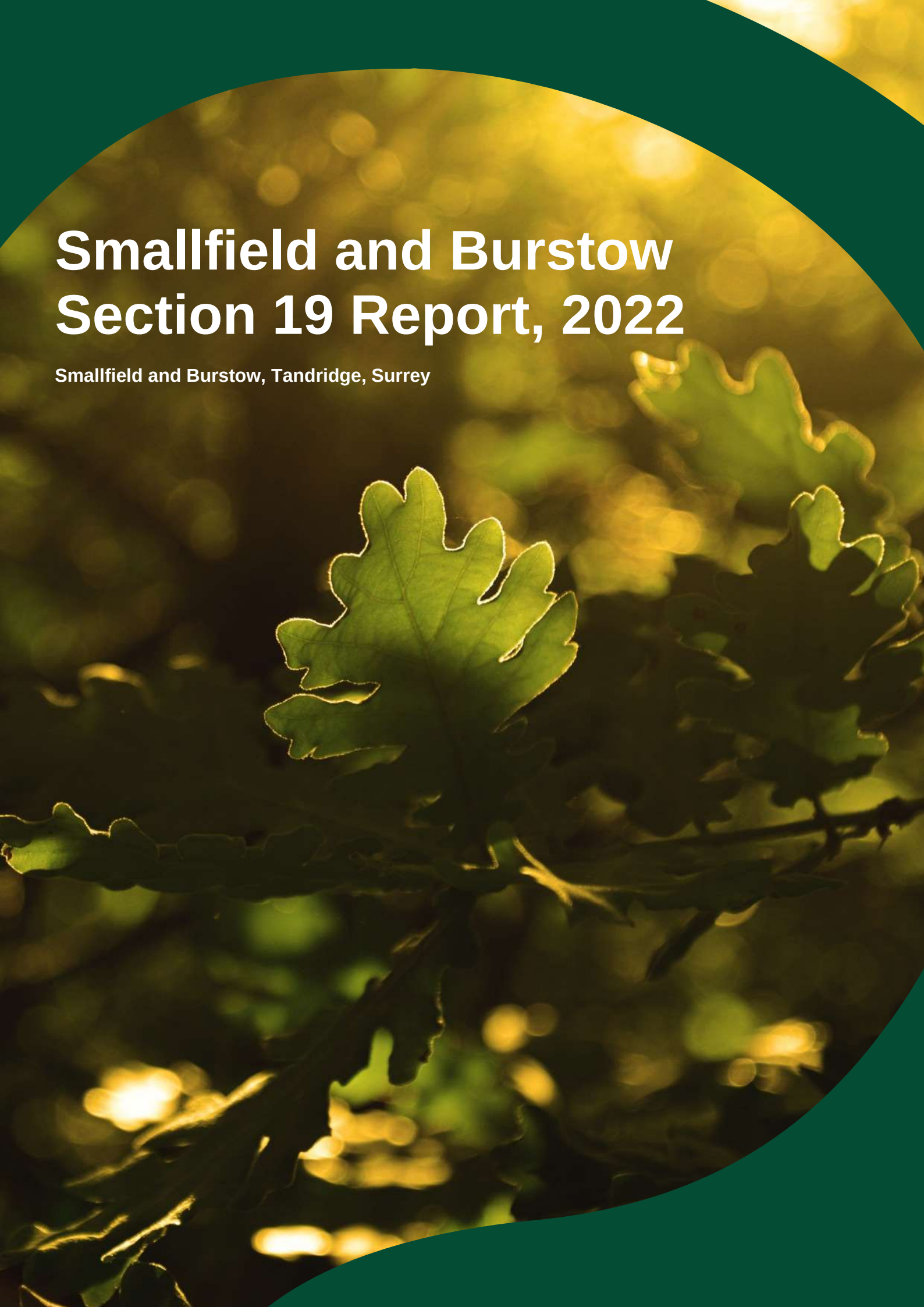
Smallfield and Burstow Section 19 Report, 2022

Smallfield and Burstow, Tandridge, Surrey



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Introduction

This report details the widespread flooding that occurred in Smallfield and Burstow, following heavy rainfall on 17th November 2022. Overall, Surrey County Council (SCC) had 60 reports of flooding and 38 reports of property flooding that has been collated into 14 flood investigation reports, as seen in Annex C.

This report will summarise the cause of property flooding, actions of risk management authorities involved, their responsibilities and recommendations moving forward, in addition to ongoing works in the area.

SCC defines internal property flooding as flooding within the liveable space of the property, external property flooding is defined by SCC as flooding outside of the

liveable space, this includes driveways, gardens and garages (attached or detached).

This document has been prepared specifically for the purpose of meeting the requirements of Section 19 of the Flood and Water Management Act 2010.

Under the Flood and Water Management Act 2010 the Lead Local Flood Authority (LLFA) must (to the extent that it considers it necessary or appropriate) undertake an investigation on becoming aware of a flood incident within its area.

This document is not an action plan or an agreement that the recommendations provided in this report will be completed by the relevant RMAs, unless there is a duty to do so. This report focuses solely on the flooding within Surrey. However, the findings of this report will be shared with Risk Management authorities including The Environment Agency, Tandridge District Council and Thames Water in order to work collaboratively and as a part of Surrey County Councils duty under Section 13 of the Flood and Water Management Act 2010.

Background

Smallfield and Burstow are situated in the southeast of Surrey, near the Boarder of West Sussex County. The Burstow stream and its tributary the Weatherhill Stream (classified as main rivers) run through the catchment and are the main drainage routes.

Smallfield and Burstow are situated within a low spot/ shallow valley in relation to the surrounding land, with a height variation of 2m within Smallfield village; north of the village the topography increases by 121m and to the south, increases by 70m (see Lidar in Fig 1 , Annex A).

The location sits within three separate catchments (see Fig 2 in Annex A), water flows from east to west within the two Northern catchments and passes under the M23, within the Southern catchment, water flows from south to north towards Keepers Corner, and continues flowing east to west.

Smallfield Village and the north of Burstow is made up of weald clay, whilst the south of Burstow is made up of sand and mudstone. In general, clays have poor permeability. There are thin superficial deposits of sand and gravel, within the centre and west of Smallfield village which provides some infiltration for surface water and shows this section of the village is a flood plain.

The centre of Smallfield village has a high fluvial flood risk (flood zone 3) associated with the Weatherhill stream that runs through the centre and west of the village (see Fig 3, Annex A), with a large portion of the village at medium risk (flood zone 2).

Additionally, fluvial flood risk (zone 2 and 3) is concentrated along the Burstow Stream in the lower two catchments.

As indicated in the Environment Agencies modelling data (see Fig 4, Annex A), there is a high risk of surface water flooding (1 in 30 risk) in a section just north of Keepers Corner, and Smallfield village with a 1 in 1000 flood risk encompassing most of the village and along the river networks, including the surrounding land.

The water table throughout Smallfield and Burstow is less than 3m below the surface**,** there is high risk of groundwater flooding between the M23 and Burstow, and within the centre and Western part of Smallfield village. There is a limited potential for groundwater flooding in the Southern catchment.

Ground water flood risk can be viewed on page 55 of the Surrey County Council Local Flood Risk Management Strategy.

Summary of Incident

A minimum of 25 properties were impacted by the flood event on 17th November 2022 of which two flooded internally and all externally.

An additional 11 properties are likely to have been impacted; it is likely this number does not accurately reflect the impact of the flood event as the recording and investigation of property flooding is triggered by reports to Surrey County Council directly from residents.

There was a severe storm front which crossed Surrey County on the 17th November 2022, with the Environment Agency (EA) reporting 36mm of rainfall over the 16th and 17th. In the Smallfield and Burstow area. The effect of this storm was to raise the levels of water in the drainage ditches and rivers as well as the surface water and foul sewer networks. Flooding occurred where the levels exceeded the capacity of those networks and watercourses. Specific locations experienced flooding beyond what could be expected given the capacity of the drains and watercourses. This increase of impact was found in areas where:

1. Obstructions to flow were found within both ordinary watercourses and main river.

2. Thames Water combined sewerage systems are in the vicinity of watercourses/rivers and as a result were overwhelmed.

3. High-water levels in the main rivers overtopping the bank and causing the connected drainage systems further downstream to backup.

Of which, 66% of all cases investigated were linked to obstructions within ordinary watercourses.

During the flood event on 17th November 2022, river level monitors situated on the Burstow stream at Bonehurt Bridge (see Fig 5, Annex B) and Peekbrook Lane (see Fig 6, Annex B) measured water levels exceeding the typical high, the Peeksbrook steadily rose, peaking at 11am on the 17th. The EA report a sudden peak on the Weatherhill Stream at 2pm on the 17th, with a rise of 1.5m within minutes, followed by a sudden fall. Additionally, blockages were found along Broadbridge Lane (a tributary of Burstow Stream) where it overtopped, reported to the EA on 24th November 2022, the stream had also overtopped on Antlands Lane, causing external property flooding in this location, and an obstruction was found within the Weatherhill stream itself.

Within Smallfield Village, particularly along Orchard road, Plough road and the eastern part of Wheelers Lane, foul flooding occurred due to the Thames Water combined sewerage systems surcharging/ backing up as the capacity was exceeded, this caused external property flooding as foul discharged from manholes and private drains, additionally, properties in the area were unable to use household appliances and utilities, such as taps, toilets and washing machines, with local residents reporting the same mechanism of flooding spans back approximately 38 years; confirmed reports to Surrey County Council dates to February 2014 at the earliest.

During an initial site visit, it was observed that The Weatherhill Stream was obstructed by a fallen tree; as the main drainage point for Smallfield, this likely contributed to water backing up further downstream into the village. This resulted in the drainage systems, both combined and surface water systems to backup and surcharge.

As a result of the storm and blockage found within a critical drainage point (The Weatherhill Stream), surface water from the heavy rainfall event was unable to effectively drain into highway gullies, the Thames Water systems and the ordinary watercourse networks that all discharge into the main river. This obstruction increased the severity and impact of flooding in known flood risk areas, this was further exacerbated by obstructions found within ordinary watercourses and the Burstow Stream and its tributaries. See Annex C for further details.

Within the Burstow area, it has been observed from previous site visits and site visits conducted within this investigation that regular maintenance of ditches/ ordinary watercourses plays a crucial role in reducing flooding incidents in this location.

On Antlands Lane property flooding occurred due to the Burstow stream (main river) overtopping, additionally, the river also overtopped on Broadbridge Lane, however

this was found to be linked to ditch maintenance issues, it is unconfirmed how many properties may have experienced flooding in this location.

Due to the poor permeability of the geological formations present, there is increased importance and dependency on ordinary watercourses as the primary means for effective drainage in the Burstow area. Proper upkeep of these ditches aids in facilitating efficient water drainage and minimizes impact and extent of flooding. Encouraging diligent maintenance practices and awareness of riparian ownership is a pivotal step towards effectively reducing the frequency and severity of flood events within the community.

RMA responsibilities

Surrey County Council:

- Have the duty to investigate flood events under section 19 of the Flood and Water Management Act 2010. Also, as the LLFA, have the responsibility to manage flood risk of surface water flooding.
- Have the duty to maintain the highway and ensure it is free from hazards under section 41 of the Highways Act 1980
- Under section 25 of the Land and Drainage Act 1991 have powers of enforcement in relation to ordinary watercourses.

The Environment Agency:

- Have a strategic Overview of all forms of flooding and the powers to carry out work to manage flood risk from main rivers. This includes powers to require landowners to carry out maintenance work.

Tandridge District Council:

- Powers to manage flood risk from an ordinary watercourse.

Thames Water:

- Have the responsibility to maintain their drainage assets and inure they are in working condition under the Water Industry Act 1991

Landowners:

- Are responsible for protecting their land and property from flood damage and maintain private drainage including rivers and watercourses passing through or adjacent to their land.

Actions Taken by the Risk Management Authorities:

On the 17th -18th November, on becoming aware of flooding in the vicinity of Smallfield and Burstow, the risk management authorities and responders met via conference call and carried out the following actions:

- Commit staff to carry out checks of known flood risk locations.
- Coordinate information of known issues
- Contact members of the community to obtain details of flooded locations.
- Carry out maintenance and inspections of infrastructure.
- Agree to SCC carrying out a Section 19 investigation.

Over three Local resilience forum (LRF) calls the issues identified were transitioned into the normal business activities of the authorities.

The following are ongoing works by the Authorities:

Environment Agency:

- Are updating the flood risk models for the area, on completion of this work package will work with the other authorities to explore and develop potential options to reduce flood risk. Continue to monitor and respond to incidents relating to the main rivers.
- Blockages on Redehall Ditch to the south of Smallfield was found and cleared.

Surrey County Council:

- SCC are working in partnership with Tandridge District Council, Environment Agency, and Thames Water to deliver the Smallfield Flood Alleviation Scheme. The scheme will be a combination of Property Flood Resilience (PFR) measures to 175 properties and an attenuation basin on the Plough Road recreation ground.

Recommendations

Surrey County Council:

- Surrey County Council flood and climate resilience team to consider coordinating a meeting with Thames Water to discuss the reported issues and suitability of the combined sewerage system.

- Surrey County Council may wish to consider their communication strategy for flood risk communication and awareness of riparian ownership to enable communities to become more resilient to the impact of flooding.

Landowners:

- Landowners to proactively engage in regular upkeep of watercourses

Glossary

Fluvial Flooding: Flooding occurs when water levels in rivers rise and overtop their banks

Ground Water Flooding: When the level of water within the rock or soil underground known as the water table rises

LRF: Local Resilience Forum

PFR: Property Flood Resilience

RMA: Risk Management Authority

SCC: Surrey County Council

Surface Water Flooding: Type of flooding that happens when heavy rain falls on hard surfaces, also known as flash flooding.

Annex A: Maps:

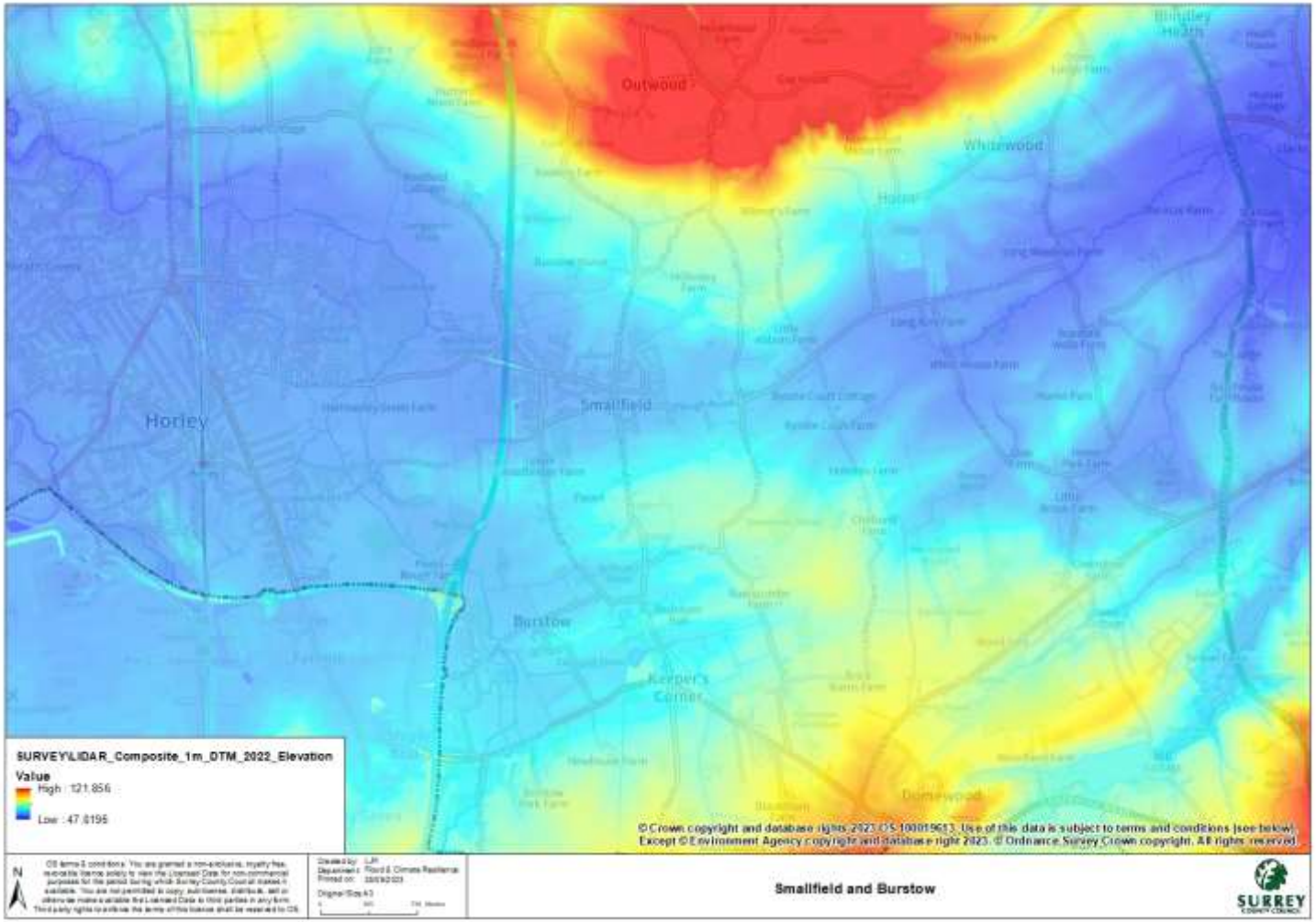

Fig 1: Lidar

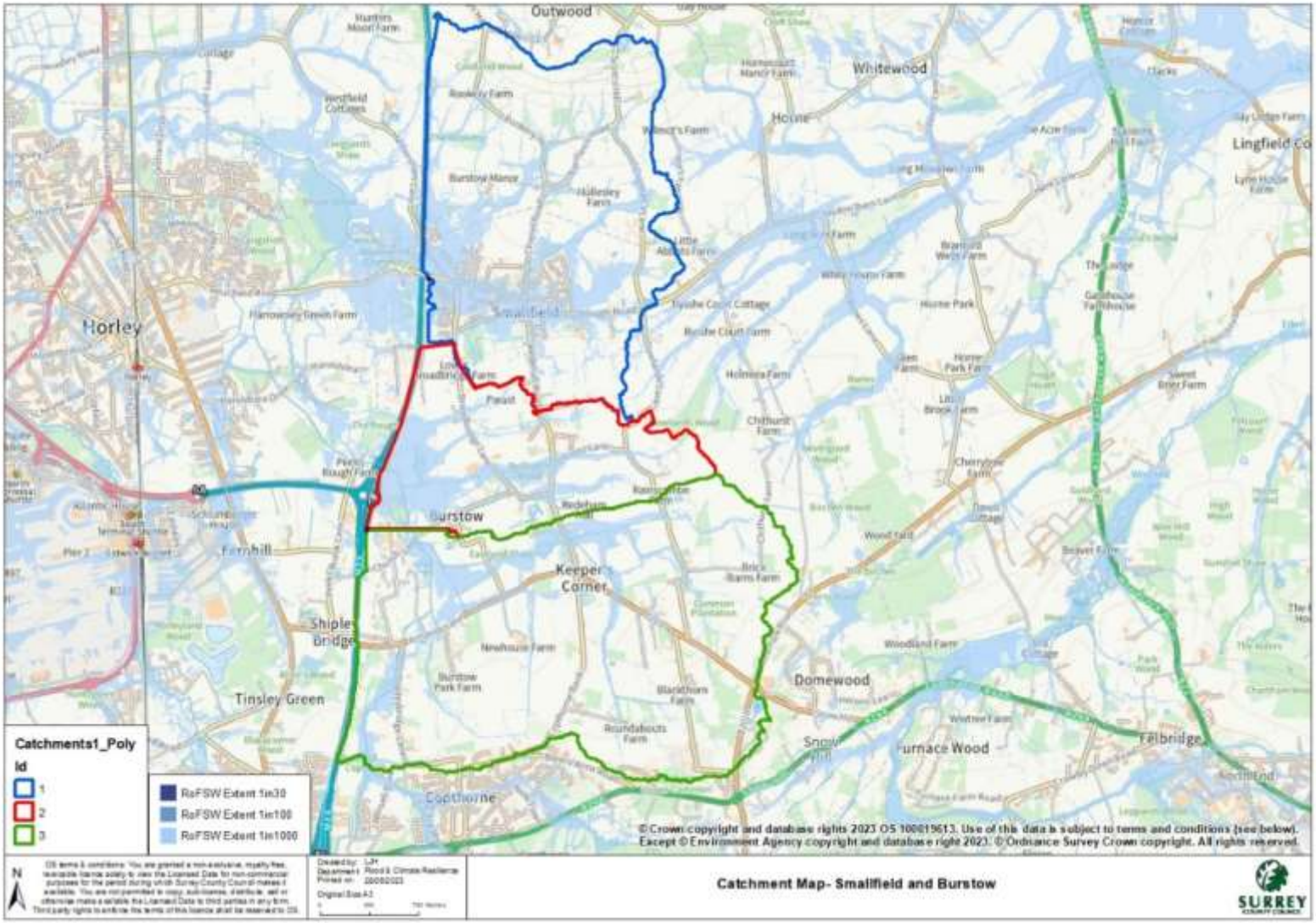

Fig 2: Catchment Map.

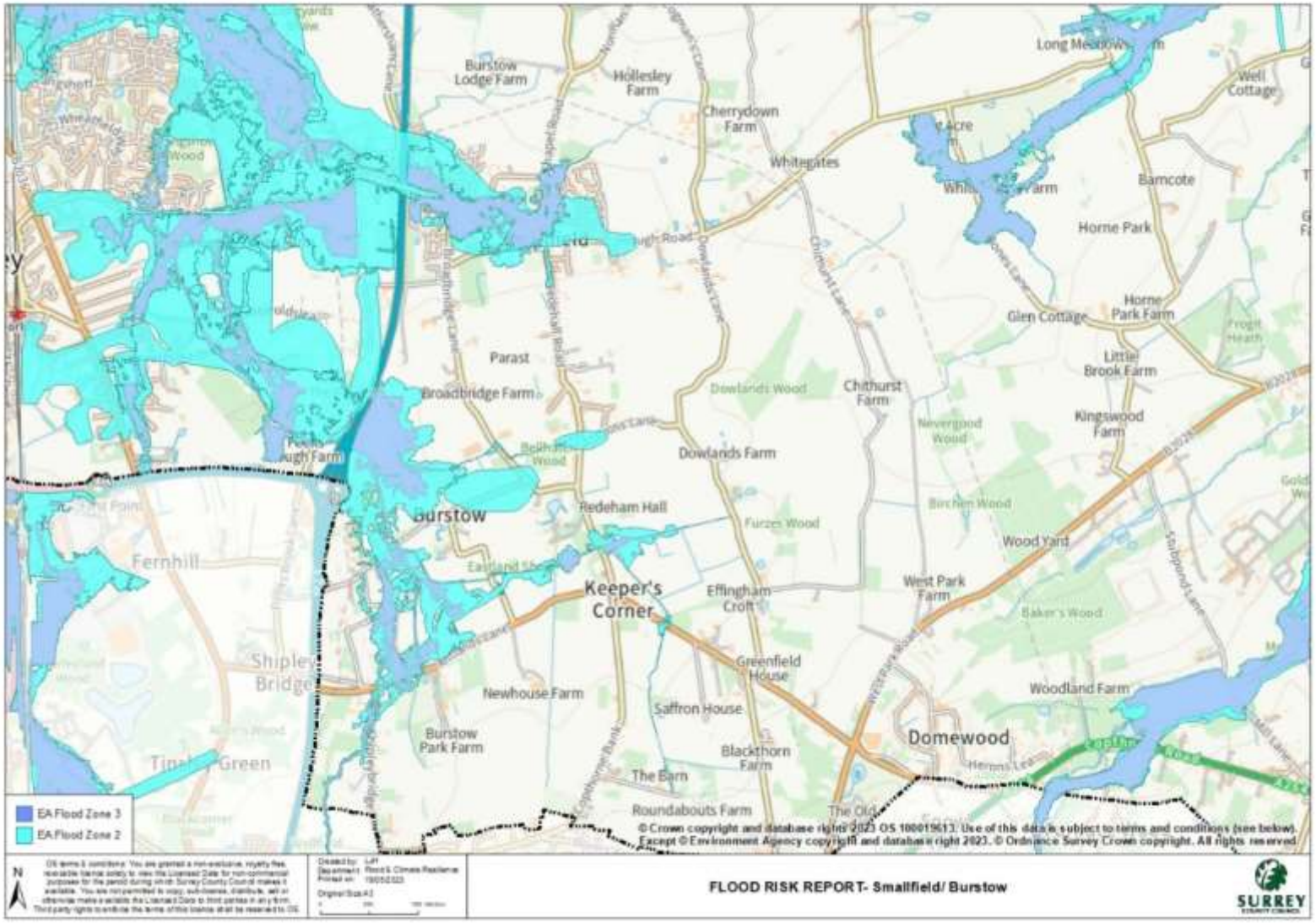

Fig 3: Fluvial Flood Risk Map

Fig 4: Surface water flood risk map

Annex B: River level data

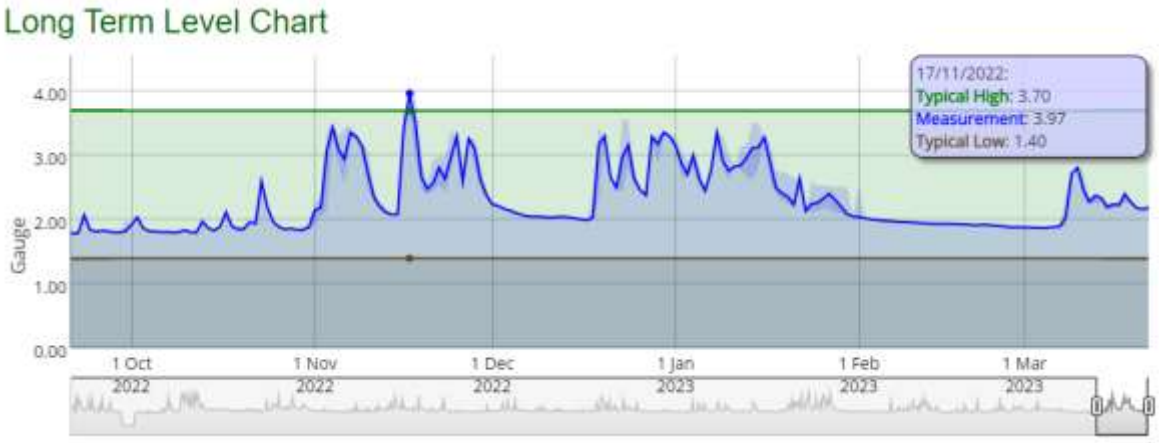

Fig 5: Bonehurst Bridge, river level data, November 17th 2022.

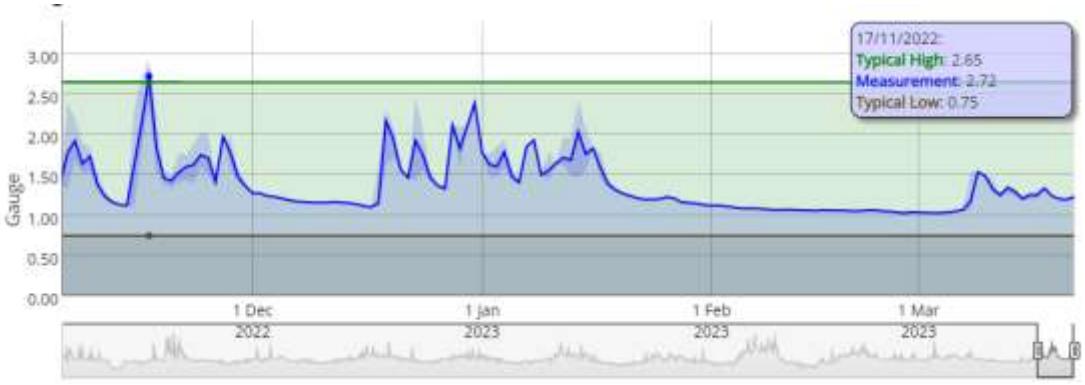

Fig 6. Peekbrook Lane river level data, November 17th 2022.

List of Annexes: Section 19 Investigation reports.

The individual investigation reports produced have been provided with a reference number as shown below, the reference number has been provided and sent to the residents and relevant RMA's.

Annex A: Location 1 (Ref 2419524)

Annex B: Location 2 (Ref ME-50067307)

Annex C: Location 3 (Ref ME-50068407)

Annex D: Location 4 (Ref ME-50079165)

Annex E: Location 5 (Ref ME-50101232)

Annex F: Location 6 (Ref ME-50101280)

Annex G: Location 7 (Ref ME-50101271)

Annex H: Location 8 (Ref ME-50079229)

Annex I: Location 9 (Ref ME-50095882)

Annex J: Location 10 (Ref ME-50101234)

Annex K: Location 11 (Ref ME-50101226)

Annex L: Location 12 (Ref ME-50101257)

Annex M: Location 13 (Ref ME-50101298)

Annex N: Location 14 (Ref ME-50101329)

Annex O: Location 15 (Ref ME-50101303)

Annex P: Location 16 (Ref ME-50104011)