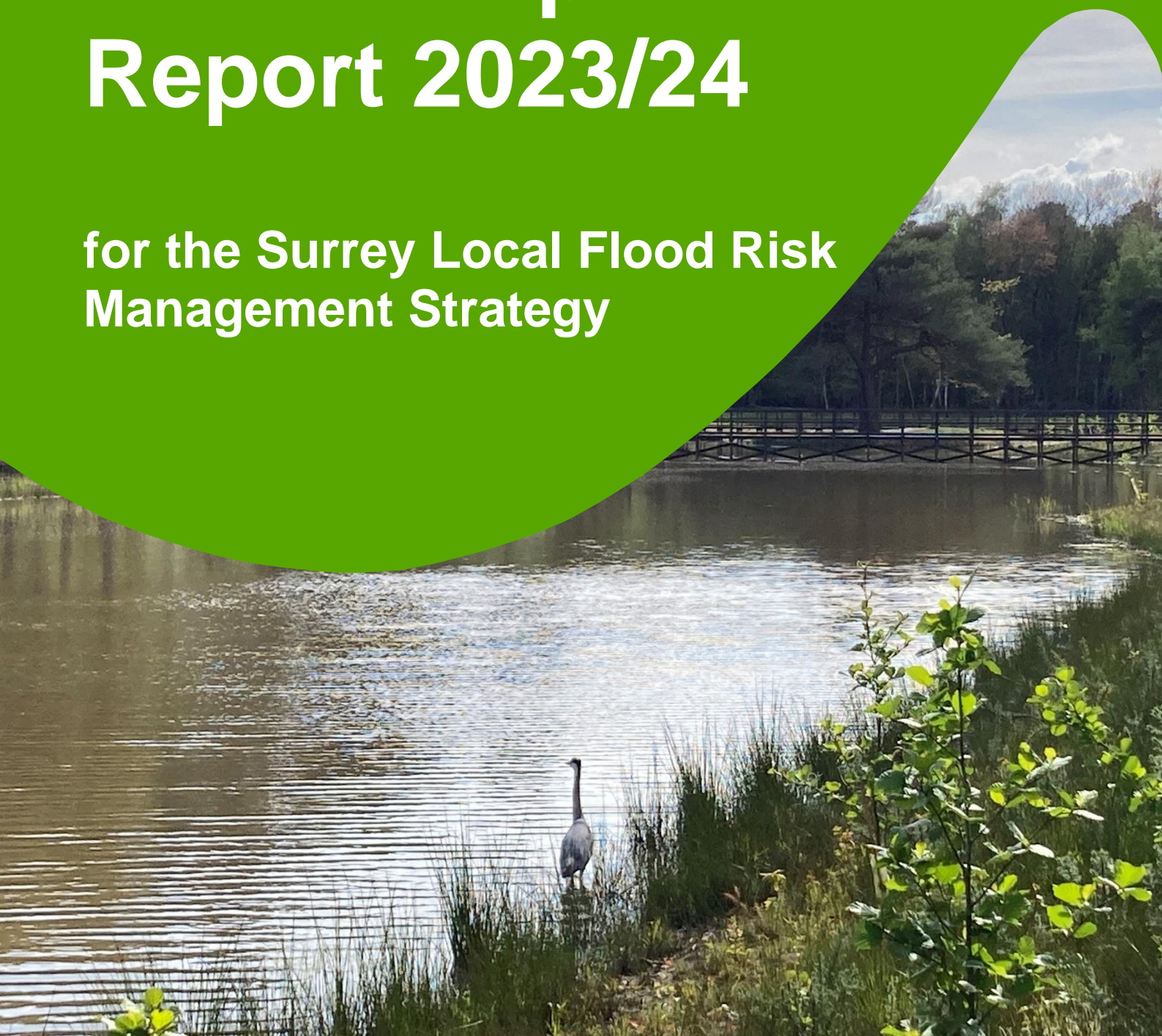


# Annual Impact Report 2023/24

## for the Surrey Local Flood Risk Management Strategy



In partnership with:



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# Introduction

This report summarises how the Surrey Flood Risk Partnership Board is accomplishing its objectives as laid out in the Surrey Local Flood Risk Management Strategy. The report aims to inform individuals, communities and businesses, of the steps Surrey flood risk partners are taking to manage the impact of flooding and provides insight into how this is being achieved. All of the Surrey Flood Risk Partnership Board members are committed to achieving the agreed objectives. To this end, use of the term 'we' refers to all Risk Management Authorities working in partnership. Information within this report was gathered in March 2024 for the 2023/24 financial year.

Flooding in Surrey poses significant human and financial risks, exacerbated by climate change. Surrey County Council declared a climate emergency in 2019 with flood risks expected to rise by 15-23% by the 2080s. While the Council is dedicated to reducing flood impacts, it is important to recognise that flooding is a natural occurrence and cannot be entirely prevented.

The [Surrey Local Flood Risk Management Strategy](#) outlines 8 objectives and accompanying sub-objectives agreed by the Risk Management Authorities and monitored by the Surrey Flood Risk Partnership Board. It oversees cross authority work and is delivered through prioritised regions, with a catchment-focused approach to coordinate flood risk management activities. It provides a robust foundation for managing flood impacts effectively. To tackle flood risk, we support residents and businesses, so they are prepared and resilient. Despite limited resources and competing priorities, our strategy involves working in partnership, investing in natural and engineered flood schemes, policy influence, education and careful preparation. The strategy is aligned with the [National Flood and Coastal Erosion Risk Management Strategy for England](#).

Multiple organisations and individuals contribute to flood alleviation. The Surrey Flood Risk Partnership Board is made up of Flood Risk Management Authorities as defined in the Flood and Water Management Act (2010). These are:

- The Environment Agency has strategic oversight for national flood risk, managing main rivers and the sea.
- Surrey County Council, the Lead Local Flood Authority, manages the risk of flooding from ordinary watercourses, surface water and ground water. Also Surrey Highways.
- District and borough Councils manage ordinary watercourses
- Water companies are responsible for maintaining their water and sewage networks.

# Key points from 2023/24



£2.5 million total expenditure by Surrey County Council on projects



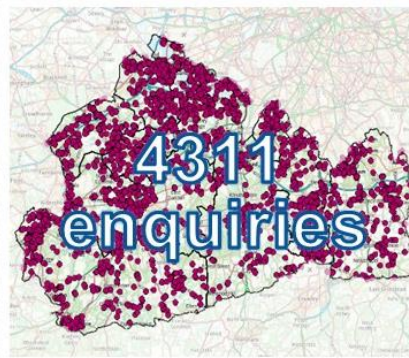
Surrey County Council approved the climate change adaptation and resilience strategy



272 households, businesses and farmers eligible for grant funding following storm Henk



1,359 meters of watercourse reinstated through enforcement



Surrey County Council received 4,311 flood related enquiries, resulting in 63 Section 19 investigations



2,730 l/s on Surrey County Council Surface Water Drainage Consultations in 2023



14 Community Resilience Flood Action Groups supported by Risk Management Authorities



98km's of watercourses maintained by district and boroughs and Surrey County Council



25,164 residential properties currently at risk from fluvial and surface water flooding

# Objective 1: Information

*Our understanding of local and strategic flood risk will be improved through clear data management and sharing between risk management authorities to ensure partnership delivery of works to high risk areas.*

## Catchment based approach

To deliver the Local Flood Risk Management Strategy objectives, the Risk Management Authorities adopted a catchment based flood management approach in 2019. To do this, we collated information from Risk Management Authorities to create maps which highlighted our collective priorities based on risk, modelled data, historic knowledge and experience of incidents. This formed the creation of the Priority Flood Areas and Catchment Action Plans.

As part of the Surrey Local Flood Risk Management Strategy, Surrey County Council arrange partnership meetings twice yearly for each of the 11 district and borough councils, with all Risk Management Authorities that have a duty to manage flood risk. We meet to update the Priority Flood Areas and Catchment Action Plans and to discuss how our actions are being progressed. This information is used to aid partnership working and identify where there are opportunities to work together more closely and where there may be joint funding available. The meetings also help highlight emerging problems across the Risk Management Authorities. Activities or opportunities range from community engagement to increase awareness, to major capital infrastructure schemes such as the River Thames Scheme or Caterham Hill Flood Alleviation Scheme. This can also be used as part of Preliminary Flood Risk Assessments and local plans to consider and mitigate flooding as part of development. Whilst some individual actions may not significantly improve resilience, the sum of these actions collectively improve resilience in each catchment.

There are currently 140 Priority Flood Areas (figure 1) in Surrey. Of these, 38% are rated as high priority. There are a total of 455 catchment actions in Surrey, of these 36% actions are classed as ongoing and 18% are complete.

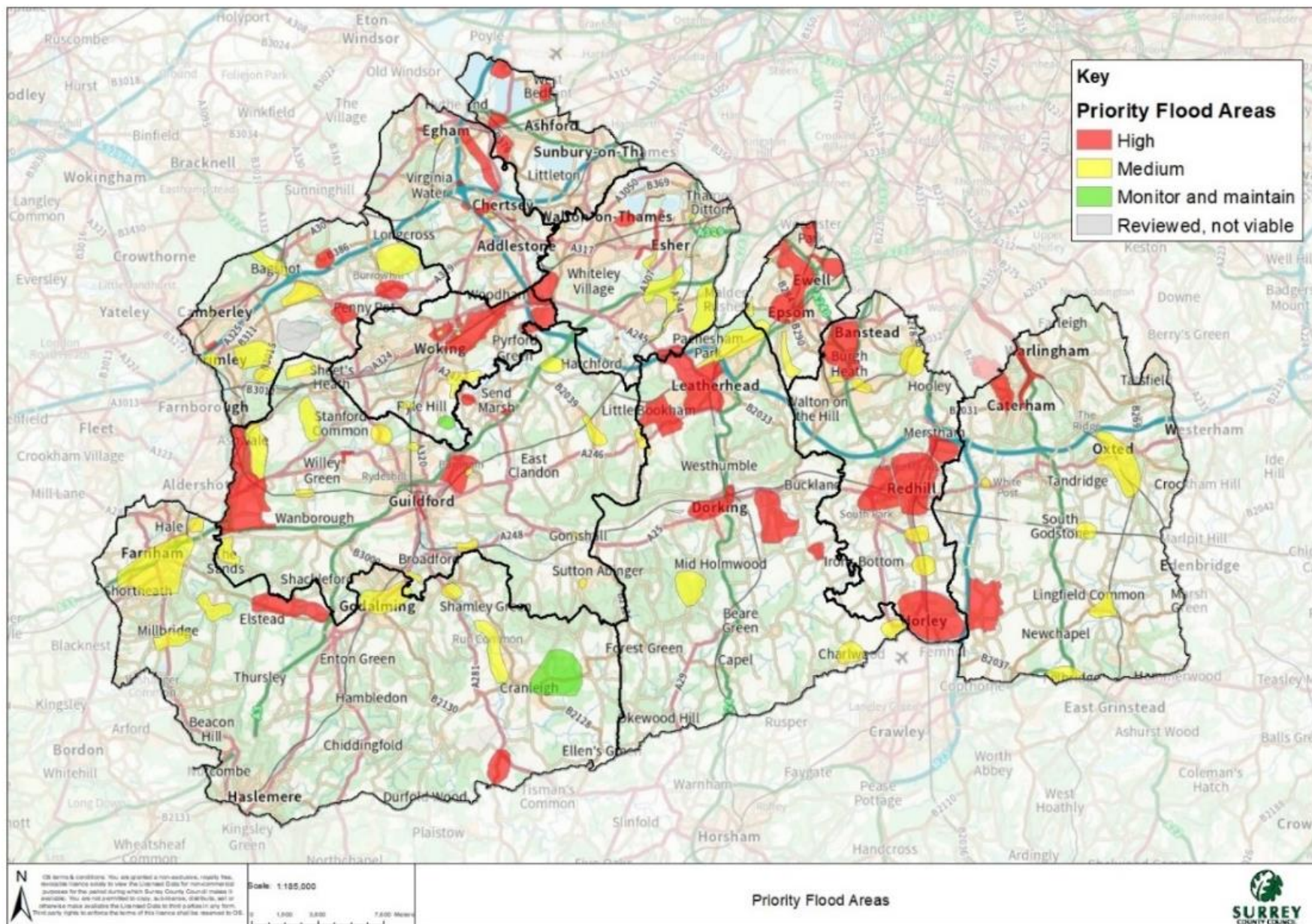


Figure 1 Priority Flood Areas map

Figure 2 shows the percentage of Catchment Action Plans by each Risk Management Authority lead. Surrey County Council and the EA are the leads on a large number of the Catchment Action Plans. This shows that where the district and boroughs are the lead for managing flood risk on ordinary watercourses, this may identify where there is a lack of resource focusing on this type of risk.

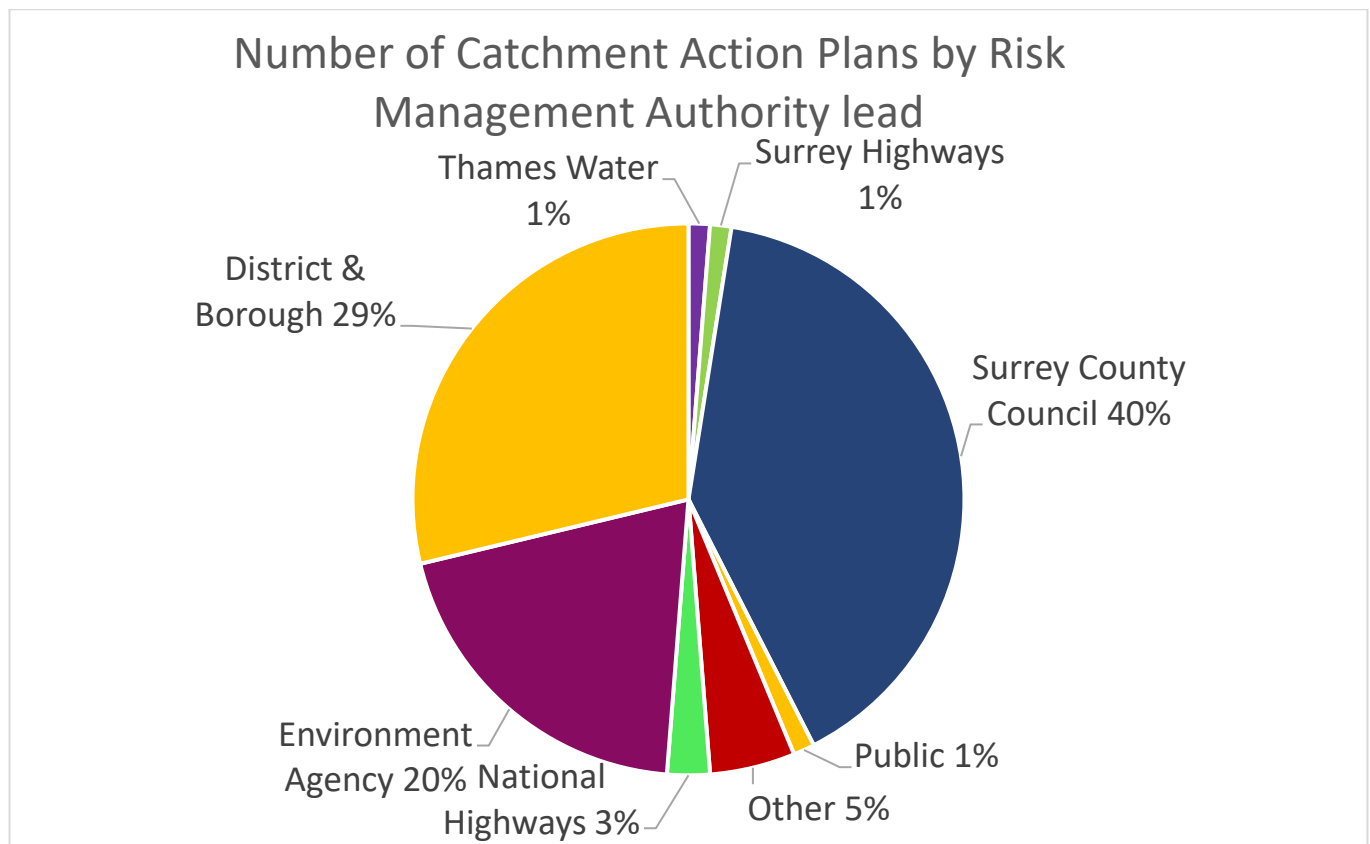


Figure 2 Number of Catchment Action Plans by Risk Management Authority lead

## Recommendations

We will continue to work with other Risk Management Authorities, to identify and discuss how we can manage risks and how we can overcome these.

## Properties at risk of flooding

Surrey is currently at high risk of flooding with 59,561 people currently at risk from frequent fluvial and surface water flooding. It has experienced several major flood incidents in the last ten years. There are also many localised areas prone to surface and groundwater flooding or the emergence of groundwater. The impact of groundwater risks and incidents is ambiguous and may be an area for local authorities to focus on

The Surrey Climate Change Risk and Opportunities Assessment, 2021, states that:

- the number of people at risk from frequent fluvial and surface water flooding is predicted to increase by 37% to 85,702 people with a +2°C warming and by 45% to 107,800 people with a +4°C warming.
- There are currently 25,164 residential properties at risk from fluvial and surface water flooding and by 2050, could increase 37% (40,131) in a +2°C warming future and 50% (50,391) in a +4°C future.



## Recommendations

We aim to analyse new modelling which includes climate risk projections to understand which properties may become at greater risk of flooding due to climate change projections, rather than just looking at current risk.

We will work to better understand the risks of groundwater by engaging with Risk Management Authorities and advocating collaborative learning.

## Surrey County Council flooding enquiries

The [Environment Agency reported](#) that October 2023 to March 2024 was the wettest 6 month period across England on record, since records began in 1871.

Average precipitation on stormy days has [increased by about 20%](#) due to human induced climate change compared to a 1.2 degrees Celsius cooler pre-industrial climate, which means we're generally seeing more incidents of flooding during storms.

Surrey County Council received 4,311 flood related enquiries in 2023/24. Figure 3 shows the number of flood related enquiries and average monthly rainfall in Surrey (data obtained from the Met Office), from April 2018 to March 2024. We have also highlighted various named storms (further information on [named storms 2023/24](#) can be found on the Met Office website). This shows how the impact of these storms affect the number of enquiries Surrey County Council receives during high rainfall events.

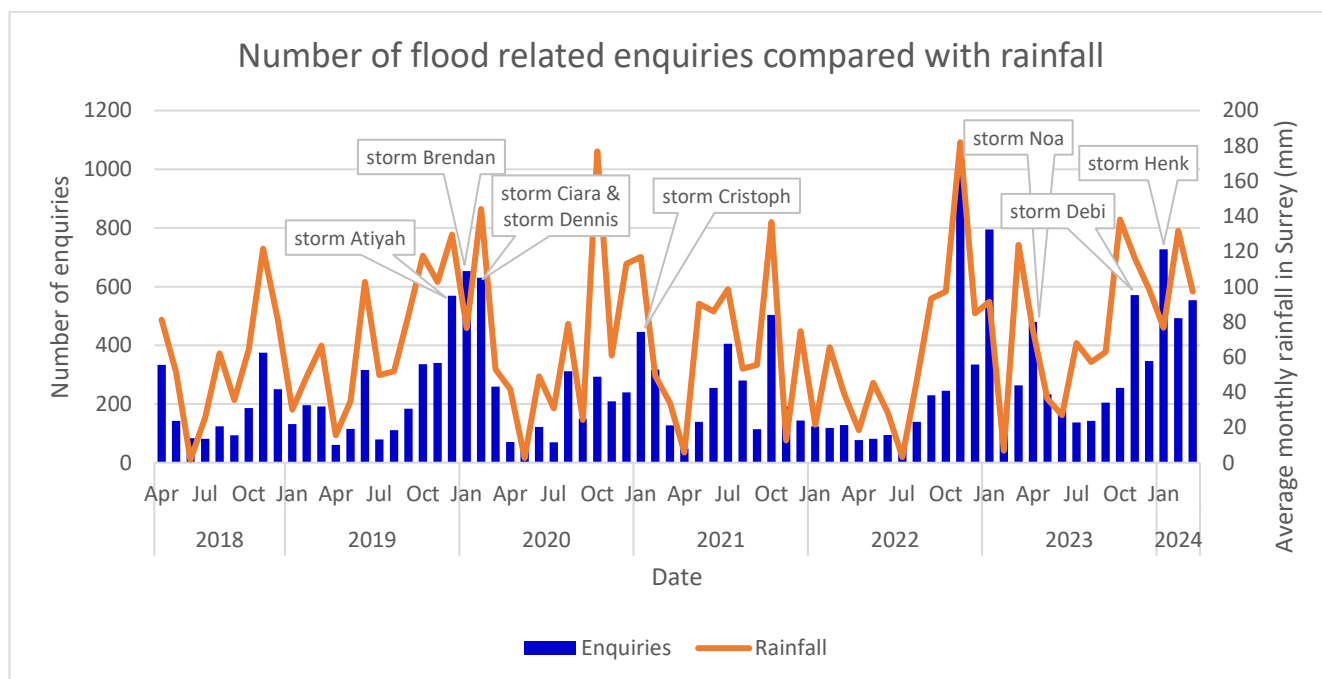


Figure 3 Number of flood related enquiries compared with rainfall

Not all peaks in enquiries correlate with storms or higher rainfall amounts, this could be due to localised flooding incidents or better knowledge and recording of flooding incidents. For example, during storm Henk, all Risk Management Authorities worked together to share property flooding data to ensure the threshold for grants for residents could be met.

For example, the storm Henk flooding event was created by consecutive days of rainfall through the last week of December and into January, we then experienced high daily total of

rainfall on 4 January 2024. If the amount of rain we saw on 4 January 2024, had occurred on a dry catchment, it is unlikely that we would have seen a significant event. However, as it fell on saturated catchments and when the lower tributaries and River Thames were already running high from the previous week's rain, the event was significant.

## Recommendations

We will continue to share property flooding data with Risk Management Authorities to improve data gathering, increase knowledge and look for opportunities for funding and joint working.

We will start to take a closer look into the property flooding data, in order to help us to delve deeper and understand the main factors resulting in flooding, which could help us to focus on reducing flooding or educating residents on how to better protect themselves in the future.

## Property flooding

In 2023/24 Surrey County Council received 873 records of flooding. Of these, 138 were recorded as internal and 735 were external. It is likely that there have been many more incidents of flooding that we are not aware of. Figure 4 shows the distribution of the property floods across Surrey.

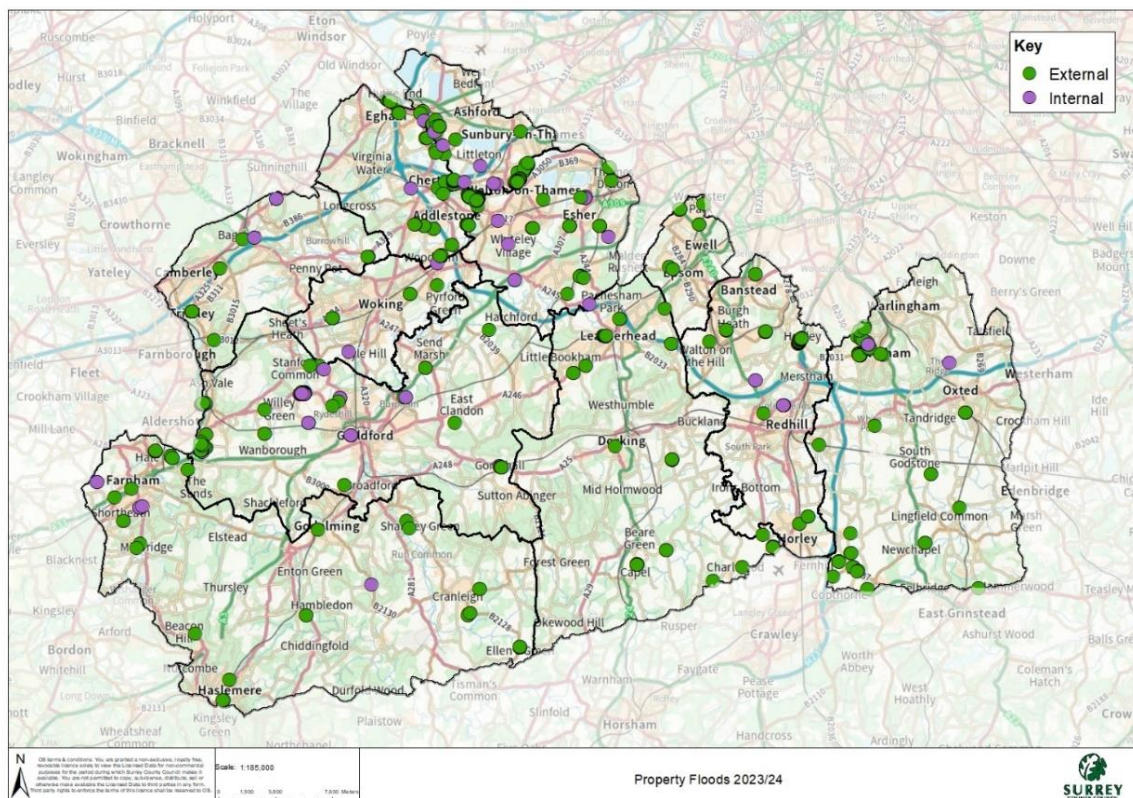


Figure 4 Property Floods Map

Figure 5 shows the number of internal and external property floods recorded in 2023/24. The January 2024 peak is much higher due to storm Henk which affected Surrey between 2 January 2024 and 12 January 2024 and resulted in approximately 94 internal floods and 526 external floods.

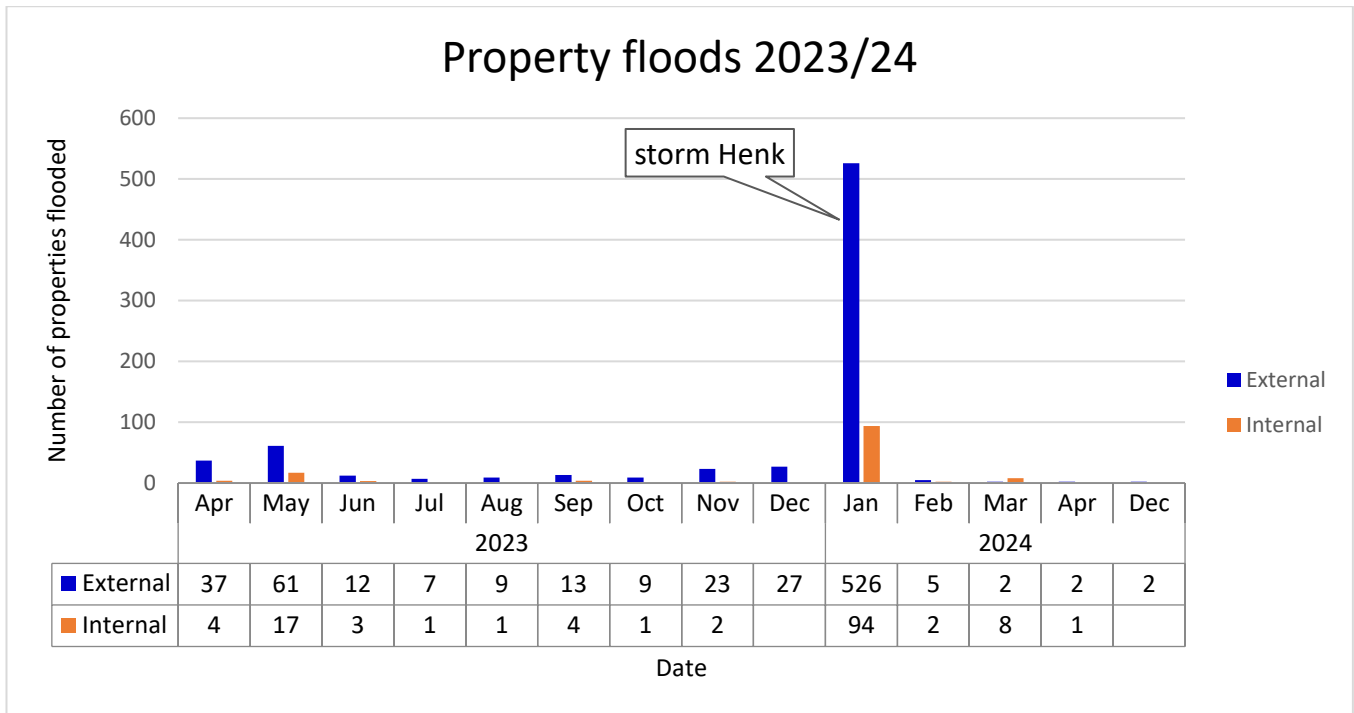


Figure 5 Number of Property Floods graph

Figure 6 shows the number of property floods in 2023/24 against the number of high priority Flood Areas, by district and borough. This shows us that Guildford and Runnymede have the largest number of high priority Flood Areas, and these areas have also received some of the highest reports of property flooding in 2023/24. This suggests that collectively as Risk Management Authorities, we understand there is a high level of risk here. However this also shows that Elmbridge has a high record of property floods, but does not have as many high priority Flood Areas proportionately. This may be because Elmbridge is smaller geographically.

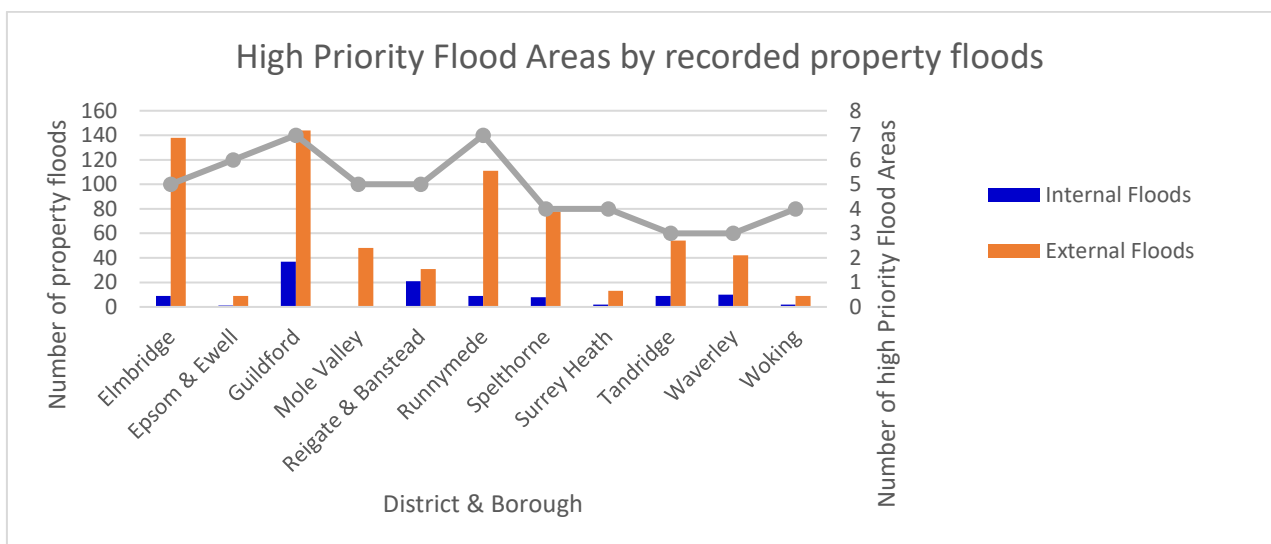


Figure 6 High priority Flood Areas by recorded property floods

## Recommendations

We should look at areas with a high number of property floods and compare this data with high Priority Flood Areas, to understand if the risks of flooding have been identified. This will help us establish if there are any risks not being managed adequately.

We would like to explore and start documenting how many of the catchment action plans are adapting to be resilient to a projected '2 to 4 degrees Celsius world', rather than just responding to current risk.

## Thames Water flood data

Table 1 shows property floods Thames Water have attended to and have been confirmed as a flood. The colour scale represents the highest number of floods per district and borough (dark red). You can see from this that there were a high number of properties flooded in 2014 which aligns with the major storms experienced in this year.

Year	Elmbridge	Epsom and Ewell	Guildford	Mole Valley	Reigate and Banstead	Runnymede	Spelthorne	Surrey Heath	Tandridge	Waverley	Woking
2014	142	22	234	110	129	227	171	78	73	181	81
2015	49	12	112	69	122	47	33	87	40	119	62
2016	59	19	96	62	65	32	19	66	81	94	88
2017	45	4	80	47	63	27	19	45	26	66	30
2018	49	14	78	43	36	29	17	37	27	105	55
2019	67	20	51	34	54	53	23	28	48	61	52
2020	83	20	75	56	121	34	46	41	42	62	61
2021	95	42	71	73	88	52	43	31	39	77	61
2022	18	12	35	10	20	16	14	10	18	24	27
2023	27	5	26	15	21	26	7	22	10	37	21

Table 1 Thames Water confirmed property floods

## Claims against Surrey County Council

Figure 7 shows the number of all claims relating to incidents of flooding causing damage (successful and unsuccessful), between 2021 and 2023. The majority of these claims related to the highway.

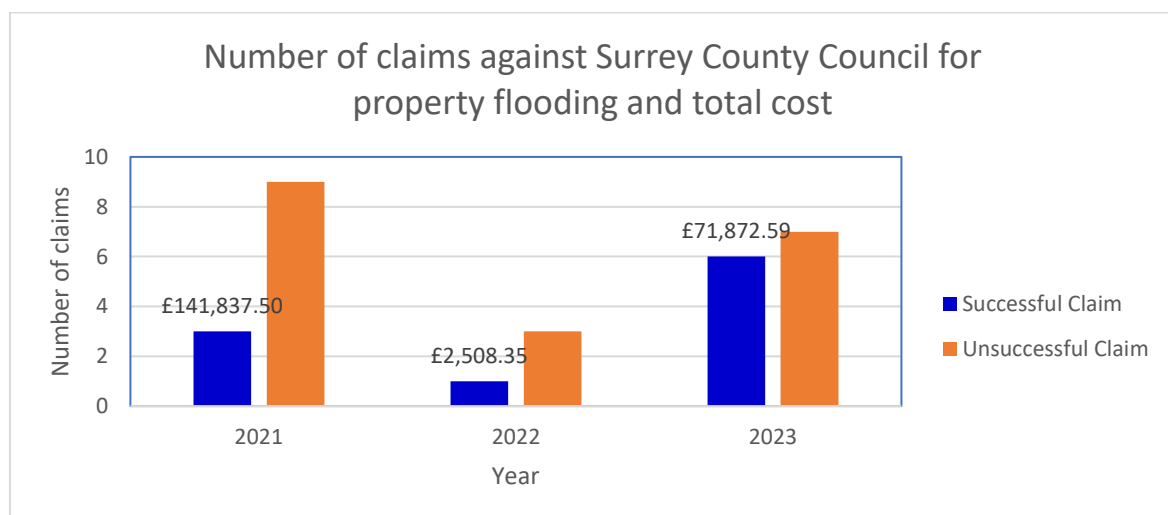


Figure 7 Number of claims against Surrey County Council for property flooding, and total cost

## Recommendations

We recommend that claims data is referred to the relevant department and analysed to understand any themes, in order to reduce Surrey County Council's financial risk going forward.

# Storm Henk



Figure 8 Photo taken from the Runnymede roundabout A30 Egham. View of properties adjacent to the Thames (west of the Runnymede Hotel)

Environment Agency update on storm Henk:



*Following several months of above average rainfall, in early January, storm Henk brought heavy and widespread rainfall in a short space of time. This fell on saturated ground in catchments in the area which drained into rivers which were already high. We saw fairly rapid rises in river levels amongst a number of the upstream River Thames' tributaries, and a corresponding rise on the Thames itself as the tributaries discharged into it.*



The Met Office reported that [storm Henk](#), continuing the theme of much of the autumn and December, brought damaging winds and heavy rain on 2 January 2024, with over 30mm of rain falling in the first 2 days of January. With rivers full and the ground already saturated from the persistent rain throughout December, the extra rainfall from Henk resulted in significant flooding problems. In the first 4 days, England received 30 to 50mm of rain. By the 5<sup>th</sup>, most of central and south-east England had already received two thirds or more of the whole-month average rainfall.

Across Surrey, storm Henk caused significant disruption to communities and infrastructure. As part of our emergency planning, we work all year round to help inform and prepare residents for such extreme weather events. We also work closely with partners to respond to these and help properties and communities recover from flooding. See the [Surrey County Council webpage on storm Henk](#) for more information.

As the rain fell in a short period of time, it caused areas of the county to experience different types of flooding between 2 January and 12 January 2024:

- Properties and roads were immediately flooded with surface water.
- Low-lying land and roads were flooded in the following days due to high levels on tributaries such as the River Wey and River Mole flooding.
- Riverside properties, communities and roads were flooded as a result of increased water levels along the River Thames.



*Figure 9 Photo of flooding in Tilford*

## How we responded to storm Henk

- The flooding event in January was dealt with at a Tactical Coordinating Group (TCG) level which was chaired by Surrey Police this was then handed over to Surrey County Council to run the recovery group.
- Our Highways Teams increased their operational response team capability in preparation and worked 24 hours a day, 7 days a week, to respond to over 113 reports of flooding which were received overnight during the storm. This led to many roads being closed to ensure the safety of residents.
- In less than 24 hours after the flooding started, Surrey Fire and Rescue Service received 22 calls from people trapped in vehicles.
- Over 50 properties have been confirmed to be flooded internally across the county with many more affected in other ways and more could still be reported.
- The Environment Agency were continuously monitoring river levels, issuing 21 flood warnings between 4 January 2024 and 12 January 2024, and informing partners of likely impacts. This included local district and borough council who assisted with evacuations and helping vulnerable residents.
- Risk Management Authorities developed a flooded property process for collecting data

## Flood recovery framework

In response to storm Henk, the government announced in January 2024 that the flood recovery framework would be made available to flooded households, businesses and farmers impacted by storm Henk where the Lead Local Flood Authority area met a threshold of 50 properties flooded internally, to help recover from the impacts of flooding. Risk Management Authorities including Surrey County Council, the Environment Agency and district and boroughs worked together to collate data to ensure the threshold could be met to enable grant funding. There were at least 114 internal property floods recorded, which unlocked the funding. In total there were 272 residents and businesses flooded internally or classified as unliveable for at least 48 hours.

### *Recommendations*

Although working in partnership worked well to achieve the desired outcome following storm Henk, there are improvements to be made to the way Risk Management Authorities share property flooding data to ensure the information shared is accurate, relevant, simple and quick to share and process. This is an ongoing piece of work which we will report next year.

## Surrey Highways response to severe weather events

During rain events, to help clear and investigate flooding sites, Surrey highways regularly utilise their soakaway machine resources to help support the existing fleet of jetting machines. In addition to this, Surrey highways and their contractor, pool available resources in order to meet the demands presented by those storms. To do this, Surrey County Council highways made the decision in May 2023 to increase the resource availability. This somewhat mitigates the impact of reactive or response work on the maintenance schedule, where previously this may have set back planned works. Where storm events impact the highway, we use this resource in response to the event to clear flooding, but also to help guide where routine maintenance may need improving.

- Storm Ciarán: Surrey Highways gave control of all non-cyclical resources for 1 day to help clear flooding across the county (1 soakaway machine, 4 jetters, 1 blocked connection machine)
- Storm Isha: Surrey highways gave control of 1 soakaway machine to help clear flooding sites, out of hours.

## Surrey's climate change adaptation and resilience strategy

Surrey County Council approved the [climate change adaptation and resilience strategy](#) in 2023, a key overarching strategy to support our flood risk management in a changing climate.

# Objective 2: Maintenance

*Risk Management Authorities will reduce flood risk by delivering an effective maintenance regime for their drainage assets and managing their estates across the County in an environmentally sustainable manner.*

## Delivering an effective maintenance regime for Risk Management Authority owned assets

We cannot alleviate flood risk through new capital works alone. Maintenance is an important task that needs continuous resource in order to ensure our drainage assets function correctly. The [Public Accounts Committee state](#) that due to a lack of maintenance funding at the Environment Agency, there are more properties at an increased risk of flooding than the government expects to better protect through its ongoing capital programmes by 2027. This illustrates that poor maintenance is undermining progress from new capital expenditure.

The data below is an aggregation of the maintenance information from Risk Management Authorities showing where flood risk is sustained at a lower level through maintaining the flood and drainage infrastructure in the county.

### **Recommendations**

Continue to ensure flood risk is sustained at a lower level through effective maintenance, and where possible, by working together to achieve this.

## Surrey Highways drainage maintenance programme

Surrey Highways have 5,533 catchpits, 174,908 gullies and 9,136 soakaways. They have an optimised 2 year [drainage maintenance programme](#) for gullies and catchpits, which means each asset, unless obstructed, is cleaned, tested and if not running, jetted. Optimisation is based on each road's priority status and historic silt levels. This ensures assets are receiving the correct frequency of cleaning to manage the silt levels.

All soakaways are prioritised based on their location (proximity to wetspots and known flood sites), historic silt levels and the road's priority status.

Surrey Highways maintains 4800km's of highway and only 0.5% of Surrey's road network is recorded as regularly flooding.

## Watercourse maintenance

District and boroughs, the Environment Agency and Surrey County Council maintained an estimated 158km's of watercourses in 2023/24 costing approximately £553,420. Annual watercourse maintenance programmes vary considerably for each Risk Management Authority, due to resource constraints, budgets, and responsibilities. To illustrate this task, we have taken Guildford Borough Council as an example:



Most works on watercourses undertaken by Guildford Borough Council across the borough involve vegetation clearance as well as clearing assets such as grilles which are known to regularly block. The Council has 92 grilles on their inspection schedule which need on average 5 visits per year, by Guildford Borough Council to maintain. Any watercourse requiring silt clearance is the responsibility of the riparian owner (see objective 4 for more information on riparian ownership) to maintain and therefore not undertaken by the Council unless the Council has the riparian responsibility.

Some watercourse maintenance works are reactive as and when they need clearance, rather than being proactively inspected. Some watercourses in the borough are prioritised to help reduce flood risk where this benefits the wider community. The Council may complete works on other watercourses if budgets allow.

The Council is also looking to review their watercourse maintenance operations as they are becoming more aware of the benefits of not over-managing some locations, with the potential for Natural Flood Management.

The Environment Agency publishes its [maintenance programme](#). This shows things such as proposed and historical maintenance undertaken with an indication of asset type, asset maintainer and length of watercourse maintained, subject to the following caveats:

- All maintenance undertaken is subject to available resources including funding and discussions on requirements.
- There can be delays in works being undertaken if we are dealing with residual impacts from incidents, especially flooding and the time of year.
- The data relates to watercourses that the Environment Agency maintain, as opposed to permissive powers or riparian responsibilities.

## ***Recommendations***

We will continue to discuss the impact of maintenance programmes with Risk Management Authorities to look for opportunities to; work together to sustain the level of maintenance, to reduce the cost, to increase the amount of maintenance delivered for the same cost, to focus maintenance on critical areas, and to share best practice.

## **Maintenance of Surrey County Council Sustainable Drainage Systems (SuDS) assets**

The recent Surrey County Council Countryside Services Framework tender included sustainable drainage maintenance. The approved framework suppliers can now provide SuDS construction and maintenance activities across Surrey County Council directorates including on the highway. This allows for specific maintenance on Surrey County Council owned or adopted SuDS assets which are likely to increase in number as these are installed across the county, and especially if Surrey County Council becomes a SuDS Approval Body. Surrey County Council currently have a number of SuDS projects ongoing, where this framework is essential to ensure they function correctly and as designed.

Funding for ongoing maintenance of SuDS was provided to Surrey Highways following the elected members Task and Finish Groups in the summer of 2023. An example of its use was maintaining all the Petrol Interceptors that Surrey Highways have recorded on their asset database as these are vital to ensuring any spills are contained appropriately to prevent leaks into watercourses.

# Thames Water maintenance programme

For sewage treatment works, waste pumping stations and water production works, Thames Water have a programme of planned maintenance that covers mandatory work for regulatory reasons, including health and safety, planned preventative maintenance and condition-based maintenance designed to ensure equipment and assets are working as expected, and operational site checks.

There are many different types of maintenance plans dependant on the type of equipment or assets. Please note that 'maintenance requirement' as listed below could range from having 1 maintenance job within the financial year to more than 12 maintenance jobs, dependant on the applicable maintenance plan. Thames Water did not undertake any works on specific flood alleviation projects in 2023/24.

See below for details on planned maintenance and works completed in 2023/24 across Surrey:

- Waste treatment works and waste pumping stations:
  - 4896 pieces of equipment had maintenance requirements
  - In addition to the above, 951 groups of equipment had maintenance requirements
- Water production works:
  - 2011 pieces of equipment had maintenance requirements
  - In addition to the above, 204 groups of equipment had maintenance requirements
- Waste Networks - Planned sewer maintenance: The planned sewer maintenance programme is a proactive intervention programme that involves inspecting and cleaning sewers to remove material that causes sewer blockages:
  - 162.2km length of sewer maintenance completed
- Waste Networks - Blockage hotspot: The Blockage Hotspot (BHS) programme is a proactive intervention programme that involves cleaning and CCTV surveying sewers to identify structural issues (for example a broken pipe) that might need further repair work.
  - 20.8km length of sewer completed
- Water Networks - Repair & Maintenance:
  - 1,946 repair and maintenance activities were carried out
  - 929 activities focused on repairing & replacing boundary boxes (boundary boxes are small underground compartment that holds stop taps and meters)
  - 546 activities on service pipes (service pipes link the property to the local network distribution mains pipe).
  - 195 activities focused on Mains pipes (mains pipes delivers drinking water to customers. Appointed water companies are responsible for the water mains)
  - 107 activities focused on ferrule fixtures (ferrules are connection points where the pipe leaving the main serves multiple service pipes).
  - 169 on a variety of other asset categories.

# Objective 3: Risk Management Authority Responsibility

*We will agree with partners who the Risk Management Authorities in Surrey are, jointly define their responsibilities and establish clear lines of communication with them to support the delivery of partnership-based flood alleviation projects.*

## Risk Management Authority engagement

In order to achieve the objectives of the Surrey Local Flood Risk Management Strategy, we have developed a communications plan for strategic and operational engagement between partners.

The Surrey Flood Risk Partnership Board meets quarterly. This sets strategic direction and measures the delivery of the Surrey Local Flood Risk Management Strategy.

The Surrey Flood Risk Partnership Board Working Group meets quarterly. This group interprets strategy direction and creates delivery of the Surrey Local Flood Risk Management Strategy objectives.

Surrey County Council and the Environment Agency meet with each of the 11 Surrey district and borough Councils twice a year. These meetings maintain the Priority Flood Areas plans and form operational delivery of the Surrey Local Flood Risk Management Strategy objectives, and feedback to the Surrey Flood Risk Partnership Board.

In 2023/24 district and boroughs attended 64% of the quarterly Surrey Flood Risk Partnership Board and Working Group meetings. Water Companies attended 33%, and the Environment Agency and Surrey County Council attended 100%.

The twice yearly district and borough operational meetings were attended by district and borough Councils in 91% of cases with 100% attendance from the Environment Agency and Surrey County Council. Water companies have not managed to attend these meetings.

We are starting to see that pressures within some district and boroughs is causing any lack of engagement in these meetings. So where certain district and boroughs did not attend, this appears to be because there is no one available to attend, either because there isn't anyone in a role that's relevant to deal with flood related issues or because it's not a priority for them.

## Recommendations

We will continue to push for better engagement by all Risk Management Authorities in our meetings.

We will look to create a publicly accessible data catalogue for the impact report, next year to show the data we collect and how we use it, to make it transparent and also comparable year on year.

# Objective 4: Landowner Responsibility

*Private owners will be made aware of their riparian responsibilities to maintain their drainage assets and watercourses. We will support, promote and enforce these responsibilities.*

## Riparian responsibility

Surrey County Council develop our knowledge of riparian assets in high risk areas by recording these assets on a reactive basis. Through our Section 19 investigations we survey and record any unmapped watercourses and other features on our GIS database. This has resulted in 145 km's of watercourse now being mapped, as well as 1302 assets, which includes features such as gullies, catchpits, soakaways and grilles. We have also recorded 37 ponds. Recording this data reactively in high risk areas means we are more aware of Surreys drainage systems and who is responsible for maintaining them which can help us to investigate and resolve future flooding issues.

We often find that residents of Surrey are not aware of their [rights and responsibilities](#) of a riparian owner living next to a watercourse.

Following Section 19 investigations, we regularly distribute [landowner responsibility factsheets](#) in high risk areas, to help spread awareness and educate our customers of their watercourse maintenance responsibilities as riparian owners. Our investigations in 2023/24 have led to 10 enforcement cases carried out and 1,359 meters of watercourse being reinstated by landowners.

We regularly review our enforcement processes individually, and with other Risk Management Authorities to share best practice and to help overcome obstacles in difficult cases.

We also promote consenting and enforcement processes and standards to the public, elected members, and Risk Management Authorities to encourage its implementation across Surrey. We do this through:

- promoting Ordinary Watercourse Consents through planning teams
- providing information on Sustainable Drainage Systems design and promoting Surrey County Councils [pre-application planning advice](#) service
- sharing information on riparian responsibility with residents and members

## Recommendations

We will work with Risk Management Authorities to improve riparian asset data recording in high risk areas.

# Objective 5: Resilience

The residents and businesses of Surrey will be supported to improve community resilience. Local people will be empowered to reduce the risk of flooding on both an individual and community level.

## Community Resilience Flood Action Groups

The residents of Surrey will continue to be supported to improve community resilience. Local people are listened to and engaged with, which brings the benefit of being empowered to reduce the risk of flooding on both an individual and community level. This often starts following a flood event when communities are often upset and worried. With the right support, this journey can lead to communities better understanding the cause and effects of flooding.

Our strategic commitment is to provide the correct officer to respond with the right information to community flood action plan questions and encourage empowerment for communities by creating better understanding of Risk Management Authorities powers and duties and the strategy objectives themselves.

There are 14 active Flood Action Groups currently being supported across Surrey (see figure 10). These range from the forming stages to effective resilience groups. These are run by communities and supported by Flood Risk Management Authorities.

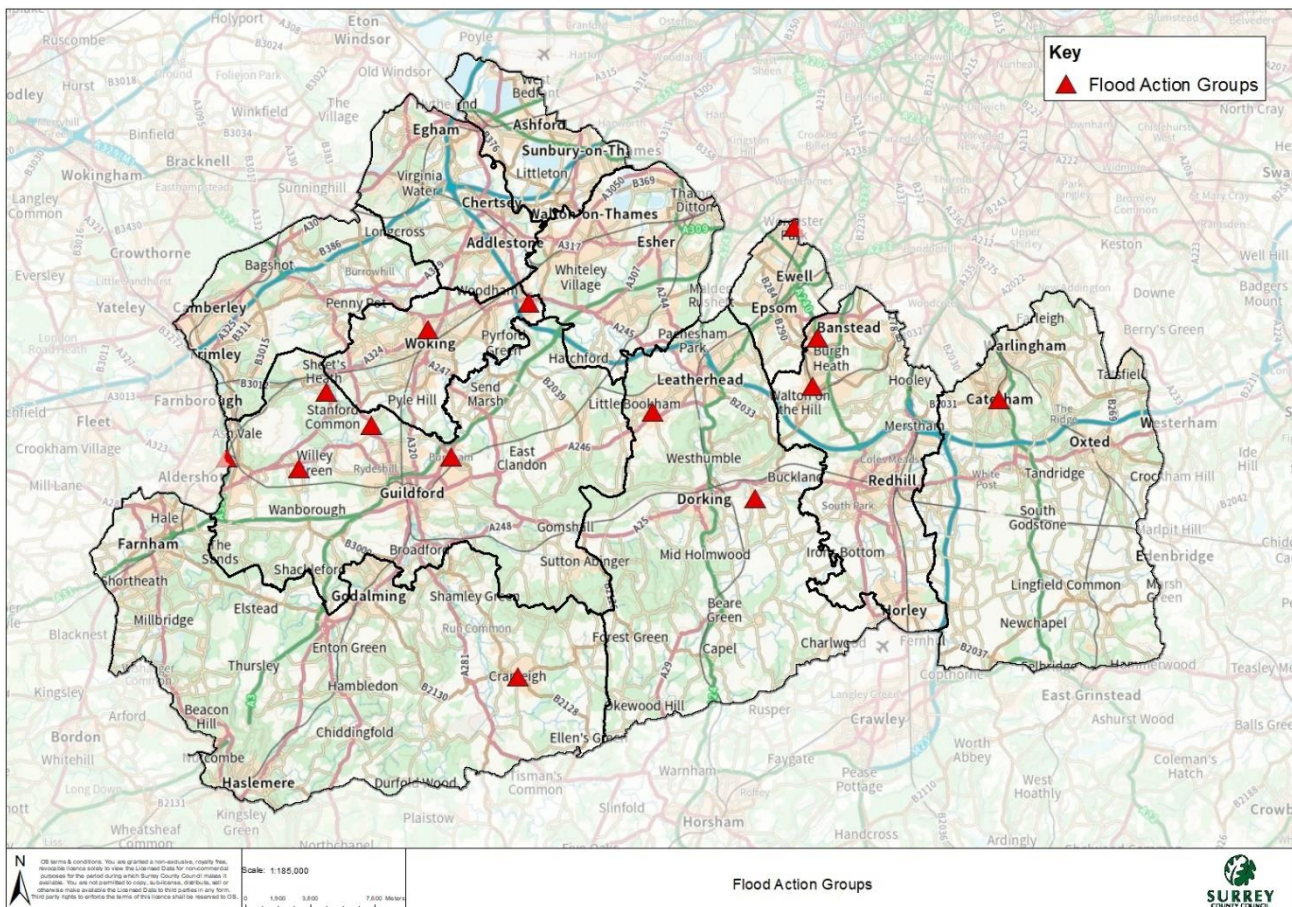


Figure 10 Map of flood action groups across Surrey

# District and boroughs emergency plans and engagement

District and borough emergency plans differ depending on local factors and priorities. Below are some examples of district and borough emergency plans:

- Elmbridge and Runnymede have 2 plans associated with flood risk from an Emergency Planning standpoint;
  - Adverse Weather Plan; this provides a policy context for how all adverse weather issues are managed within the borough and an operational plan to provide support and advice to responding officers. The most recent Adverse weather plan update reviewed the council's flooding policy and the flood warning areas for Elmbridge, and the new flood warning for Rive Ditch at Byfleet and New Haw. In Runnymede, the council updated their sandbag policy.
  - Multi-Agency Flood Plan part 2 which looks at the specific flooding risks in the warning areas of the boroughs. It also looks at the areas of response and policy which is unique to the borough. The plan undergoes full review every 2 years with multi-agency partner's input. In the most recent update, the flood warning area maps were updated as well as ensuring information for each of the areas were up to date. For Elmbridge, a new groundwater flood alert was also included in the most recent plan update (as well as the councils updated sandbag policy for Runnymede)
  - Other plans which play a smaller role when looking at flood risk include the emergency plan and business continuity plans.
- Mole Valley - Multi-Agency Flood Plan part 2 is currently being updated.
- Reigate & Banstead - Earlswood lakes emergency plans for New Pond and Boating Pond. These are reviewed and updated annually with assistance from the Supervising Engineer.
- Tandridge - The Multi Agency Flood Plan part 2 was updated in 2022 to include a section on Caterham area both for the Bourne and for Caterham Hill.

The Surrey Local Resilience Forum Multi Agency Flood Plan (SLRF MAFP) part 1 will be reviewed in May 2024. It summarises the multi-Agency response to major flood events in Surrey. It allows coordinated contingency planning to take place within individual agencies. This plan gives the overarching arrangements for Surrey. The MAFP Part 2's are district and borough level plans that detail the specific risks and response arrangements on a borough level.

Community engagement differs across district and boroughs depending on local factors such as recent flooding events and community proactiveness. Below are some examples of community engagement:

- Elmbridge - Community Flood Groups include Beasley's Ait, Thames Ditton Residents Association and Walton Lane Flood Group. Elmbridge also led a Lower Thames Area Community Flood Group event (for Runnymede, Elmbridge and Spelthorne flood groups) in October 2023 which included most responding Category 1 flooding partners across Surrey.
- Epsom and Ewell - Worcester Park Flood Action Group
- Mole Valley – Following the floods in 2013/14 significant work was undertaken by Mole Valley District Council to support communities to become more resilient, however there was limited take up from communities on the development of community plans at

that time. The Environment Agency has worked with impacted properties in the Leatherhead area to develop flood mitigations for their homes; flood defence barriers are no longer installed in Leatherhead as a result of this work. In recent years Surrey Prepared has led on community preparedness. If flood warnings are received for the Mole Valley area, we direct residents to the information on our website.

- Spelthorne – Willow Way
- Surrey Heath - Commencement of discussions and/or ongoing consultations with those associated to Chobham Flood Alleviation Scheme works.
- Tandridge - This is being delivered through Parish and Community Groups through Surrey Prepared and input into Surrey Association of Local Council.

## Environment Agency emergency plans and engagement

Over the last 12 months the Environment Agency have:

- Worked with the Surrey Flood Forum, Caterham Flood Action Group, Brockham Emergency Response Team and Worcester Park Flood Action Group.
- Supported Surrey Prepared in their winter prepared messages.
- Promoted the Environment Agency's Flood Action campaign across the county through the winter to encourage sign up for free Flood Alerts and Warnings and making personal Flood Plans.
- Been involved in the Surrey Gypsy and Traveller Communities Forum.
- Made contact to get back in touch with the Leatherhead and Fetcham Flood Action Group.
- Attended the Surrey Fire and Rescue Open Day at Reigate.

## Flood Action Group funding

Surrey County Council have funded the National Flood Forum, the UK's leading flood charity, since extensive flooding occurred in the summer of 2021. Supporting 3 communities heavily affected by surface water flooding, to understand the risk and causes of this rapidly occurring and quickly diminishing event. Surrey County Council continues to work with this charity to extend funding for a further 5 years and expand this investment in the hardest hit communities.

## Flooding Safe and Well Visits for Businesses

We are working with Surrey Fire and Rescue Service to trial the addition of flooding into the well established Safe and Well Visit (SAWV) carried out by firefighters highlighting the risk of fire in the workplace and guidance to prevent it. The additional flood advice is given to businesses at risk of fluvial and surface water flooding, including measures to protect themselves and to continue trading.

# Objective 6: Planning

*We will reduce the risk of flooding to and from development through local planning policy and processes.*

## Managing flood risk through planning

The Local Flood Risk Management Strategy sets an objective for reducing flood risk through the planning, permitting and consenting process. At the very least, this ensures that properties are not built which will be at risk adding to the existing challenges, but also seeking to reduce existing flood risk to properties through the planning process. An example of this in action is the Environment Agency who objected to ten planning applications in 2023/24. Eight were within Elmbridge Borough Council and 2 from planning applications made to Surrey County Council as a planning authority.

## Strategic Flood Risk Assessment (SFRA)

Strategic Flood Risk Assessments are carried out by Local Planning Authorities to enable them to make policies and decisions about the type and location of development, and flood risk management features and structures.

Strategic Flood Risk Assessments should assess the:

- Risk from all sources of flooding
- Cumulative impact that development or changing land use would have on the risk of flooding
- Impacts of climate change and how this is changing the flood risk profile.

They should identify opportunities to reduce the causes and impacts of flooding and any land likely to be needed for flood risk management features and structures. They also help planning authorities to make decisions; in local plans, individual planning applications, and provide guidance on climate change adaptation and future flood risk management, under scenarios of 2°C and 4°C of warming.

Strategic Flood Risk Assessments will also be used by other Risk Management Authorities, developers, and local resilience forums to inform their assessment and management of sources of flood risk, future flood risk, and to identify opportunities where development may help reduce the causes and impacts of flooding.

There are currently a number of SFRA updates underway, forecast or recently completed, including;

- Elmbridge level 1 and 2 currently underway
- Epsom and Ewell level 1, with key decisions to be made including whether revision of Council's definition of flood zone 3b and Epsom and Ewell Critical Drainage Areas are needed
- Reigate and Banstead are writing a new local plan, the SFRA is due to be updated in Autumn 2024
- Runnymede level 1 is currently in draft
- Spelthorne published their SFRA in early 2024.



# Local Plan

The Local Plan guides decisions on future development proposals and addresses the needs and opportunities of the area. One of the topics that Local Plan may cover is flooding.

For example, Elmbridge’s Local Plan covers the management of flood risk and reducing the overall and local risk of flooding and managing water resources, such as through sequential tests to ensure development is proposed in the lowest appropriate flood risk zone and that it does not constrain the natural function of the flood plain. It also includes measures regarding permitted development in [flood zone 3](#). It is crucial to ensure surface water run-off is attenuated so that the run-off rate is no greater than the prior to development. Opportunities should be taken to actively reduce the run-off rates and volumes on previously developed land. In addition to this, new development is required to ensure that Sustainable Drainage Systems (SuDS) are used for the management of surface water.

Similarly, Guildford’s policy includes requirements for Natural Flood Management and SuDS alongside seeking compliance with Surrey County Council guidance on SuDS design. The Plan also sets expectations that Natural Flood Management and SuDS will contribute to biodiversity benefits.

## Surrey County Council Surface Water Drainage Consultations

Surrey County Council is a statutory consultee to the planning process for surface water on all major developments, ensuring sustainable drainage is included where reasonably practicable.

Alongside our statutory duties, we also review some non-major planning applications in areas of high/medium surface water flood risk, or that could have a downstream impact on those areas. The cumulative impact of non-major planning applications can have a significant effect on surface water flood risk. In 2023 Surrey County Council started recording all non-major consultations and commenced a phased role out of support to district and boroughs, receiving a total of 627 applications in the first year (see figure 11).

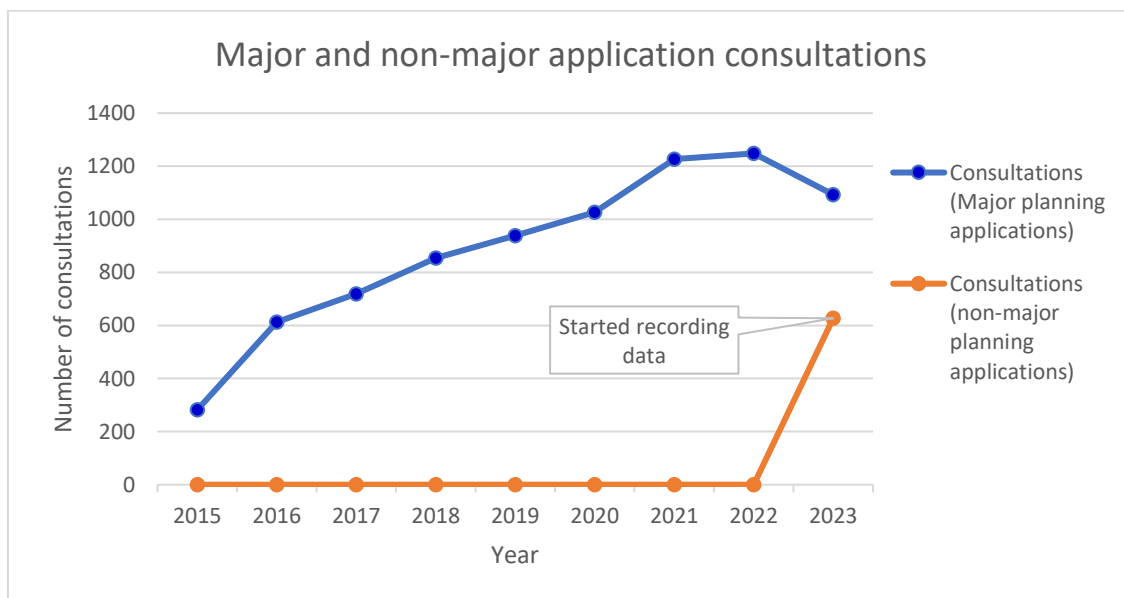


Figure 11 Graph of major and non-major application consultations.

## Working together to provide greater benefits

Below are some examples of development applications in which Surrey County Council have been consulted, and through engagement with the applicant, Surrey County Council has had a positive impact in managing surface water within the site:

Major Development Case Study: Land North of Plough Road and East of Meadow View, Smallfield

- Proposal: Development of up to 120 residential dwellings with associated infrastructure, open space and vehicular and pedestrian access, with additional engineering works to provide for flood relief.
- Initial proposal – Limited information on the wider reduction in downstream flood risk that could result from the proposals and no demonstration of how this could be achieved. Application site at significant surface water flood risk without mitigation measures which were not clearly presented.
- After discussions with the Drainage Consultant (Cannon Consulting), multifunctional Sustainable Drainage Systems (SuDS) were integrated into the indicative layout. Significant areas of the site were safeguarded to provide surface water attenuation which results in a significant reduction in downstream risk (and to the site itself) which would not have been possible without proposed development.

Non-Major Development Case Study:

Case Study: Former Horley Library, 102 Victoria Road, Horley

- Proposal: Erection of apartment block containing 6 x 1-bedroom self-contained flats and 2 town houses each containing 5 x en-suite bedrooms for independent supported living.
- Initial proposal – traditional pipe and tank system discharging at 5.3litres/second bare minimum in SuDS.
- After discussions held with Drainage Consultant (Atkins) – Inclusion of permeable paving, raingardens and a reduction of discharge to sewer to 1.6litres/second. Water butts and SuDS planters have been discussed as possible at the discharge of condition stage – although not included in calculations. This is to aide multifunctional benefits of SuDS for amenity, water quality and biodiversity.

## Surface water discharge rate reduction

In 2022 Surrey County Council started recording the reduction in surface water discharge rates that resulted from our interaction with developers through the planning consultation process. We reduced total discharge rates by **135 litres/second**.

In 2023 we made it a priority to seek as low a surface water discharge rate as reasonably practicable from each application site, and to challenge developers when proposed discharge rates did not meet these criteria. In doing this, we reduced discharge rates by **2730 litres/second**, which is a 95% discharge rate reduction in the first year.

# Multifunctional Sustainable Drainage

Surrey County Council require developers to include a range multi-functional Sustainable Drainage Systems (SuDS). Spaces designed to manage surface water above ground in a sustainable way results in better places to live and work. Development offers the opportunity to utilise a range of sustainable surface water management techniques which not only contribute to a reduction in discharge rates from a site, but provide amenity, biodiversity and water quality improvements and contribute to mitigating climate change by considering both drought and flood conditions.

Where development is proposed without the inclusion of SuDS, Surrey County Council will challenge a developer to do better and justify why small-scale measures cannot be included.



*Figure 12 Example of surface water attenuation basin, providing surface water attenuation, water quality, biodiversity and amenity benefit*



*Figure 13 Example of conveyance swale to improve water quality, enable losses of surface water through infiltration and evaporation as well as providing amenity and biodiversity benefits*

## Ordinary Watercourse Consent applications

Under the Flood and Water Management Act 2010, Surrey County Council (as Lead Local Flood Authority) is the consenting authority for [proposed structures and obstructions within a watercourse](#), which require consent under section 23 of the Land Drainage Act 1991. These structures and obstructions may include dams, weirs, culverts, or any other structure which affects the flow of water within the channel. The purpose of this process is to ensure flood risk does not increase as a result of the works proposed. There were 87 Ordinary Watercourse Consent applications in 2023 (see figure 14). Surrey County Council are proactive in reviewing these and work with applicants to request information and chase responses to ensure the majority receive consent the first time.

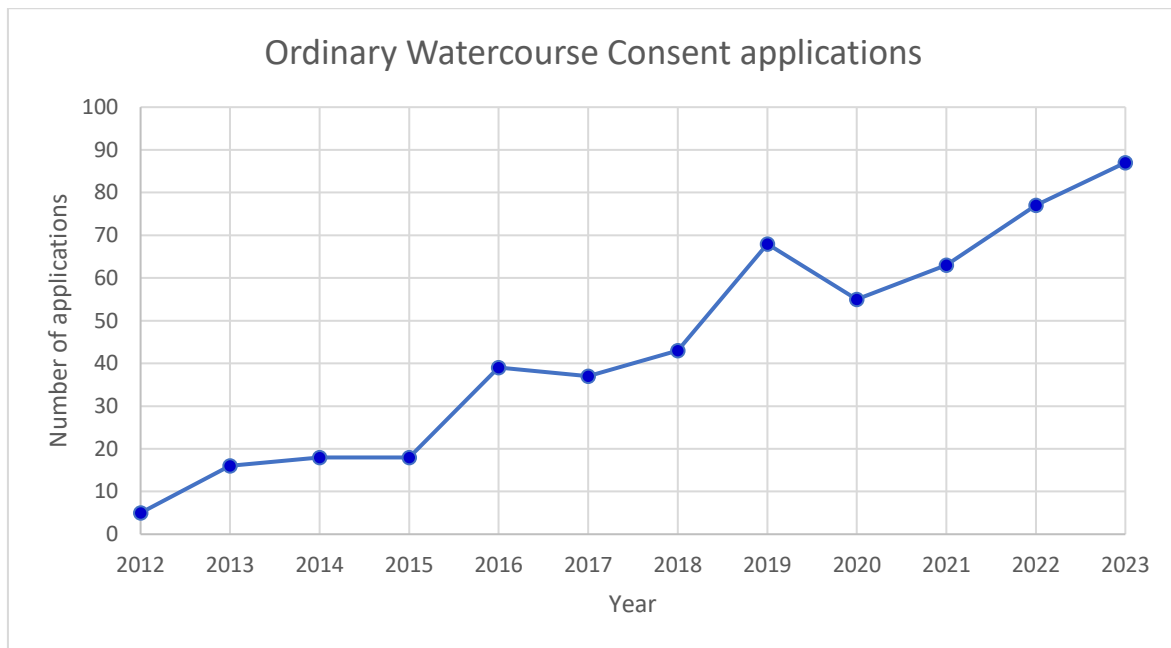


Figure 14 Graph showing Ordinary Watercourse Consent applications by calendar year

The majority of consent applications result from major planning applications where we have informed applicants that consent will be required whilst reviewing the original planning application. Surrey County Council receive very few applications from homeowners. We believe this is because residents are not aware they need consent or what an ordinary watercourse is. Through education and engagement alongside district and boroughs and other partners we hope to see this number increase over time.

### **Recommendations**

To continue to promote the education of residents about Land Drainage Consent.

## **Flood Risk Activities: Environmental permits**

To ensure works do not increase flood risk, the Environment Agency administer Flood Risk Activity permits in Surrey related to works on or near a main river, flood defence structure or in a flood plain. There were around 68 Flood Risk Activity permits received by the Environment Agency in 2023/24.

## Creation of SuDS Approval Body (SAB)

The Sustainable Drainage Systems (SuDS) Approval Body (SAB) is set out within Schedule 3, an unenacted part of the Flood and Water Management Act (2010). It states - “Construction work which has drainage implications may not be commenced unless a drainage system for the work has been approved by the approving body.” Central government is currently looking at whether to enact this duty. Following an Implementation Review in January 2023, we know the SAB duty is proposed to fall to the Unitary and County Authorities and will be separate from the planning application process and not limited to activities defined as non-permitted development. This means, if enacted, new SAB duties would have to be resourced by Surrey County Council. These include;

- Approval of “Construction work with drainage implications”
- Adoption and Maintenance of SuDS - if approved;
  - Where the SuDS serve 2 or more properties and have been constructed as approved,
  - The SAB does not have to adopt SuDS which are part of a publicly-maintained road, and other exemptions for infrastructure providers
  - The SAB can voluntarily adopt any drainage system,
- Creation of Guidance - responsible for producing design guidance and approval/adoption procedures

The benefits to Surrey of the new SAB duty would be reduced flood risk from new construction works, as well as biodiversity, water quality and amenity improvements associated with sustainable drainage systems. However, it would have long term implications for the complexity of the planning system, additional requirements on developers and increased asset ownership and maintenance responsibilities for the County Council. In the shorter term, depending on the scope of the proposed legislation when enacted, there would undoubtedly be significant resourcing issues to recruit the number and breadth of different professions required to deliver the multifunctionary services required; approval, inspection, adoption and maintenance of SuDS. There would also be knock-on impacts for Local Planning Authorities, Water and Sewerage Companies and the Environment Agency, all of whom would be consultees to the SAB and have to modify their processes and guidance. Local Authorities would also have to seek SAB approval for their own highways and construction schemes.

A detailed consultation from DEFRA on implementation options, and an associated regulatory impact assessment, was expected in Spring 2024, with an implementation pathway set out by the end of 2024. However, due to the general election, this was delayed and we await further information regarding this consultation and any future changes to our duties, or to national planning policy. Surrey County Council are currently carrying out assessments on likely impact based on the limited information available prior to consultation.

# Objective 7: Investment

*We will reduce flood risk from all sources via a programme of capital works, which will be integrated with the activities of other Risk Management Authorities.*

The Risk Management Authorities carry out work to manage the risk of flooding in Surrey. This is delivered through a series of capital programmes managed by each organisation to deliver work under its powers. In addition to planned programmes, opportunities arise to deliver flood risk mitigation in response to flood incidents. This is carried out under the flood recovery framework.

## Flood Risk Management Funding

- Flood and Coastal Erosion Risk Management Flood Defence Grant in Aid funding (FCERM FDGiA) is a 6 year national funding programme provided by the Department for Environment Flood & Rural Affairs (DEFRA) that is available to all Risk Management Authorities in England. The current programme runs from April 2021 to March 2027. The funding is accessed locally through the Environment Agency's Partnership and Strategic Overview (PSO) teams. Risk Management Authorities can access support from the Thames Flood Advisors in writing and submitting funding proposals. The funding available is directly linked to the benefits and outcomes of any proposed project, these are called 'outcome measures' and are listed as follows:
  - All benefits arising as a result of the investment, less those valued under the other outcome measures (Outcome Measure 1).
  - Households moved from one category of flood risk to a lower category (Outcome Measure 2)
  - Households better protected against coastal erosion (Outcome Measure 3)
  - Statutory environmental obligations met through flood and coastal erosion risk management (Outcome Measure 4)
- The Thames Regional Flood and Coastal Committees (RFCC) also raises funding through a local levy for flood management schemes. This is administered by the Environment Agency but is managed by the Thames RFCC as it is locally funded.
- Surrey County Council agreed in October 2019 to invest £33m over 10 years supplemented by funding from partners to deliver the Local Flood Risk Management Strategy.
- Community Infrastructure Levy (CIL) and Section 106 funding – These are managed and allocated by Local Planning Authorities and can support infrastructure.
- Benefit in kind – Often the use of land or ongoing maintenance is essential to enable projects to proceed. This can come from private landowners or public bodies.

See here for details on [other funding for Flood and Coastal Erosion Risk Management](#).

## The River Thames Scheme

The [River Thames Scheme](#) is a partnership between Surrey County Council, the Environment Agency and local borough council partners, to reduce the risk of flooding for communities along the River Thames between Egham and Teddington.

## Environment Agency Programme

We use partnership funding where the benefits of a project are greater than the costs can qualify for a contribution from Flood and Coastal Erosion Risk Management Flood Defence Grant in Aid (FCERM FDGiA) funding. An FCERM project may be:

- A scheme to reduce flood or coastal erosion risk
- A study to investigate options for a scheme
- A study leading to a strategy or management plan
- A study to investigate the environmental impacts of works
- Work to prepare a strategy

The Environment Agency were involved in 19 capital Grant in Aid projects in 2023/24, including:

- Leatherhead and Fetcham Property Flood Resilience
- Lower Mole Flood Alleviation Scheme major Refurbishment Works
- Natural Flood Management – Dorking Flood Alleviation Scheme
- Burstow Stream Model Update

The Environment Agency also undertook various map and model updates including:

- Guildford Flood Alleviation Scheme
- Sanway Byfleet Flood Alleviation Scheme
- Addlestone Bourne Flood Alleviation Scheme
- River Thames Scheme
- Thames Valley Flood Scheme
- Temporary flood barrier modelling

## District and borough programme

District and boroughs are involved with a number of flood risk alleviation and drainage projects, of various sizes, each year. The following projects were undertaken in 2023/24:

- Epsom and Ewell - Hogsmill Local Nature Reserve wetland at Chamber Mead, delivered by the South East Rivers Trust, provided modest flood benefits along with more substantial water quality and biodiversity benefits.
- Mole Valley: Completed various improvements, such as drainage improvements as part of their car park resurfacing works. Mole Valley also completed work to divert flood water at the entrance to Ranmore Road Allotments due to an ongoing issues with standing water.
- Reigate and Banstead: Worked with Surrey County Council and utilising Reigate and Banstead Borough Council owned land for parts of the Merstham scheme (3 phase scheme for the M25 embankment/Brook Road area, construction of swales, ditches, and attenuation features to relieve property and highway flooding caused by surface water runoff from the network rail site. Also utilising Reigate and Banstead Borough Council owned land for various proposals in Nork and Tattenhams: to relieve property flooding, including rain gardens/ Sustainable Drainage Systems.
- Spelthorne: Undertook Ordinary Watercourse clearance.
- Tandridge: Flood alleviation measures incorporated into the ongoing Croydon Road, Caterham regeneration.

## Surrey County Council programme 2023/24

The total expenditure for 2023/24 was £2.5 million. Of that total, grant funded expenditure was £634,000. See tables 2 to 5 for a summary of how this was spent.

Works completed that improved property resilience:

Works	Spend
Concluding the Caterham Hill Property Flood Resilience project, with 118 OM2s (the number of households moved out of any flood probability category to a lower category) claimed in 2023/24	£1.1m
Improved drainage in Wheatsheaf Close, as part of Horsell Common scheme	£182k

*Table 2 Works completed that improved property resilience*

Contributions to internal and external projects:

Works	Spend
Contributed to the Surrey County Council <a href="#">A320 Improvement Scheme</a> to fund provision of sustainable drainage systems	£300k
Contributed towards the <a href="#">Croydon Road (Caterham) Scheme</a> to fund provision of sustainable drainage systems. This a Placemaking scheme delivered in partnership between Surrey County Council, Tandridge District Council and Caterham Valley For You	£150k
Waverley District Council drainage improvements in Elstead	£45k
Granted to Surrey Wildlife Trust for a channel naturalisation project on the Cranleigh Waters. The goals of the project were to reduce silt deposits and reduce maintenance costs, by returning the channel to a more natural state. We are monitoring to see if this also has positive impacts on water attenuation, biodiversity, and to see how resilient the bank works and planting scheme are during high-rainfall events	£20K
Granted to Reigate and Banstead Borough Council's refurbishment of Merstham Recreation Ground. The regeneration of the park includes sustainable drainage and opportunities for increased biodiversity and reduced channel erosion.	£204k

*Table 3 Contributions to internal and external projects*



## Grant-in-Aid Pipeline:

<b>Works</b>	<b>Spend</b>
Technical appraisal to bring our main 3 Grant-in-Aid projects to business case: <ul style="list-style-type: none"> <li>• Smallfield Flood Alleviation Scheme – project has just been approved, procurement of Property Flood Resilience phase to begin soon, lagoon ground investigations underway (£28K)</li> <li>• Reigate Flood Alleviation Scheme – project is approved and procurement of PFR delivery to begin soon (£13K)</li> <li>• Alfold Flood Alleviation Scheme – this project began delivery in 2023/24, with the majority of property surveys completed in that year, ready to progress to install in 2024/25 (£44K)</li> </ul>	£85k
Developing our next group of Grant-in-Aid projects, including Burgh Heath, South Merstham, Avon Close (Worcester Park), Whitebushes and Farnham. We are assessing the potential options and economic feasibility for grant-funded flood alleviation schemes in each of these areas, with business cases to follow in the next 2 years if found to be feasible.	£200k

*Table 4 Grant-in-aid Pipeline*

## Investigations for other developing works (not grant funded):

<b>Works</b>	<b>Spend</b>
Improving drainage on the A217, including new soakaways on Tattenham Way.	£50k
Investigate drainage systems and plan several small schemes to improve flood risk in the Caterham Bourne catchment.	£97k
Investigate drainage systems connected to Sweeps Ditch in Staines, with the goal of improving the drought resilience of the watercourse and reduce the maintenance costs for Spelthorne Borough Council. Further investigations to follow in 2024/25.	£19k
Initial ground investigations for the Woking Raingarden programme, with works to begin in 2024/25	£21k

*Table 5 Investigations for other developing works (not grant funded)*

## **Recommendations**

We would like to simplify how we report where our money came from, what we've spent it on, and where we have spent it. To do this we will look at creating a map or a simplified table of information to show our works across Surrey.

## Surrey County Council future programme

Surrey County Councils future programme for 2024/25 and 2025/26 currently consists of 30 projects (see table 6). These may be subject to Cabinet approval and approval sought by relevant Surrey County Council delivery team.

All figures in £ 000s

<b>Category</b>	<b>Number of projects</b>	<b>Estimated spend in 2024/25 and 2025/36</b>	<b>Surrey County Council funding</b>	<b>Grant Funded</b>
Contributions to External Projects	5	6000	6000	0
Virements to Internal Surrey County Council Projects	5	1570	1070	500
Flood & Climate Resilience Team Projects in Delivery Phase	10	4706	1320	3386
Flood & Climate Resilience Team Development Projects	10	1235	500	735
<b>Total</b>	<b>30</b>	<b>13511</b>	<b>8890</b>	<b>4621</b>

*Table 6 Surrey County Council future programmes*

# Horsell Common

In central Woking, the drainage network converges and has often been overwhelmed. To reduce the risk of flooding, 3 large attenuation ponds have been created in Wheatsheaf Common close to the Basingstoke Canal. The project looked to provide multiple benefits in an open space close to the centre of Woking town centre:

- 30 properties with reduced risk from flooding
- £1.5M Surrey County Council funded
- Monoculture plantation pine trees removed
- Grasslands, wildflower meadows, scrapes, hibernacula and reed beds introduced
- 16 million litres of attenuation capacity created
- 3000 mixed native trees planted by the community
- 1.8km of accessible paths and boardwalks created
- Antisocial behaviour such as drug dealing and rough sleeping reduced by increased public activity.



Figure 15 Photo of boardwalk across lagoons



Figure 16 Photo of completed path



Figure 17 Photo of community tree planting event held in February 2023



Figure 18 Photo of public information board

## Surrey County Council Tree Planting

Trees play an important role in climate change adaptation, and as part of the objectives to deliver our [1.2 million tree planting strategy](#). The Tree Planting Programme designs planting projects to deliver multiple benefits and outcomes. These benefits include improving wellbeing, offering shade and future carbon sequestration. Additionally, trees can help reduce the risk of flooding by offering a source of natural flood management. The trees help reduce the impact of flooding events by improving soil quality to enable absorption, and absorbing run-off from upslope fields.

During the tree planting season in February 2023, the Tree Planting & Establishment team worked collaboratively with Surrey County Council Flood & Climate Resilience team colleagues to support one of Surrey's tenant farms in Horne, Horley to deliver a tree planting scheme offering natural flood management. The farm location was recognized as at risk of flooding from surface water and was located within one of Surrey's identified high priority Flood Areas. The project was designed to deliver targeted planting of shelterbelts and dense planting to intercept water runoff and improve soil condition. This project planted over 5825 new trees, not only helping reduce flood risk for nearby residents, but also offering food for wildlife, increasing canopy cover and supporting Surrey's greener future. As part of our tree planting agenda the Tree Planting & Establishment team will continue to work with the Flood & Climate Resilience team jointly on future projects, such as the [River Thames Scheme](#). Additionally, the Tree Planting & Establishment team worked with the Horsell Common preservation society as part of their multi-year project, supporting them to plant an additional 1920 native whips in 2023/24. The team will continue collaborating to future riparian planting projects, delivered by the community volunteers, over the next planting season.

## Highways capital drainage programme

The Wetspot database is used to prioritise, plan and programme future Surrey Highways works, so that our limited resources can be used to best effect. We pass on information relating to Wetspots which fall outside Surrey County Council's remit to the responsible 3rd party organisations or individuals, such as landowners. Many of these issues are related to poor maintenance. For the remaining sites, the Wetspot scoring system is used to prioritise whether works are carried out and to try and reduce the risk. The higher the score the more likely that works will be done. There were 5 wetspot schemes delivered in 2023/24 and the budget was £2.8 million, which also goes towards programming future schemes.

## Sustainable Drainage Systems (SuDS) in schools

Surrey County Council are working with the Environment Agency as an ongoing project, to fit flood attenuating planters into 4 Surrey Schools that were affected by the 2013/14 floods, and to demonstrate to pupils and parents the benefits of slowing rainwater entering the drainage network. Additional benefits include improving biodiversity and amenity, as well as raising public engagement as part of the River Thames Scheme.

# Property Flood Resilience (PFR)

Property Flood Resilience is the range of measures that can be installed on and in buildings to reduce the risk of flooding and its impacts. It incorporates 2 approaches:

- Resistance - reducing the risk of water getting into buildings.
- Resilience - managing the impact of water into buildings to return them to pre-flood conditions as quickly as possible with minimal cost or disruption.

Property Flood Resilience makes the property more resilient to current flood risk, however it does not stop or reduce the level of flooding.

In Surrey, funding routes through Grant in Aid and local levy allow us to install resistance measures only. Recommendations are provided to the homeowners on how they can make their properties more resilient. See figure 19 showing the location of PFR schemes, and see table 7 showing the scheme details.

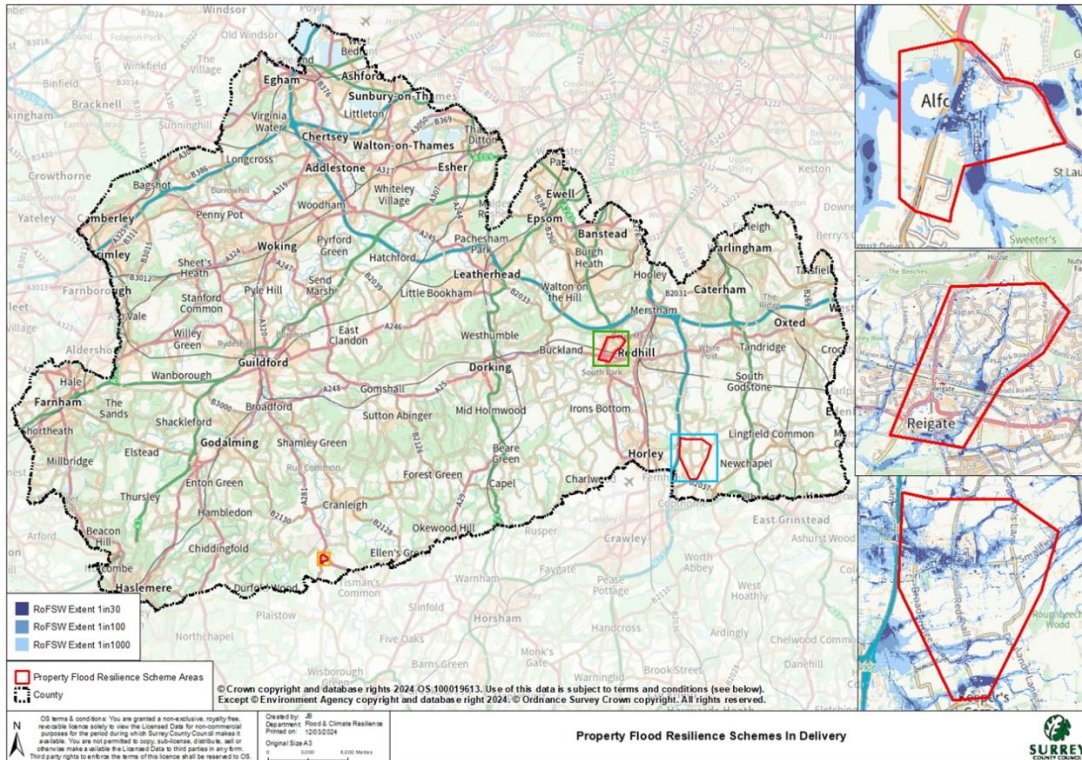


Figure 19 Map of Property Flood Resilience schemes in delivery

Location	Number of properties protected	Projected spend	Funding stream
Alfold	36	£300,000	Grant in aid
Reigate	80	£2.3 million	Grant in aid and Surrey Capital Programme
Smallfield	175	£2.83 million	Grant in aid, local levy and Surrey Capital Programme

Table 7 Summary of completed PFR projects



Figure 20 Example photos of Property Flood Resilience measures

## Caterham on the Hill Property Flood Resilience

Following extensive property flooding from surface water in 2016, Surrey County Council developed a Property Flood Resilience scheme in partnership with the Environment Agency, Tandridge District Council, London Borough of Croydon and Thames Water.

Caterham on the Hill:

- Properties targeted: 205
- Properties Delivered: 162
- Total Spend: £2.05 million

Resident feedback:

“A great weight is lifted, and I can now sleep easier knowing I am protected.”

Caterham on the Hill, Hillcroft Court:

The ground floor received Property Flood Resilience. Through this, access to the communal spaces was improved for residents with a ramp instead of a step. Many residents use walking sticks or walking frames to assist when moving about and they have since found it much easier to access the garden space.

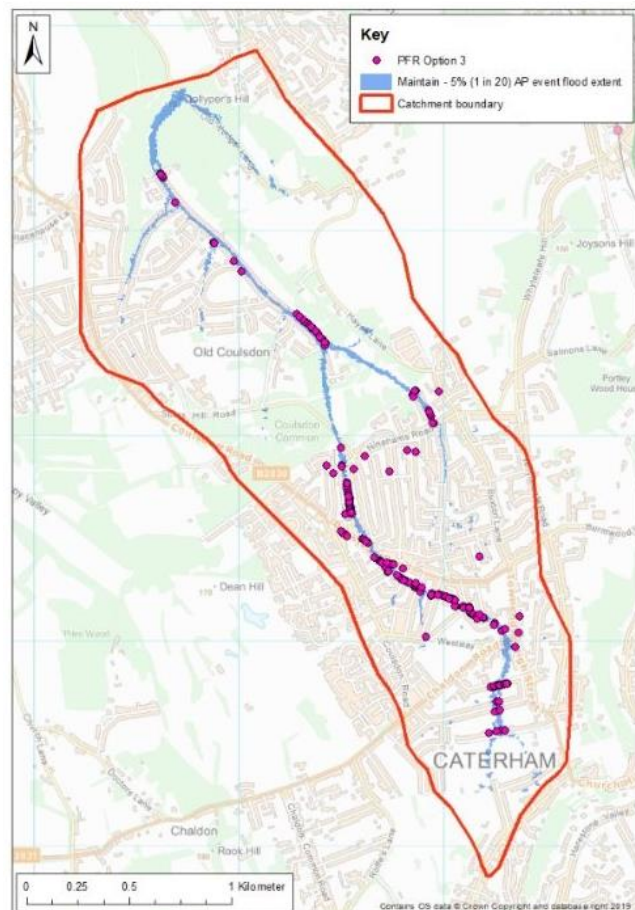


Figure 21 Map showing Caterham Property Flood Resilience locations

# Natural Flood Management (NFM)

NFM aims to emulate or restore the natural mechanisms that attenuate water flows over (and through) the land. Common intervention measures include leaky dams, ponds and scrapes, woodland creation and management, riparian buffer strips and river restoration works. See figure 22 for areas in Surrey where NFM schemes are being developed or carried out.

The primary benefit from NFM is reducing downstream flood risk via flow attenuation and reducing the peak flows. Other benefits include improvements to water quality, biodiversity, carbon sequestration, and faster recharging of aquifers. As NFM measures generally keep areas wetter for longer, they can also provide climate resilience by mitigating the effects of drought and wildfires.

Some of the risks and limitations from NFM include: negative impacts on existing land use when made wetter for longer (impacts on arable usage), schemes often involve large areas so it can be challenging to secure buy in from multiple landowners, some measures require regular inspections and maintenance and the deliverable benefits can be hard to accurately quantify in the design stage – as such, baseline and post construction monitoring of the benefits are a standard part of the NFM delivery process.

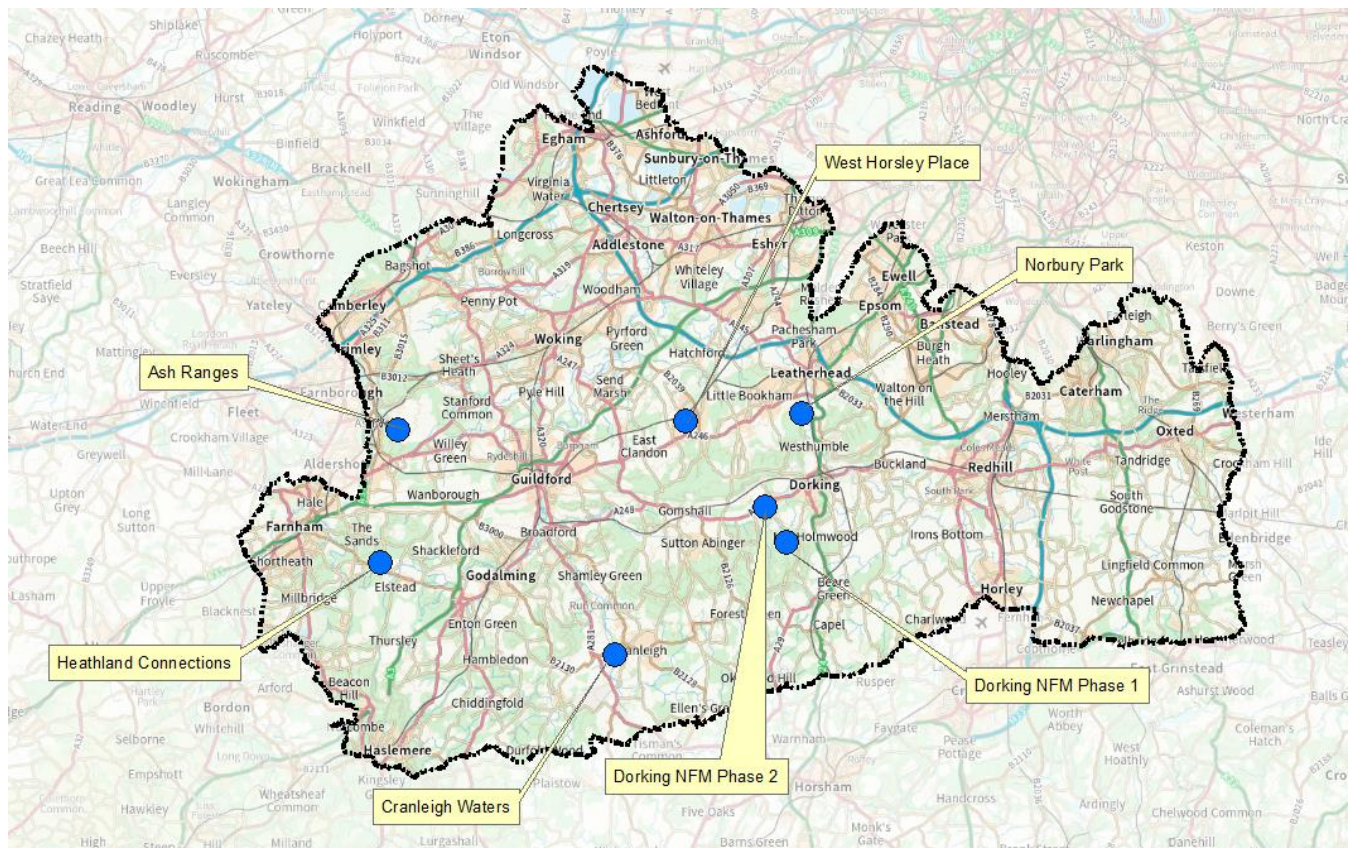


Figure 22 Map showing areas in Surrey where NFM schemes are being developed or carried out

NFM is a fairly new approach to managing flood risk by Surrey County Council. New external funding opportunities and training have recently been made available and we are in the process of upskilling our team to take advantage of these opportunities and lead the Surrey Flood Risk Partnership in delivering a programme of NFM schemes in the future.

## Case Study – Dorking NFM Phase 1:

The NFM trail project, installed in Winter 2019 to reduce risk of flooding downstream, is being used to better understand how we can deliver such schemes elsewhere to reduce flood risk. The Dorking NFM scheme is one of the research projects that forms part of the DEFRA Pilot NFM Programme. The overarching objectives of the NFM Pilot Programme are to:

1. Reduce flood risk;
2. Improve habitats and increase biodiversity;
3. Increase our knowledge of NFM interventions;
4. Promote the benefits of partnership working.
5. Future evaluation and monitoring

The site, and effectiveness of the features, will be monitored for a number of years post construction through a PhD project being completed in collaboration with the University of Surrey.



Figure 23 Photo of wet woodland and offline storage



Figure 24 Photo of leaky barrier placed across the watercourse

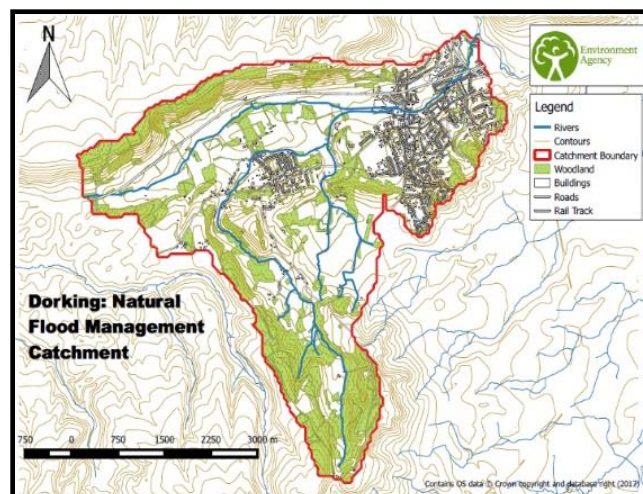


Figure 25 Map of Pipp Brook catchment



# Rain Gardens

A rain garden is a type of Sustainable Drainage Systems (SuDS) design. It is a planted area created in a low spot that captures localised surface water, reducing flows into drainage systems and reducing flood risk. Some rain gardens can include underground water storage and/or mechanisms for water to infiltrate into the ground where this is appropriate.

In addition to reducing localised flood risk, rain gardens can also provide amenity and biodiversity benefits (see figure 26) – they can provide important habitats for native species and are a rich food source for pollinators. Delivering these types of benefits as part of a larger scale programme across Surrey has the potential to help deliver some of the objectives of the Surrey Local Nature Recovery Strategy.

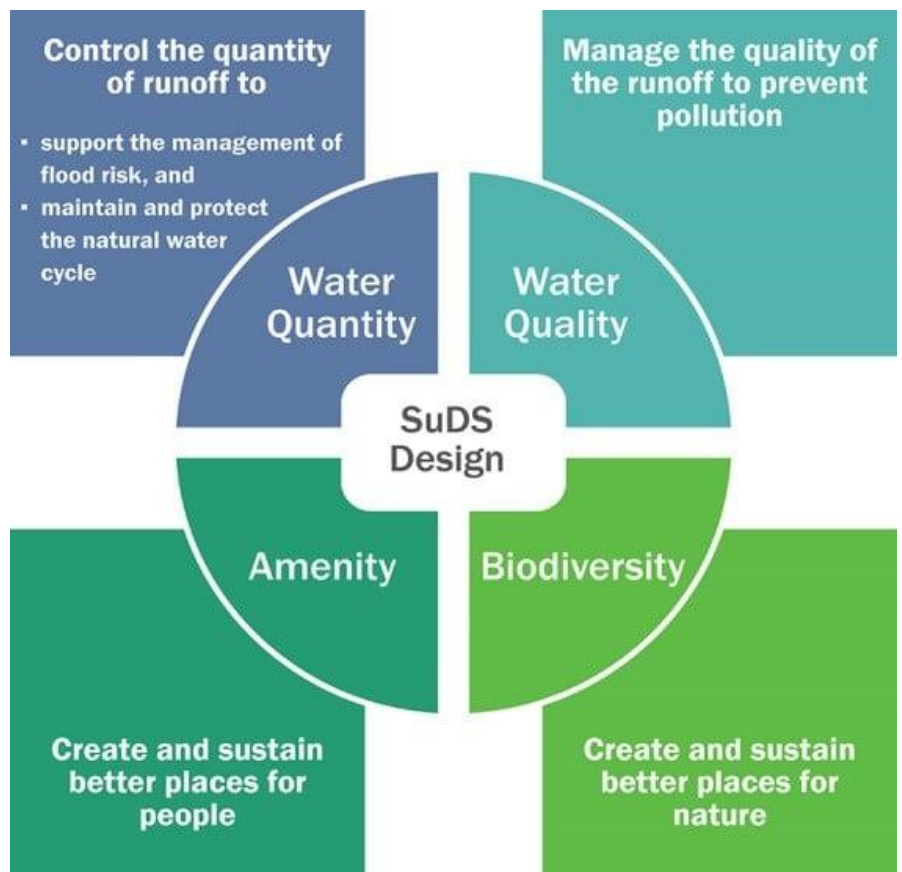


Figure 26 'The four pillars of SuDS'

All rain gardens are different depending on the local landscape. Below are shows some of the advantages and limitations to rain gardens that need to be considered when deciding if they would be suitable.

## Advantages:

- Small and flexible layout to fit into landscape
- Easy to retrofit
- Attractive features than can help to improve open space
- Can reduce the rate of run off and volume reduction
- Easy to maintain

## Limitations:

- They need to be in a low spot/ adjacent to an existing surface water flow route to capture water
- Underground utilities can restrict their size and depth
- Requires landscaping and management
- They are often small, so their impact on volume reduction can be limited
- Susceptible to clogging if surrounding landscape is not managed



Figure 27 Photo of rain garden in Alpha Road, Woking

There has been a widespread push to implement 'green' drainage solutions and we are starting to see more rain gardens being constructed, both privately and through Surrey County Council and local authorities. However, we are starting to see poorly constructed and maintained rain gardens, and so Surrey County Council are looking at ways to ensure rain gardens continue to achieve 'the four pillars of SuDS', for years to come.

#### Blackdown Close, Woking:

This rain garden (see figure 28) was constructed by Woking Borough Council. Photos show pre-construction, post construction, 1 year after installation and 3 years after installation. The plants don't look as good as post construction after a time, although they will still flower and provide lots of colour during summer months. There was some ponding around the edges of the roundabout post construction, but a new inlet was added to manage this.

Surrey County Council aspire to set up a programme of works to design and implement rain gardens. We aim to show the progress on this in the 2024/25 impact report.



Figure 28 Photos of rain garden in Blackdown Close, Woking,

# Objective 8: Investigation

We will investigate significant flooding incidents in order to make recommendations that help to reduce flood risk.

## Section 19 investigations

As part of the duties under the Flood and Water Management Act 2010, Lead Local Flood Authorities are required to investigate flooding incidents, called [Section 19 investigations](#).

Figure 29 shows the main sources of flooding (taken from our Section 19 investigations) in 2023/24.

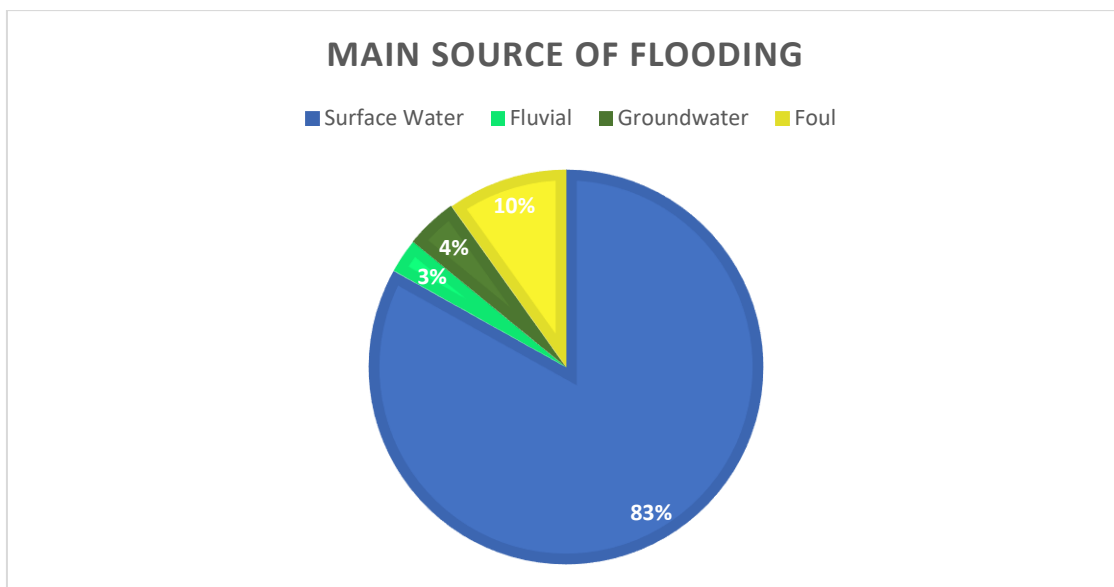


Figure 29 Main source of flooding

Our investigations have also found that there were 37 external and 7 internal property floods recorded following Section 19 investigations, where Surrey Highways maintenance/assets were identified as a contributor to the cause of flooding. This amounts to 25% of the total causes of flooding.

We regularly review our Section 19 investigation procedures to maximise the efficiency of the process and the value gained from it. We do this through peer review to analyse how well we are able to complete the process. We are also in regular contact with other Risk Management Authorities to discuss how we complete investigations and where improvements can be made, especially when working together.

We use the new data obtained from Section 19 investigations to gain understanding, share information with Risk Management Authorities and update our databases. By having relevant, up to date information and data sharing we are able to better prioritise future flood risk management or resilience works.

### Recommendations

Surrey Highways should look at where properties have flooded, due to highway maintenance/assets to look at how their optimised maintenance programme could be improved.



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COUNTY COUNCIL

# Conclusion

As our first annual impact report, we have worked to provide a representation of the work we do collectively. This has helped us understand that there are gaps in the way we work individually, in partnership, and the information we record. We have made several recommendations throughout this report to highlight areas we think we can improve. Common themes from our recommendations include:

- Improving the way we work with Risk Management Authorities to identify and manage risks, make the works we do more efficient, and improve the way we record and share data.
- Analysing data, such as property flood data and our high Priority Flood Areas to have a better understanding of the causes and themes of flooding.
- Understanding risks due to climate change projections, and how we are adapting to be more resilient.

This will be an evolving process and we are also looking to update the Strategy objectives to ensure the work we do continues to engage well with partners, is relevant and meaningful.

## Acknowledgements

Thanks to all Risk Management Authorities who contributed to this report:

