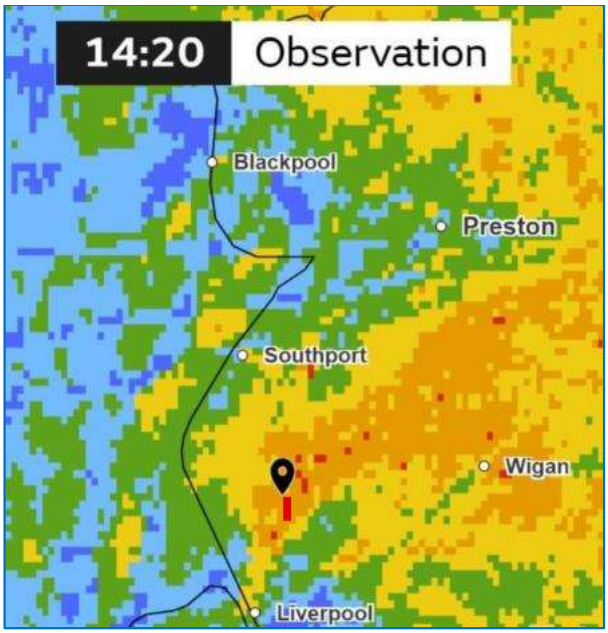

Figure 2: Observed rainfall radar data from the met office

Figure 3: Flooding at the northern end of Bulwer Street/Bowles Street 30th September 2024

Figure 4: Flooding on Bulwer Street 30th September 2024

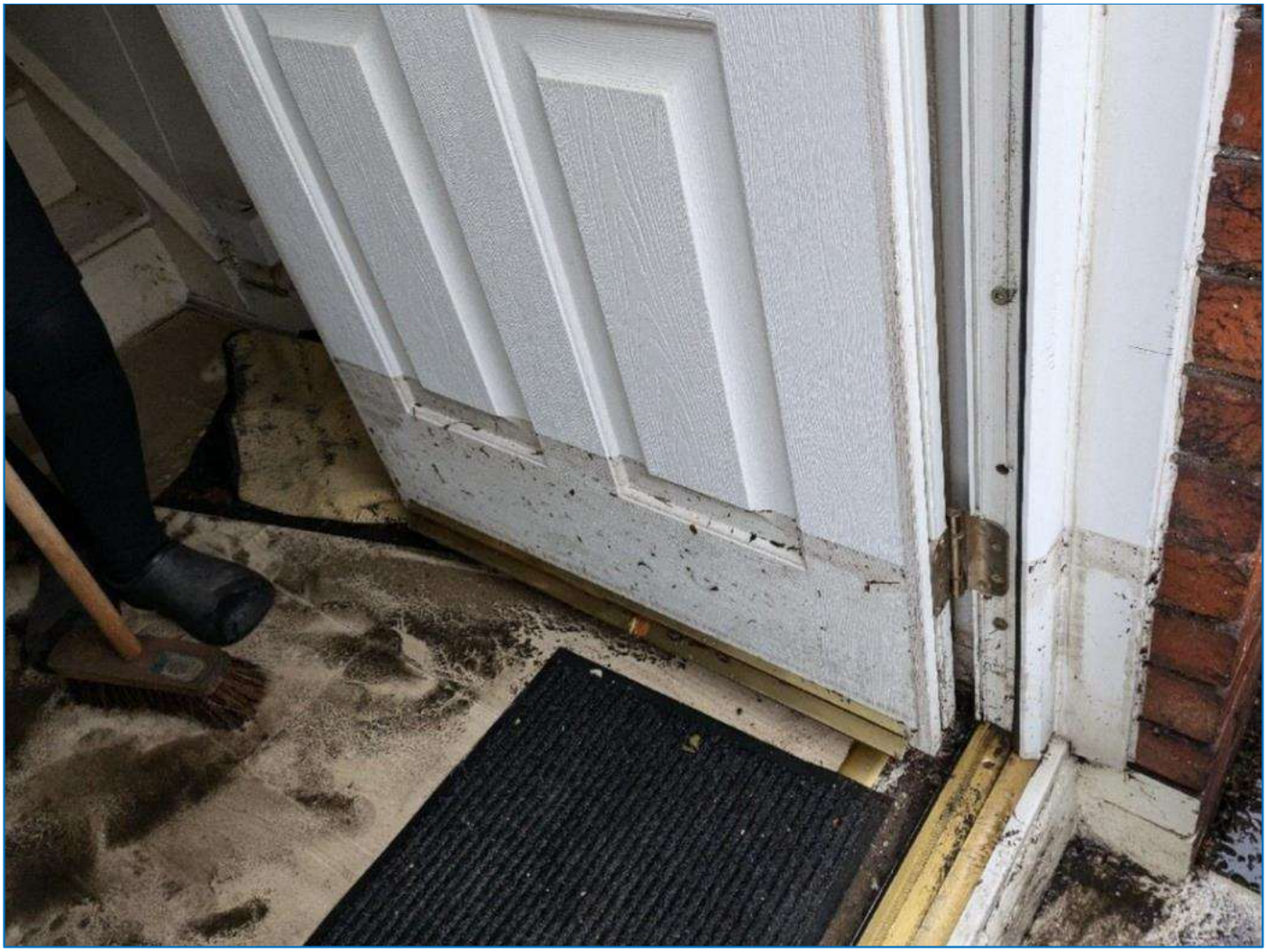

Figure 5: Wrack mark to show depth of flooding on Bulwer Street

Figure 6: Flooding on Seaforth Road 30th September 2024

Figure 7: Internal flooding on Bulwer Street 30th September 2024

Figure 8: Bulwer street 30th September 2024 following manual operation override on system.

Location

Figure 9 shows the drainage network within the area and the convergence of several sewers. Figure 10 shows the location of the control device within the Gladstone dock site.

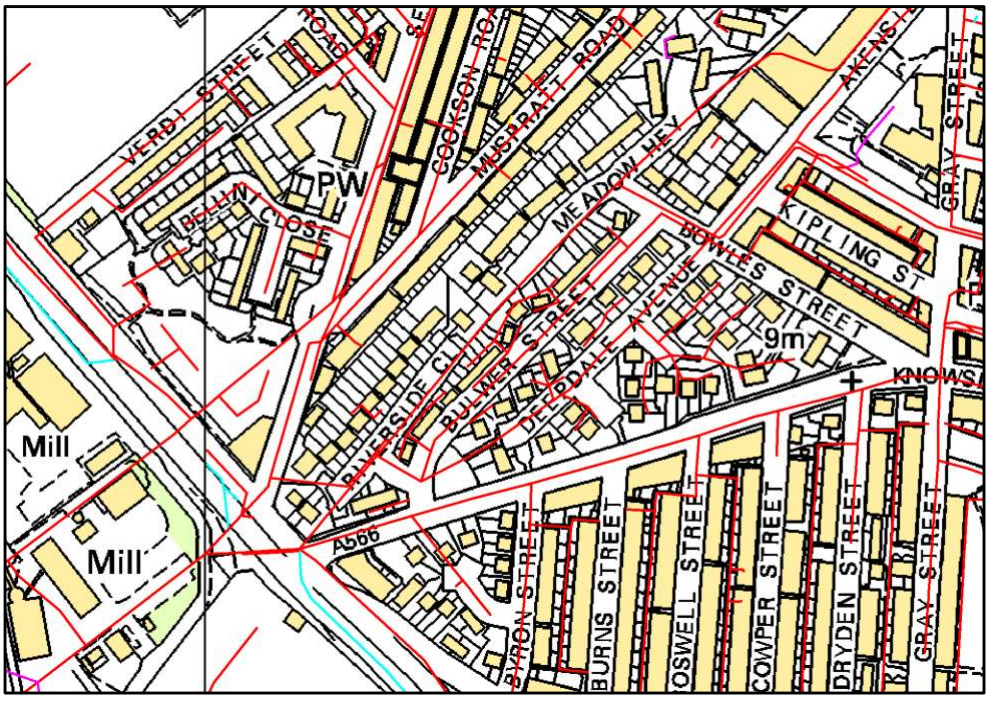

Figure 9: Location plan of the affected area with the combined sewers marked in red

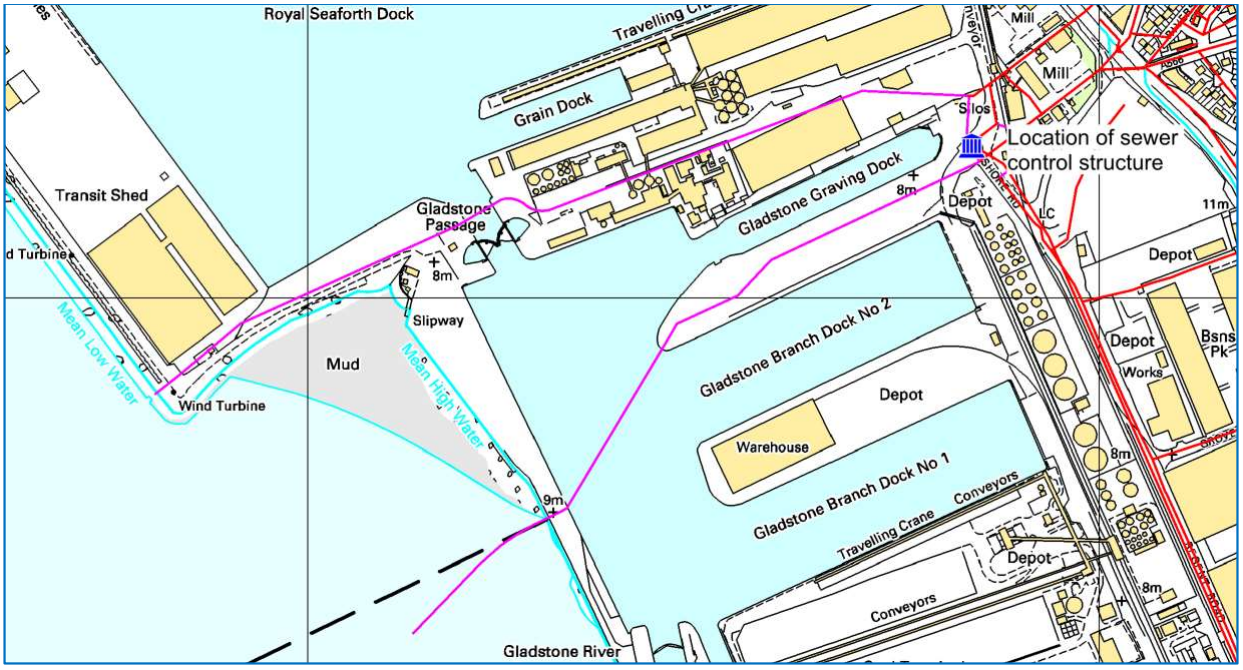

Figure 10: Location plan of the control structure that failed to open

Figure 11 shows the surface water flood risk that the area is at, it can clearly be seen that there is a high level of risk as this area is the low point.

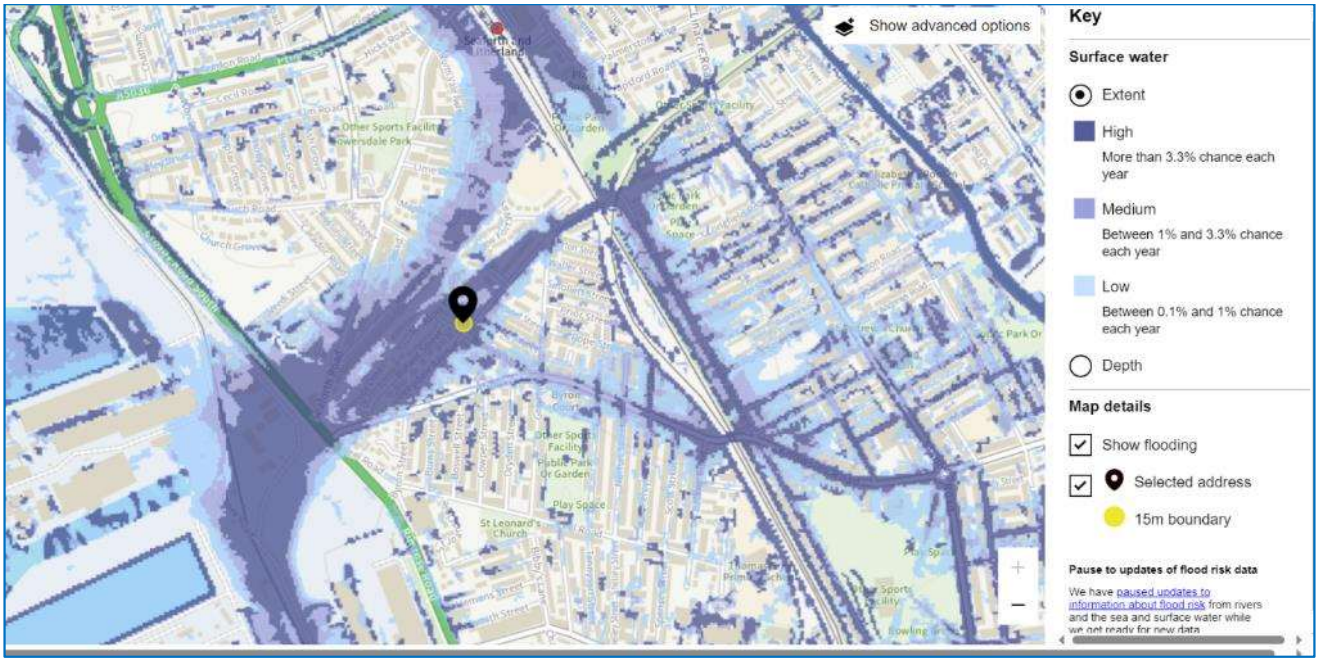

Figure 11: Surface water flood risk map (source [See flood risk on a map - Check your long term flood risk - GOV.UK)]

Recommended actions

Please note that these are recommendations and Sefton Council cannot enforce anyone to undertake them.

Recommendation	Who is responsible
1. Ensure the operating system is closely monitored following coding fix to check the issue is fully resolved and tested	United Utilities
2. Ensure call centres are advised appropriately to handle calls and prioritise a response	United Utilities and Sefton Council
3. Investigate if options for flood mitigation measures on properties is necessary and will be of benefit to the properties affected and not increase flood risk elsewhere.	United Utilities
4. Continue to work with the community, insurance providers, utility providers and contractors to ensure a speedy recovery.	United Utilities and Sefton Council
5. Advice on future insurance for properties.	United Utilities
6. Advise the community on numbers to call if water starts to build up in the highway in the future.	United Utilities

Table 2: Recommendations

Appendix

Rights and responsibilities (authorities and landowners)

Lead Local Flood Authority – Sefton Council

The LLFA has an overarching strategic coordinating role in managing local flood risk from surface water (pluvial), ordinary watercourses (fluvial) and groundwater sources.

The Council's key responsibilities as a LLFA are to:

- Develop a Local Flood Risk Management Strategy (Section 9 FWMA).
- Investigate flooding (Section 19 FWMA) to a locally derived threshold as detailed in our flood investigations policy for Sefton.
- Maintain a register of assets (Section 21 FWMA) affecting flood risk management.

The FWMA also amended the following sections of the Land Drainage Act 1991 (LDA) resulting in new roles and responsibilities for the Council:

- Section 14a – The addition of this subsection introduced the role of the LLFA and provides general permissive powers to undertake works to mitigate flood risk from ordinary watercourses, surface water and groundwater.
- Section 23 – As of 6th April 2012, the responsibility for issuing Land Drainage Consents for works in or near to ordinary watercourses passed from the EA (Environment Agency) to the LLFA.
- Section 25 – The LLFA have permissive powers to require works to maintain the free passage of flow on ordinary watercourses.

Duties remaining under the LDA.

- As a Land Drainage authority, we retain general powers under Section 14 of the LDA to enter private landownership and undertake works to alleviate flood risk.
- Undertake maintenance on watercourses to which the council is the landowner

Highways Authority - Sefton Council

The Highways Authority has a duty under the Highways Act (1980) to drain the local Highway network (not Trunk Roads) of surface water where it creates a nuisance. Where drainage infrastructure is provided to assist in this duty then the Highways Authority must maintain it to be fit for purpose.

Maintenance of roadside drainage ditches may be the direct responsibility of the Highways Authority or the adjacent landowner. For more information relating to the Highways Authority please refer to the Highways Statutory Duties and Vested Powers Guidance Notes.

Environment Agency

The Environment Agency has the strategic oversight for all flood and coastal erosion risk management in England and Wales. The EA is responsible for managing coastal flooding and fluvial flooding from Main Rivers as well as the risk of flooding from reservoirs. For more information, please visit the Environment Agency website.

Highways England

Highways England has sole responsibility and powers for managing Highway surface water runoff from the trunk road network (i.e., M1, M6, A50, A38 etc).

United Utilities

Sefton is serviced by United Utilities who manage the surface water, foul water and combined public sewer network throughout Sefton and neighbouring authorities. United Utilities have a duty to ensure the reliable operation and maintenance of the public sewer network.

Property Owners

Residents are encouraged to understand the flood risk in their local area, or may encounter during their daily routine i.e., routes to work etc, and have a flood plan to steer their response in times of flooding to reduce the consequences of flooding. It is recommended that residents sign up to appropriate warnings for their area and when and where possible alert neighbours to the risks.

When flooding does occur, residents are encouraged to document as much information as possible to aid the investigations of all operating authorities and to provide information to their loss adjusters and insurers. It should be noted that landowners/householders have a responsibility to prevent surface water runoff flowing onto neighbouring land.

Property owners are responsible for protecting their own property.