Leicestershire County Council

Flood Investigation Report

Storm Henk

2nd January 2024

Cosby

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14 COSBY

Cosby is a village with a population of around 3500 people, located within the Blaby District around seven miles south-west of Leicester City centre as illustrated in Figure 14-1.

The reported number of properties that internally flooded from Storm Henk did not trigger a formal investigation for Cosby. For more information see the main Storm Henk report.

14.1 LOCAL DRAINAGE CONTEXT

The Cosby Brook, a statutory Main River designated by the Environment Agency (EA) flows northwards through the centre of the village. Cosby Brook is a tributary of the River Soar (also designated as a Main River) and their confluence is located downstream of Station Road at Narborough (as illustrated in Figure 14-1) at Ordnance Survey National Grid Reference SP 54123 97296. The responsible agency for managing the risk from Main Rivers is the EA. Details relating to RMA responsibilities can be found in Section 21 of the main Storm Henk report. The properties that experienced internal flooding within Cosby during Storm Henk are located within Flood Areas A and B illustrated in Figure 14-1.

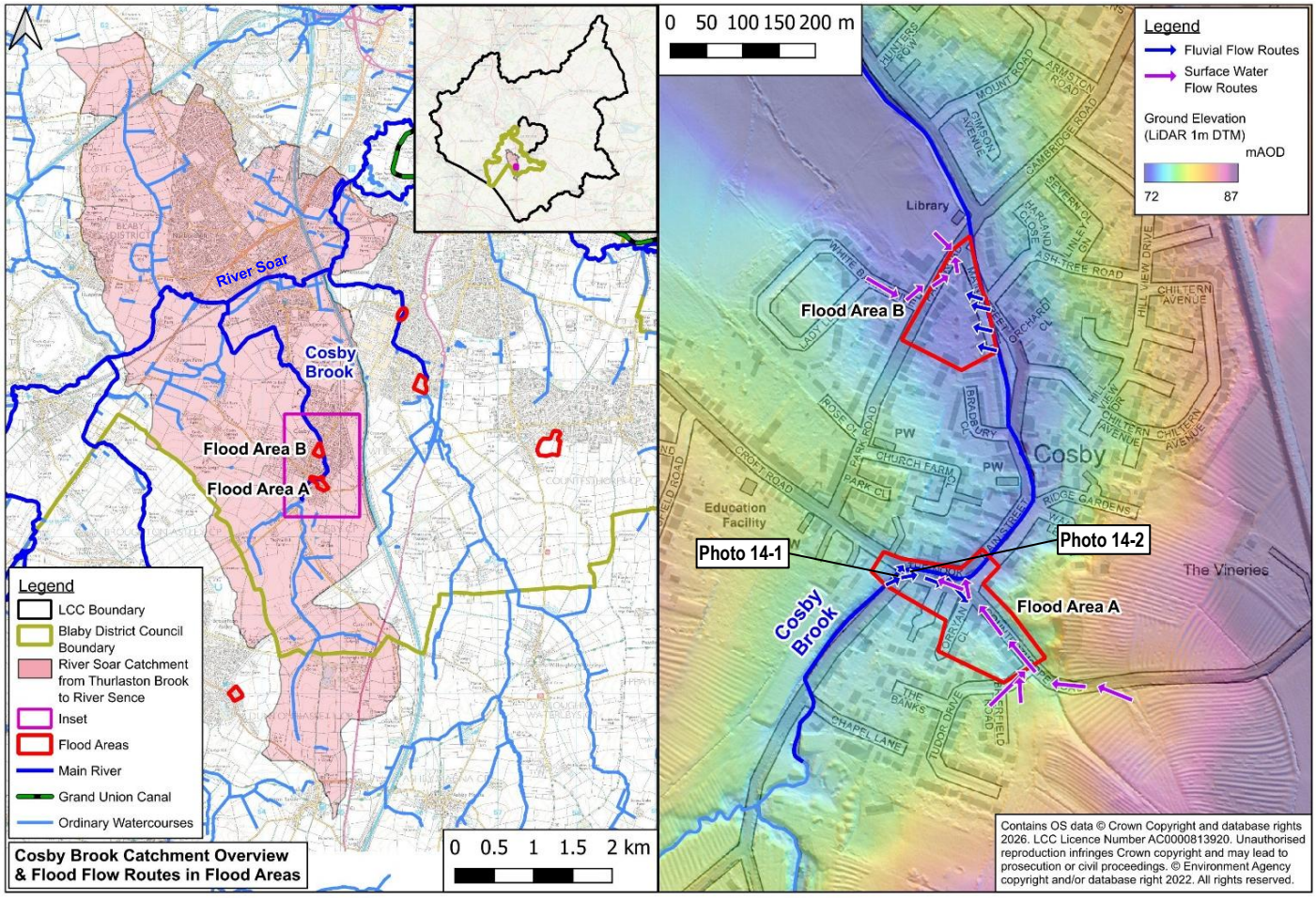
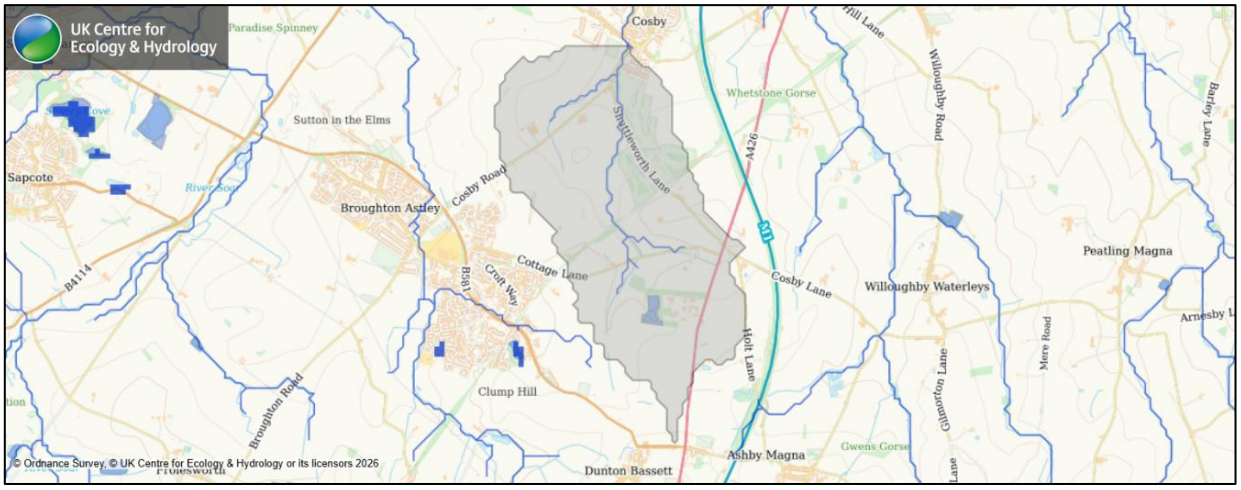


Figure 14-1: Cosby Location Plan, relevant Watercourse Catchment and Flow Routes through Flood Areas (INSET 1)

The UK Centre for Ecology & Hydrology's Flood Estimate Handbook (FEH) Web Service[1] provides strategic level catchment mapping. This identifies that the brook drains a catchment of approximately 10.6km² to its confluence with the River Soar.

1.



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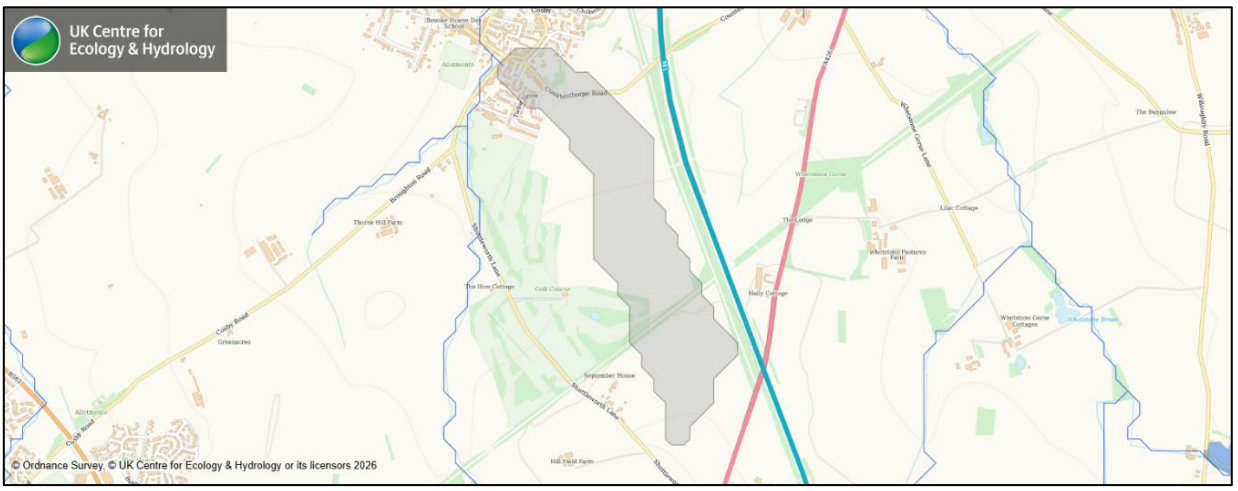

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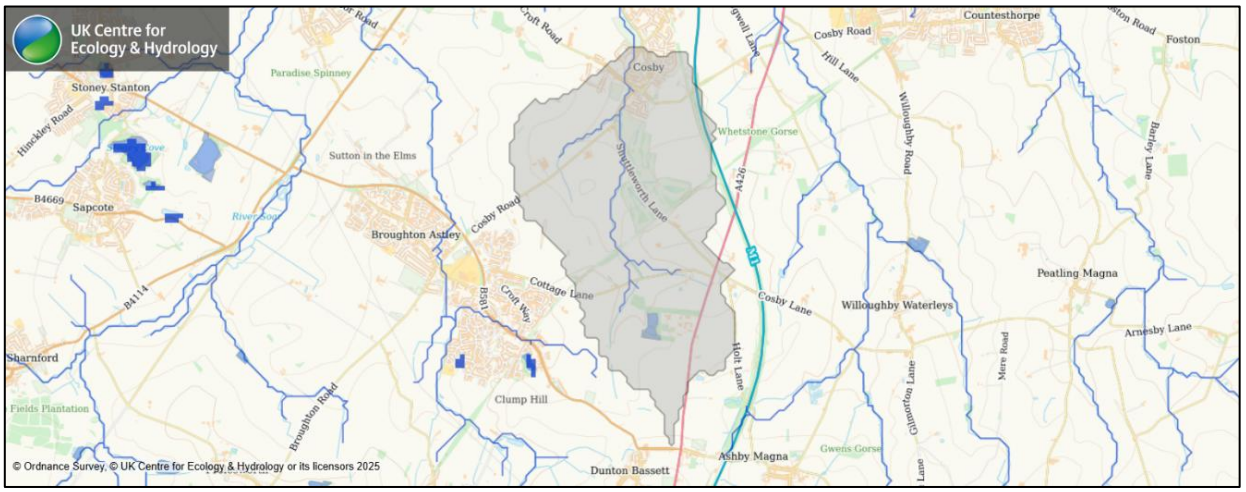

Figure 14-2: Cosby Brook FEH Web Service Catchment Extents upstream of The Nook (1.), eastern un-named tributary (2.) and at Main Road (3.)

[1] [1] Centre for Ecology & Hydrology (2026) FEH Web Service https://fehweb.ceh.ac.uk/Map

At The Nook in Cosby (upstream extent of Flood Area A) the catchment area is 4.97km^2 and the catchment area of an un-named tributary ordinary watercourse joining from the east is 0.51km^2, as illustrated in Figure 14-2. The catchment area increases to 6.05km^2 at Main Road at the downstream extent of Flood Area B as illustrated in Figure 14-2.

14.1.1 GEOLOGY

The BGS online mapping system[2] identifies that this area of Leicestershire is dominated by Mudstone lithology, characterised by superficial deposits of predominantly Alluvium-Clay, silt, sand and gravel in locations within close proximity to the Cosby Brook. These sedimentary deposits are fluvial in origin. They are detrital, ranging from coarse- to fine-grained and form beds and lenses of deposits reflecting the channels, floodplains and levees of a river, and a bedrock of Mercia Mudstone Group-Mudstone. These sedimentary rocks are fluvial, lacustrine and marine in origin. These ground formations are associated with relatively low permeability, poor infiltration rates, and a high susceptibility to groundwater flooding and river flooding in close proximity to the statutory Main River.

14.1.2 HYDROMTERY

There are no known river flow gauges on the relevant watercourses within this catchment area.

14.1.3 FLOOD WARNINGS

There are no Flood Warning Areas covering Flood Areas A and B. Cosby is however covered by the Upper Soar Flood Alert area (EA Code: 034WAF402[3]) which covers the River Soar and tributaries from Sharnford to the River Wreake confluence at Syston. This is a very wide coverage area and Flood Alerts are for low lying land and roads, not property flooding.

[2] British Geological Survey (2026) BGS Geology Viewer. https://geologyviewer.bgs.ac.uk/
[3] Environment Agency (2026) Upper Soar catchment flood alert area. https://check-for-flooding.service.gov.uk/target-area/034WAF402

14.1.4 NATIONAL SCALE PREDICTIVE FLOOD MAPPING

The EA provides flood risk mapping nationally for both rivers and surface water as detailed within Section 2.7.6 of the main Storm Henk report. These maps show where flooding is predicted from these sources in the vicinity of Flood Areas A to B in this investigation, as detailed below.

The EA's Flood Map for Planning Flood Zone map (NaFRA2) (Figure 14-3) identifies Flood Zones 2 and 3 associated with Cosby Brook extending into parts of the village adjacent to the brook along The Nook, Main Street and Burley Close. Properties and land within these areas are therefore recognised as being at an existing high and medium risk of flooding from Cosby Brook during periods of high flow.

The EA's Risk of Flooding from Surface Water (RoFSW) map (NaFRA2) (Figure 14-3) identifies areas at high, medium and low risk particularly along Countesthorpe Road, and Main Street around its junction with Burley Close.

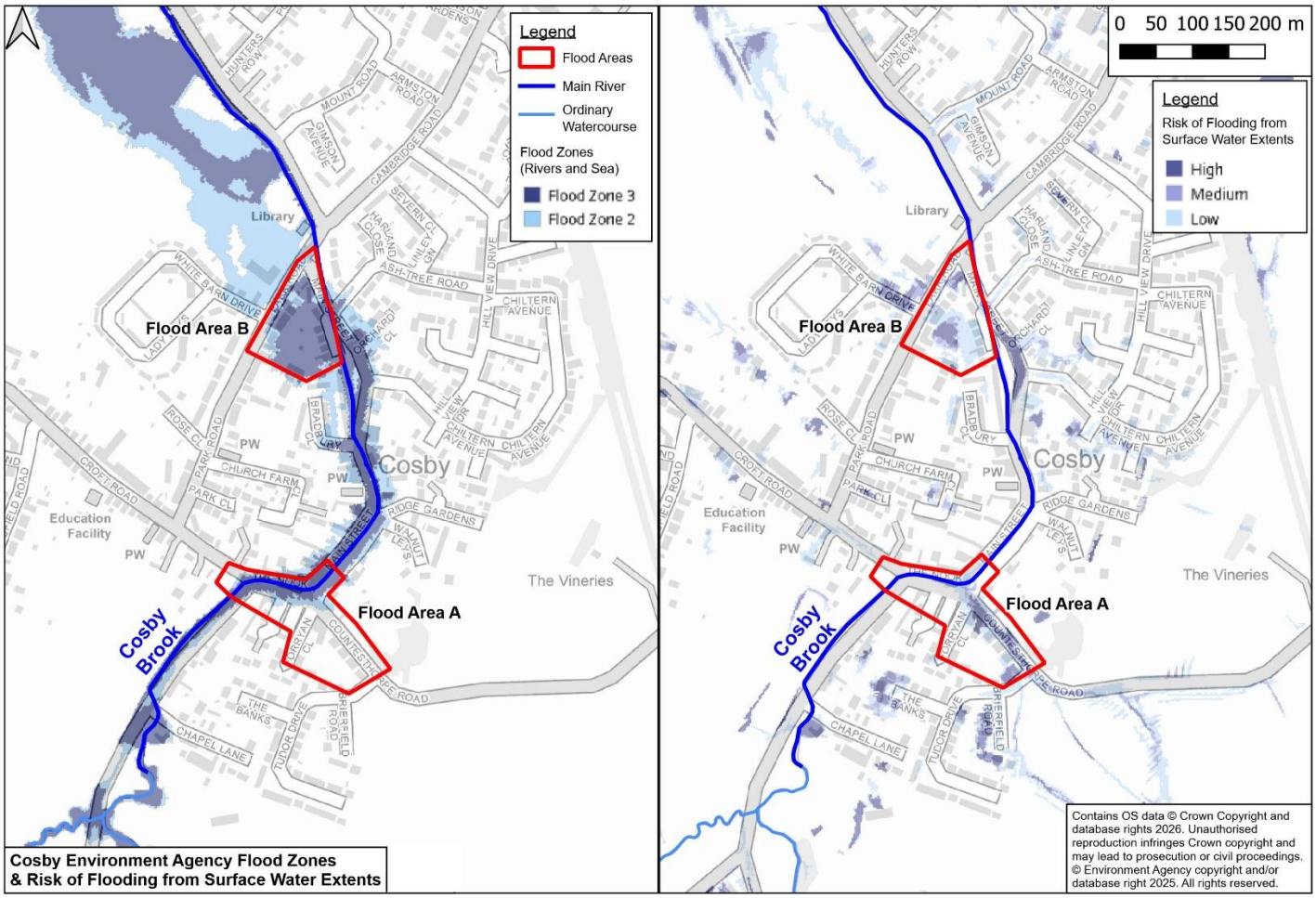

Figure 14-3: Cosby EA Flood Map for Planning Flood Zones[4] and Risk of Flooding from Surface Water Extents[5] in Flood Areas (INSET 11)

[4] Environment Agency (2026) Flood Map for Planning – Flood Zones https://flood-map-for-planning.service.gov.uk/map
[55] Environment Agency (2026) Risk of Flooding from Surface Water map. https://check-long-term-flood-risk.service.gov.uk/map

14.2 WHAT HAPPENED AND WHY?

WHO OR WHAT WAS AFFECTED?

2 properties reported as internally flooded

At least 2 properties reported as externally flooded

In the period leading up to Storm Henk, the area experienced prolonged rainfall, which resulted in elevated water levels within Cosby Brook. On 31st December 2023, prior to the onset of Storm Henk, Cosby Brook overtopped its banks, leading to localised highway flooding on The Nook as shown in Photograph 14-1 and Photograph 14-2. In response, Leicestershire County Council (LCC) as the Local Highways Authority (LHA) raised out-of-hours reactive jobs to inspect affected locations, deploy Flood Warning signage, and clear highway gullies where practicable.

Photograph 14-1: View from the southern side of The Nook on 31st December 2023, looking westwards towards the junction with Broughton Road

Photograph 14-2: View from the northern side of The Nook on 31st December 2023, looking westwards towards the junction with Croft Road

Due to the already elevated water levels within Cosby Brook, the additional intense and sustained rainfall associated with Storm Henk caused the levels in Cosby Brook to rise rapidly. The amount of water in the brook exceeded the channel's capacity which led to overspilling and out-of-bank flows onto adjacent land through the village at locations consistent with the routing of the mapped EA Flood Zones (see Figure 14-3).

Two reports of internal property flooding and two external flooding reports were received from properties located adjacent to Cosby Brook.

There is no evidence to suggest that the flooding was caused or materially exacerbated by river maintenance issues, asset failure, or third-party works. The flooding observed was consistent with the volume of water overwhelming the watercourse channel and bank thresholds overtopping during a high-magnitude event (matching predicted river flooding as per Figure 14-3), and drainage networks becoming overwhelmed, rather than a failure of existing infrastructure.

14.2.1 FLOOD AREA A

Flood Area A is located to the east of Cosby Brook at the upstream extent of the village, where the channel runs in close proximity to residential properties and a number of small businesses. During Storm Henk, river water in Cosby Brook rose, exceeded the bank capacity and spread laterally along The Nook and Countesthorpe Road as illustrated by the flow route arrows in Figure 14-1, leading to internal flooding of two business properties as their property thresholds were exceeded.

Overland flow of surface water runoff, generated by intense rainfall accumulating on the highway and adjacent land, also progressed downslope northwards along Tudor Drive toward the low point at its junction with Countesthorpe Road and intersected with the out-of-bank flows from Cosby Brook. This is consistent with the predicted flow routes mapped within the EA's RoFSW map (Figure 14-1).

The highway drainage gully located at the junction of Countesthorpe Road and Tudor Drive was observed to have become overwhelmed, leading to further localised flooding. But this was not identified as a failure of the drainage structure itself; the combined effect of this overland flow and river flooding led to volumes of water significantly greater than those for which the highway surface water drainage system is designed (i.e. exceeding its design capacity). In addition, the high-water levels within the brook submerged their outfalls, restricted discharges of flow, and caused water to back up and surcharge onto the highway.

As a result of the interaction of these three flooding mechanisms during Storm Henk, the accumulated depth of floodwater on Countesthorpe Road led to one residential property experiencing external flooding.

14.2.2 FLOOD AREA B

Flood Area B is located further downstream and falls to the west of Cosby Brook between Main Street and Park Road as illustrated in Figure 14-1. In this area, the brook passes northwards within the village through a narrower corridor, with numerous residential properties and gardens within close proximity. Flooding in this area is understood to have occurred as river levels rose and flows exceeded the bank capacity, causing floodwater to flow along low-lying routes of Main Street and Burley Close located immediately adjacent to the brook, as illustrated by the flow route arrows in Figure 14-1. The depth of flooding resulted in external property flooding to at least one property.

Given the village's location adjacent to a Main River, there remains an ongoing risk of fluvial flooding during extreme weather events. While routine maintenance can manage ordinary conditions, it cannot prevent flooding during events of this magnitude.

14.3 WHAT HAS BEEN DONE?

A summary table of the actions undertaken by the relevant RMAs across Leicestershire is provided in Section 2.7 of the main Storm Henk report. A summary table of actions and any relevant next steps specific to Cosby is provided in Section 14.4.

The EA will continue to manage flood risk on the brook within Cosby in line with its permissive powers. Whilst the actions from this investigation will help to reduce flood risk, communities should also take steps to be prepared for future flooding, especially with climate change increasing the risk of occurrence. Property owners are encouraged to consider property-level resilience measures and to ensure registration for the EA's Flood Alert and Flood Warnings[6] service. More information about personal and community preparedness can be found in Section 21.8 of the main Storm Henk report.

[6] Environment Agency (2026) Flood alerts and warnings. https://check-for-flooding.service.gov.uk/alerts-and-warnings

14.4 COSBY ACTIONS

The following actions will be monitored by Leicestershire County Council (LCC) as the Lead Local Flood Authority (LLFA) through their local coordination role. This action plan is live and will be subject to change as actions are progressed.

Actions taken during and in the immediate aftermaths of the event, such as the closure of roads and set-up of rest centres are not detailed. Further details on RMAs and their roles, and how they work in partnership, can be found in the Leicestershire Local Flood Risk Management Strategy[7].

14.4.1 SHORT-TERM ACTIONS (0 - 6 MONTHS)

ACTION	ACTION DETAIL	LEAD RMA	CURRENT STATUS
Site Walkovers to Inform Investigation	On 9th January 2024, a site visit was undertaken to reviewed key locations including, Bradbury Close, Main Street, Cambridge Road, Countesthorpe Road, Burley Close, Croft Road, The Nook and Park Road.	LCC LLFA	Complete
Refuse Collection and Street Cleansing	Provide street cleansing and bulky waste collections in addition to welfare checks to identify and support vulnerable residents.	BDC	Complete
Henk Flood Recovery Framework Support	BDC administered the National Flood Recovery Grant tax relief, business rates relief and also one-off sums of funding to affected homeowners in the immediate aftermath of Storm Henk	BDC	Complete

[7] Leicestershire County Council (2024) Leicestershire Local Flood Risk Management Strategy - https://www.leicestershire.gov.uk/environment-and-planning/flooding-and-drainage/lead-local-flood-authority/flood-risk-management

ACTION	ACTION DETAIL	LEAD RMA	CURRENT STATUS
Community Drop-in Sessions	A number of public flood drop-in sessions were arranged and attended by all Risk Management Authorities including EA, CBC, LCC LHA, LCC LLFA and the Local Resilience Forum (LRF). The aim of these sessions was to better understand what happened after the flood events but also to promote flood resilience for future events.	LCC LLFA	Complete Following Storm Henk five drop in events were arranged in Loughborough, Blaby, Melton and Syston.
Highways Asset Maintenance	Additional cleansing followed Storms Henk across all impacted areas of Cosby. Cleansing frequency has been reviewed and confirmed for the affected road network.	LCC LHA	Complete

14.4.2 MEDIUM-TERM ACTIONS (6 - 12 MONTHS)

ACTION	ACTION DETAIL	LEAD RMA or ORGANISATION	CURRENT STATUS
Flood Warden Support	Flood Warden engagement and training sessions are offered, along with support for Community Response Plans.	Leicester, Leicestershire, and Rutland Prepared	Ongoing
Main River Inspection and Maintenance	The EA undertook channel maintenance along Cosby Brook, including targeted weed control along The Nook and Main Street, and engaged riparian landowners to carry out vegetation clearance.	EA	Complete

14.4.3 LONG-TERM ACTIONS (12 MONTHS +)

ACTION	ACTION DETAIL	LEAD RMA	CURRENT STATUS
Henk Property Flood Resilience Repair Grants	The LLFA administered the National Flood Grant for Property Flood Resilience on behalf of DEFRA following Storm Henk. 1 application was received and processed. The scheme promoted at both public drop-in sessions and the Parish meeting.	LCC LLFA	Complete
Capital and Investment Review	LLFA to work with the community to review next steps and funding options for the community including Natural Flood Management in the upper catchment (golf course).	LCC LLFA / EA	Ongoing
Main River Inspection and Maintenance	To continue maintenance of the Brook with in-channel tree and bush removals alongside Victory Park.	EA	Ongoing