Leicestershire County Council

Flood Investigation Report

Storm Henk

2nd January 2024

Great Glen

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16 GREAT GLEN

Great Glen is a village located within the Harborough district of Leicestershire, approximately 9.5km to the south-east of Leicester City Centre.

A formal investigation was not triggered for Great Glen because the flooding that occurred was from a known source. At the time of the flooding event, routine inspections and maintenance that mitigated the risk of flooding were already being undertaken by the EA. For more information see the main Storm Henk report.

16.1 LOCAL DRAINAGE CONTEXT

Great Glen is situated at the confluence of two statutory Main Rivers, the River Sence and the Burton Brook as illustrated in Figure 16-1. Their combined catchments of approximately 38km^2 upstream of the A6 consist of predominantly agricultural land, which extend to the north-east beyond the village of Billesdon and the A47, as illustrated in Figure 16-1.

The River Sence flows from north to south through the centre of the village, passing the recreation ground before flowing under Bindleys Lane (at a ford crossing), Church Road and London Road. The River Sence continues downstream, generally in a southern then westerly direction before it joins the River Soar west of Enderby at Ordnance Survey national grid reference (OSNGR) SP 55177 98526.

Burton Brook flows into the village from Burton Overy. It flows westwards briefly following the course of London Road, before it veers south west underneath Orchard Lane and past The Nook. It converges with the River Sence east of the A6 and Station Road junction roundabout (at Ordnance Survey national grid reference (OSNGR) SP 65359 97382). Here it drains a catchment area of 13.9km^2. 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.

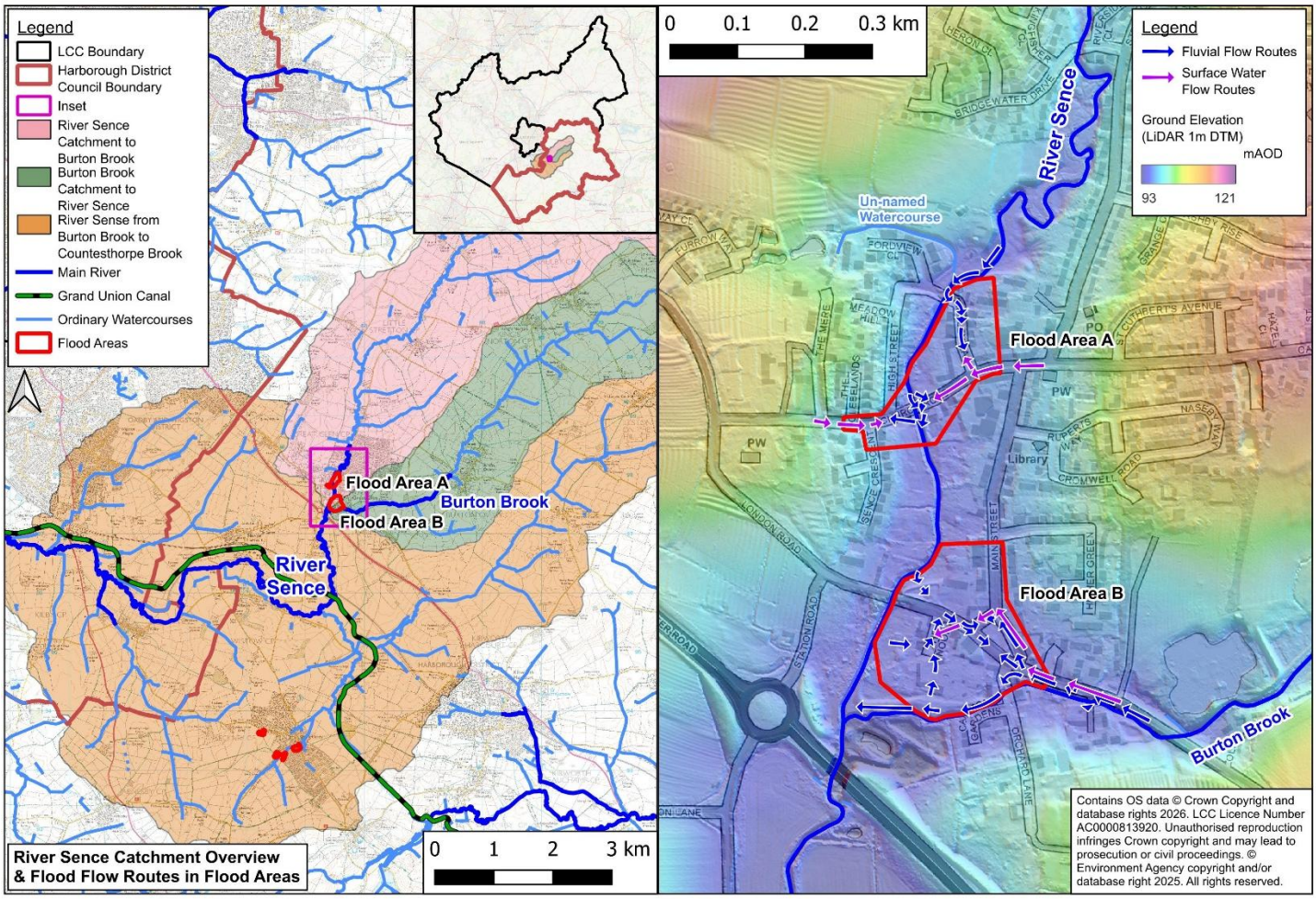

Figure 16-1: Great Glen Location Plan, relevant Watercourse Catchment and Flow Routes through Flood Areas (INSET 10)

16.1.1 EXISTING FLOOD RISK MANAGEMENT

Great Glen benefits from a 1 in 50 (2%) chance in any year standard of protection from Main River flooding, which is based on detailed modelling undertaken in 2021. This includes extensive flood defences along Burton Brook and River Sence, consisting of embankments and walls.

16.1.2 GEOLOGY

The British Geology Society's (BGS) online mapping system[1] indicates that Great Glen and the surrounding catchment is dominated by superficial deposits of Oadby Till Member, which is characterised by poor permeability and low infiltration rates, exacerbating runoff.

[1] British Geological Survey (2026) BGS Geology Viewer. https://geologyviewer.bgs.ac.uk/

16.1.3 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. The EA's Flood Map for Planning (NaFRA) Flood Zones 2 and 3 (medium and high risk of flooding respectively) from Burton Brook and the River Sence, illustrated in Figure 16-2, are relatively close to the river channels for much of their course through the village, but they widen on approach to their confluence. It is close to the confluence where the greatest concentration of affected properties are found within these Flood Zones, covering The Nook, the village green and the lower parts of Orchard Lane, Carlton Gardens and London Road.

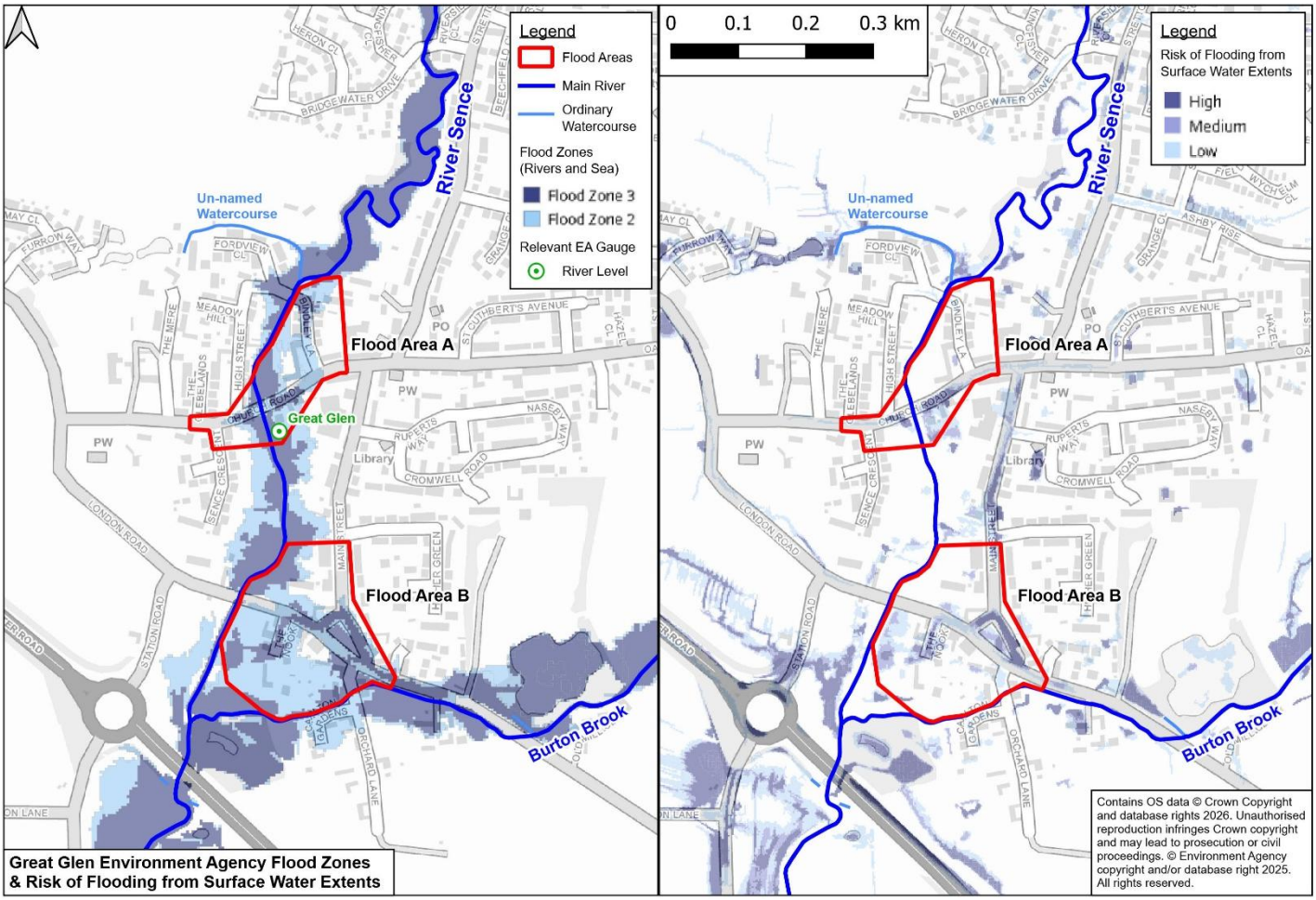

Figure 16-2: Great Glen EA Flood Map for Planning Flood Zones[2] and Risk of Flooding from Surface Water Extents[3] in Flood Areas (INSET 10)

Figure 16-2 also illustrates the EA's Risk of Flooding from Surface Water (RoFSW) (NaFRA2) mapping. There are isolated areas at high risk of surface water flooding within the village, particularly around the junction of Main Street with London Road and The Nook.

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

This risk however can be exacerbated by localised land level detail or drainage infrastructure constraints, which are not always represented within the high level mapping.

16.1.4 HYDROMETRY

The EA monitors water levels along the River Sence at a hydrometry gauge located downstream of Church Road, named Great Glen, as illustrated in Figure 16-2 (located at OSNGR SP 65490 97810). Observed river levels (water depth in metres above the Great Glen gauge station datum) from 12:00hrs on 1st January 2024 to 00:00hrs on 5th January 2024 are illustrated in Figure 16-3. The peak river level in the brook (recorded as 3.494mASD) occurred at 19:00hrs on 2nd January 2024. This was the highest ever level recorded at this gauge, with records dating back to 2001.

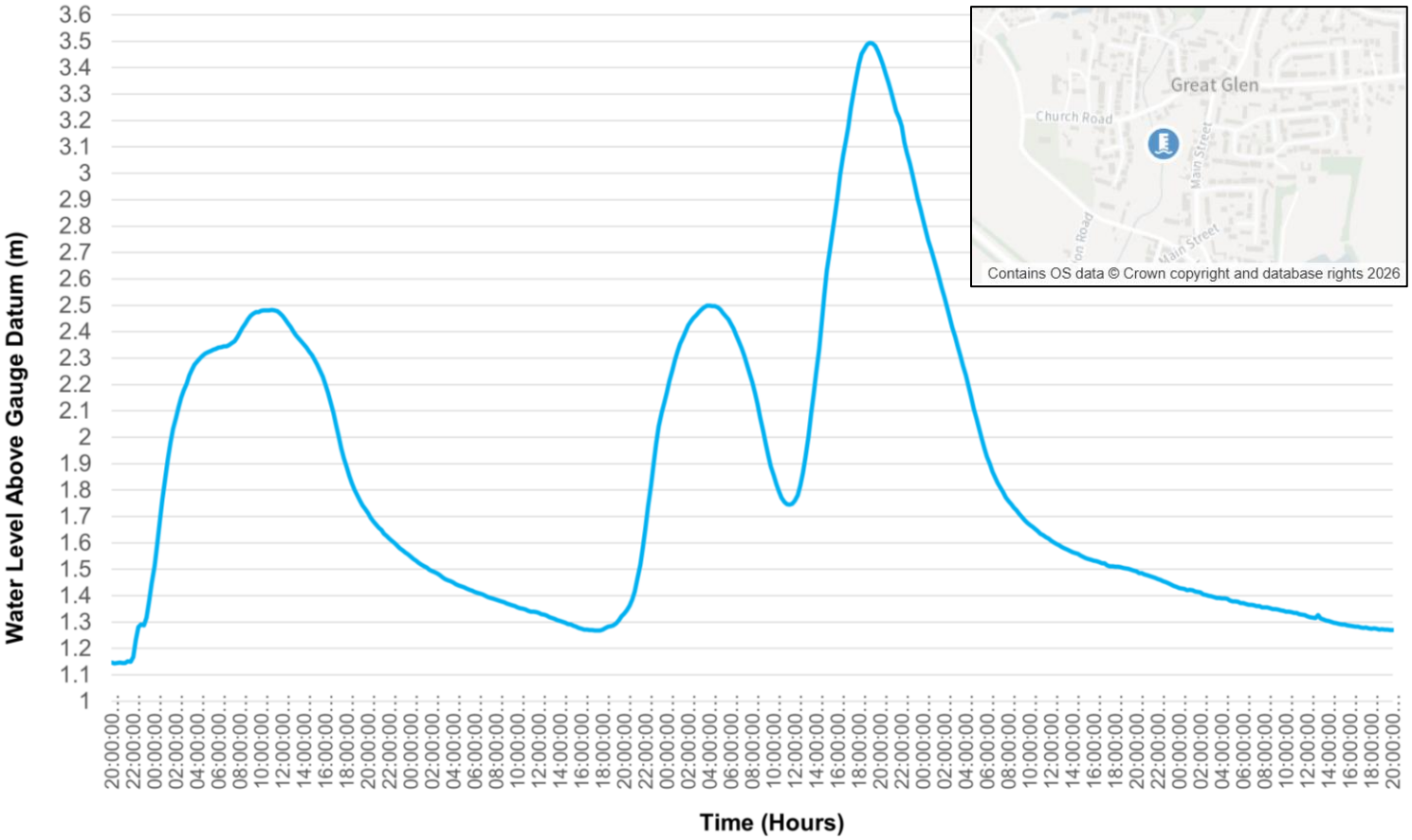

Figure 16-3: River Sence at Great Glen Gauge (Station ID 4161[4]) – River Level from 20:00 hours on 30/12/2023 to 20:00 hours on 04/01/2024

16.1.5 FLOOD WARNINGS

An EA Flood Warning Area covers the Flood Areas and A and B alongside the River Sence at Great Glen[5] (Code: 034FWFSEGRTGLEN) including riverside farms and Oaks Road. No Flood Warning however was issued for the Storm Henk flood event.

[4] Defra (2026) Hydrology Data Explorer – Great Glen water level gauge https://environment.data.gov.uk/hydrology/station/d084b438-54d7-4979-953b-cfefe3502d12
[5] Environment Agency (2026) River Sence at Great Glen flood warning area. https://check-for-flooding.service.gov.uk/target-area/034FWFSEGRTGLEN

The EA confirmed that this was because the agreed river level threshold for issuing the warning was not reached despite levels reaching record levels, although a Flood Alert was issued. Limited warning was provided for the community ahead of the flooding.

16.2 WHAT HAPPENED AND WHY?

WHO OR WHAT WAS AFFECTED?

5 residential properties reported as internally flooded

1 commercial property reported as internally flooded

1 commercial property reported as externally flooded

During the high-intensity rainfall from Storm Henk (see Section 2.3 of the main Storm Henk report), the catchment surrounding Great Glen (watercourses, ditches and drainage features) quickly became overwhelmed. Pre-existing soil saturation within agricultural land rapidly reduced infiltration capacity (see Section 2.1 of the main Storm Henk report), resulting in accelerated surface runoff towards the Main Rivers.

Internal flooding occurred to properties in two key Flood Areas in Great Glen as illustrated in Figure 16-1.

16.2.1 FLOOD AREA A

In Flood Area A, properties flooded internally flooded at two locations.

At Brindleys Lane, a property internally flooded from the River Sence whereby it came out of bank on the left hand side (at the ford crossing), towards residential properties, overwhelming the highway and entering one property threshold. This area is not defended by any flood defences and is identified to be at high risk of river flooding in the EA's Flood Map for Planning (Figure 16-2).

At Church Road two residential properties were confirmed to have flooded. It is not conclusive as to whether this was solely surface water or a combination of river flood water and surface water. Reports were received of water rising through drains (highway gullies) in the road.

Flooding was likely exacerbated due to the outfall of a surface water sewer (an unmapped asset flowing along Church Road from the junction with Main Street into the River Sence) being submerged below the water level of the River Sence. This caused flood water to back-up through the sewer network, exceed the storage capacity and surcharge from manholes and highway drainage gullies, thus were unable to drain further contributions away from the road effectively. Water therefore flooded at the surface and reached depths that breached two property thresholds. According to EA national flood maps the properties are located at a high risk of surface water flooding as well as river flooding.

16.2.2 FLOOD AREA B

Properties were reported to have flooded at two locations in Flood Area B from Burton Brook. River water was described to flow out of bank on to London Road, flooding the highway and entering two residential properties and 1 commercial property (local pub). One property was also reported to flood at The Nook as the road dips down and the property is located at a low point.

Surface water was also described to combine with river flows in Flood Area B. Highway drainage and public surface water sewer networks in London Road discharge directly to Burton Brook. When water levels in the Burton Brook are high, the surface water sewer outfall is submerged and is unable to discharge. This is exacerbated by flood water from the Burton Brook entering the surface water network via road drainage infrastructure. All properties are known to be situated within a high risk of river flooding.

16.3 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 completed and ongoing actions and any relevant next steps specific to Great Glen is provided in Section 16.4.

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. More information about personal and community preparedness can be found in Section 21.8 of the main Storm Henk report.

On 6th January 2025, another major countywide flood event occurred which resulted in widespread internal property flooding to Great Glen. This 2025 flood event is being investigated separately. This report will therefore focus on the actions agreed and undertaken in relation to this 2024 event only. Any actions, investigations or engagement undertaken following the 6th January 2025 event will be covered in that report. Following the more recent flooding in 2025, the local community formed the Great Glen Flood Action Group (FLAG).

16.4 GREAT GLEN 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[6].

16.4.1 SHORT-TERM ACTIONS (0 - 6 MONTHS)

ACTION	ACTION DETAIL	LEAD RMA	CURRENT STATUS
Site Walkovers to Inform Investigation	A number of site visits were conducted within the village following the flood event to review key locations affected within the community and to gain a complete understanding of the extent and depth of the flooding and the properties impacted.	LCC LLFA, HDC, EA	Complete
Community Drop-in Sessions	A number of public flood drop-in sessions were arranged and attended by all RMAs including EA, CBC, LCC Local Highways Authority (LHA), LCC LLFA and the 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.	All RMAs	Complete Following Storm Henk five drop in events were arranged in Loughborough, Blaby, Melton and Syston.

[6] 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
Highways Asset Maintenance	Reactive cleanse of all LHA adopted highway assets within the flood impacted areas of Great Glen.	LCC LHA	Complete
Reactive Maintenance of Main Rivers	Undertake any reactive maintenance along Burton Brook and River Sence and provide details of routine maintenance activities undertaken.	EA	Complete
Flood Warning Threshold Review	Validate Flood Warning trigger levels utilising information from the community.	EA	Complete. The threshold for issuing a Flood Warning has since been lowered to better reflect observed conditions.

16.4.2 LONG-TERM ACTIONS (12 MONTHS +)

ACTION	ACTION DETAIL	LEAD RMA	CURRENT STATUS
Assessment of Local Development	Continue engagement with prospective developers within the upstream River Sence and Burton Brook catchment to ensure that all major development in the catchment includes measures to reduce flood risk overall to Great Glen in accordance with the National Planning Policy Framework.	LCC LLFA, EA	Ongoing

ACTION	ACTION DETAIL	LEAD RMA	CURRENT STATUS
Review of Leicestershire Tributaries Hydraulic Model	Complete a review of the Leicestershire Tributaries hydraulic model. Some overlap with the action above, with Davidsons Homes considering modelling options.	EA	Completed - Position update provided
NFM Opportunities	Working with the Great Glen FLAG and Sence Woodland Community Volunteers, explore opportunities for Natural Flood Risk Management (NFM) measures in the upper catchments of River Sence and Burton Brook.	LCC LLFA	Ongoing
Hydraulic Assessment of Ford Crossing at Bindleys Lane	Undertake a hydraulic assessment of the vented ford crossing at Bindleys Lane to determine whether changing the structure here will mitigate property flood risk. Reviewing blockage scenario / complete removal.	EA	Blockage scenario complete. Removal scenario – JBA Consulting are expected to assess this on behalf of Great Glen FLAG. EA to support where necessary.
Asset Mapping on Church Road, Main Street and London Road	Ensure all assets are identified and surveyed within Church Road, Main Street and London Road. • Church Road – Map surface water assets and determine whether they fall under STW or LCC LHA responsibility. • London Road and Main Street – Area around the village green showing no STW assets. STW to survey and map.	LCC LHA, STW, LCC LLFA	Ongoing