Flood and Water Management Act 2010

Section 19 Report

Storm Bert – Flood Investigation Area 02

October 2025

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Prepared by	Catrin Evans BSc (Hons)			
Checked by	Owen Griffiths MSc, BSc (Hons)			
Approved by	Owen Griffiths MSc, BSc (Hons)			

This report should be read in its entirety.

This report has been prepared in accordance with the requirements of Section 19 of the Flood and Water Management Act 2010. The Council assumes no responsibility or liability from any person in connection with its contents or findings.

RHONDDA CYNON TAF

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CONTENTS

EXECUTIVE SUMMARY

This report has been produced through the duties placed upon Rhondda Cynon Taf County Borough Council (RCTCBC) under Section 19 of the Flood and Water Management Act 2010. The Act states, “On becoming aware of a flood in its area, a Lead Local Flood Authority must, to the extent that it considers it necessary or appropriate, investigate:

a) Which Risk Management Authorities have relevant flood risk management functions and
b) Whether each of those Risk Management Authorities has exercised or is proposing to exercise those functions in response to the flood.”.

This Section 19 investigation provides a factual report of the storm event that occurred on 23 and 24 November 2024 within the RCT area, focusing investigation on the flooding that occurred within the impacted areas of Aberaman in the Cynon valley (referred to as Flood Investigation Area 02, (Figure 1).

This report was undertaken to identify the mechanisms for flooding, establish which Risk Management Authorities have relevant flood risk management functions under the Flood and Water Management Act 2010 and ascertain if those Risk Management Authorities have undertaken or are planning to undertake actions related to those functions to reduce/alleviate the risk of flooding.

The flooding that affected RCT on 23 and 24 November 2024 was a result of an extreme rainfall event, designated by the Met Office as ‘Storm Bert’. The impact of the event at FIA 02 resulted in internal flooding to 30 properties: including 29 residential and 1 non-residential. Significant flooding to the highway throughout the investigation area also occurred.

These impacts were identified through inspections made by RCT's Flood Risk Management team during the days following the storm event, as well as information collated by residents, business owners, RCT's Public Health and Protection team, RCT's Highway and Streetcare Depot, Natural Resources Wales (NRW) and Dŵr Cymru Welsh Water (DCWW).

It has been established from the evidence gathered within this report that the primary sources of flooding at FIA 02 in this incident was a result of significant overland runoff being generated from the steep hillsides above Aberaman draining to lower ground via a series of unnamed ordinary watercourses, many of which became overwhelmed with water and overtopped, impacting several properties on its course of flow.

The surcharging of various combined sewer drainage assets, as well as localised surface water accumulation, were also identified as sources of flooding to properties within the investigation area as a result of intense rainfall and overwhelmed drainage infrastructure.

RCT as the Lead Local Flood Authority (LLFA) has been determined as the relevant Risk Management Authority responsible for managing the ordinary watercourse and surface water flooding that occurred in FIA 02 during Storm Bert. In response to the flooding at FIA 02, the LLFA has undertaken 14 actions and have proposed to undertake a further 6. A summary of which include:

- Carried out survey, jetting and cleansing operations to an estimated 637 metres or ordinary watercourse and surface water drainage network length within the investigation area.
- Engaged with riparian landowners to ensure the ordinary watercourse infrastructure is free flowing and unobstructed.
- Introduced a Community Flood Recovery Grant programme, with support from the Welsh Government, to provide financial assistance to residents subject to internal flooding during Storm Bert.

- Completed the development of a Business Justification Case, identifying the preferred option for managing the risk of ordinary watercourse and surface water flooding in the Aberaman area. Funding from the Welsh Government has been received to develop a Full Business Case to carry out detailed design and development of the preferred option.

Dŵr Cymru Welsh Water (DCWW) has been determined as the relevant Risk Management Authority responsible for managing the sewer flooding that occurred during Storm Bert. In response to the flooding at FIA 02, DCWW propose to:

- Develop an Inflow Reduction Team with the aim of locating inflows of surface water, land drainage and groundwater in their sewer network and find ways to reduce these inflows.
- Continue to take a risk-based approach to the prioritisation of investigations and will seek to work closely with RCTCBC to identify any opportunities for collaboration in the delivery of inflow reduction projects.

The event that occurred on 23 and 24 November 2024 was extreme, and it is unlikely flooding from a similar event could be prevented entirely. It is concluded that the LLFA, DCWW and the Highway Authority have relevant flood risk management functions, and all three RMAs have outlined which functions have been exercised and which are proposed to be exercised in response to the Storm Bert flooding event.

ABBREVIATIONS

CaRR – Communities at Risk Register

DCWW – Dŵr Cymru Welsh Water

FIA – Flood Investigation Area

FWMA – Flood and Water Management Act 2010

LDA - Land Drainage Authority

LFRMS – Local Flood Risk Management Strategy

LLFA – Lead Local Flood Authority

NRW – Natural Resources Wales

PFR – Property Flood Resistance / Resilience

Q – Return Period (1 in X chance of an event occurring in any given year)

RCT - Rhondda Cynon Taf

RCTCBC – Rhondda Cynon Taf County Borough Council

RMA – Risk Management Authority

SFRA – Strategic Flood Risk Assessment

TABLES AND FIGURES

1. INTRODUCTION

1.1. PURPOSE OF INVESTIGATION

On the 23 and 24 November 2024, Rhondda Cynon Taf County Borough Council (RCTCBC) was impacted by a severe weather event which was designated by the Met Office as 'Storm Bert' on 20 November 2024.

The storm resulted in widespread flooding to residential and non-residential properties within Rhondda Cynon Taf (RCT). This report will focus on Flood Investigation Area 02 (referred to as 'FIA 02' within this report) which covers parts of Aberaman village, located south of Aberdare in the Cynon valley.

The purpose of RCTCBC's investigation is in response to the duties of the local authority as Lead Local Flood Authority (LLFA) in regard to Section 19 of the Flood and Water Management Act 2010 (FWMA), which states:

1. "On becoming aware of a flood in its area, a lead local flood authority must, to the extent that it considers it necessary or appropriate, investigate:

a) which risk management authorities have relevant flood risk management functions and
b) whether each of those risk management authorities has exercised or is proposing to exercise those functions in response to the flood.

2. When an authority carries out an investigation under subsection (1) it must (a) publish the results of its investigation and (b) notify any relevant risk management authority".[1]

[1] Flood and Water Management Act 2010, Section 19

The purpose of the investigation is to determine which Risk Management Authorities (RMA) have relevant flood risk management functions and which functions have been exercised in response to a flood.

Current Welsh Government guidance outlined within the National Strategy for Flood and Coastal Erosion Risk Management[2] stipulate that a Section 19 report should be produced for flooding incidences where twenty or more properties experience internal flooding following a storm event. Due to the extent and impact of the event at FIA 02, the Lead Local Flood Authority (LLFA) have opted to undertake a formal Section 19 investigation for this area.

Specific details of Storm Bert, such as rainfall analysis and watercourse response, are covered within a separate overview report that covers the wider RCT area. The report is titled 'Storm Bert November 2024 – Overview Report'[3].

1.2. Site Location

The area investigated within this report (FIA 02) falls within the electoral wards of Aberaman and Aberdare East within the Cynon River catchment in the northern sector of Rhondda Cynon Taf (Figure 1).

The investigation area itself is confined to the base of the valley where residential and commercial development has been built on the floodplain of the River Cynon. The River Cynon flows west to east along the northern boundary of the investigation area.

[2] National Strategy for Flood and Coastal Erosion Risk Management in Wales, October 2020
[3] RCTCBC Storm Bert Overview Report, March 2025

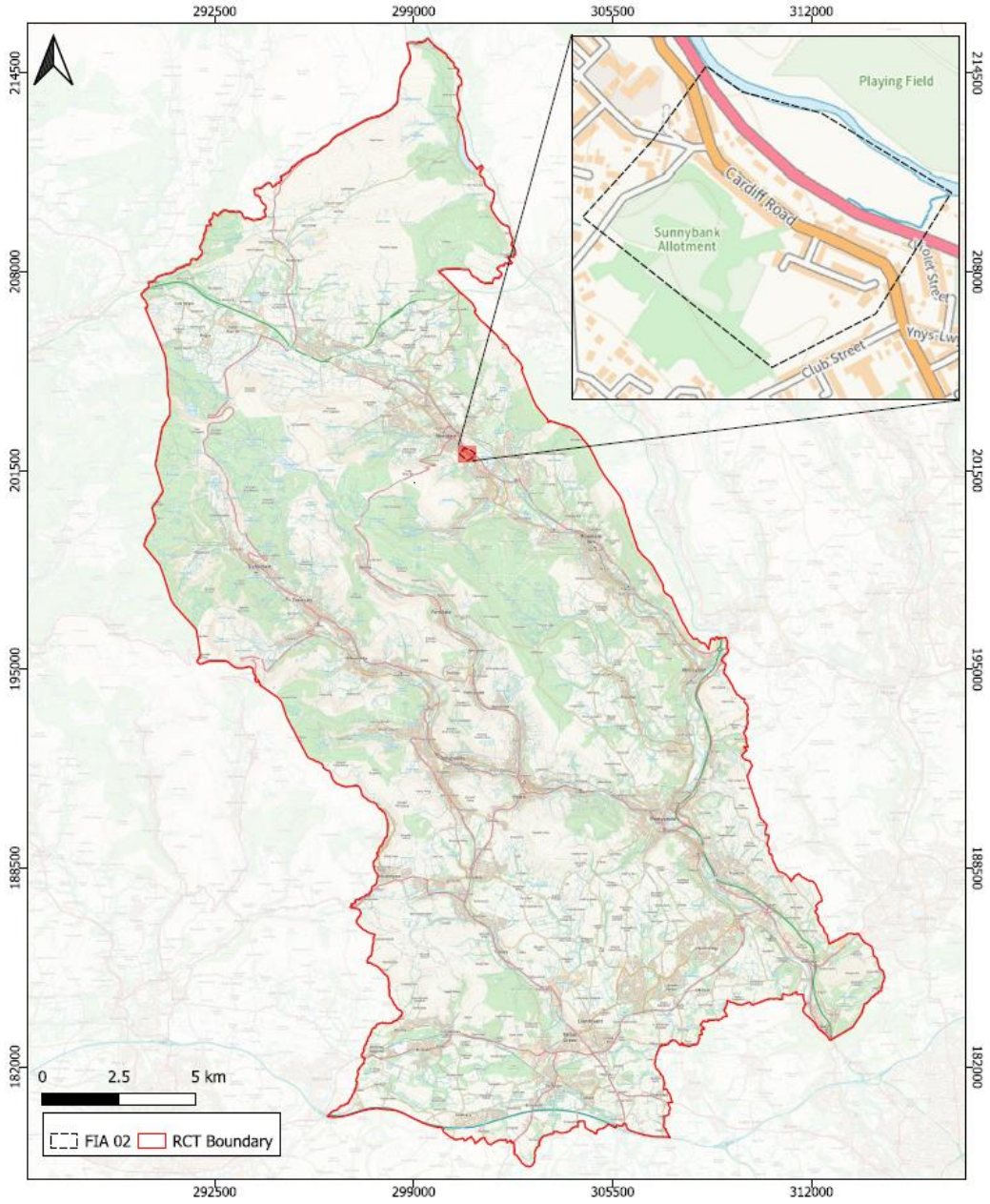

Figure 1: Location plan of FIA 02

FIA 02 forms part of the Mid Cynon 1 Strategic Flood Risk Area, as defined by RCT's Local Flood Risk Management Strategy and Action Plan 2024[4]. These boundaries are based on the latest flood risk datasets, geographical knowledge of the catchment drainage basins and local flood history to assess flood risk in RCT.

[4] RCTCBC Local Flood Risk Management Strategy and Action Plan, March 2024

According to Natural Resources Wales's (NRW) Flood Risk Assessment Wales (FRAW) maps (Figure 2), the highest risk to people and properties within FIA 02 is attributed to surface water and ordinary ('small') watercourse flood risk. This is largely associated to culvert inlets, the overtopping of watercourse embankments and overland flows owing to the steep topography of the upper catchment. A low to high main river flood risk is also observed along the southern embankment of the River Cynon. The extent of flood risk covers the north of FIA 02 and is mostly confined to the floodplains north of the A4059 highway network.

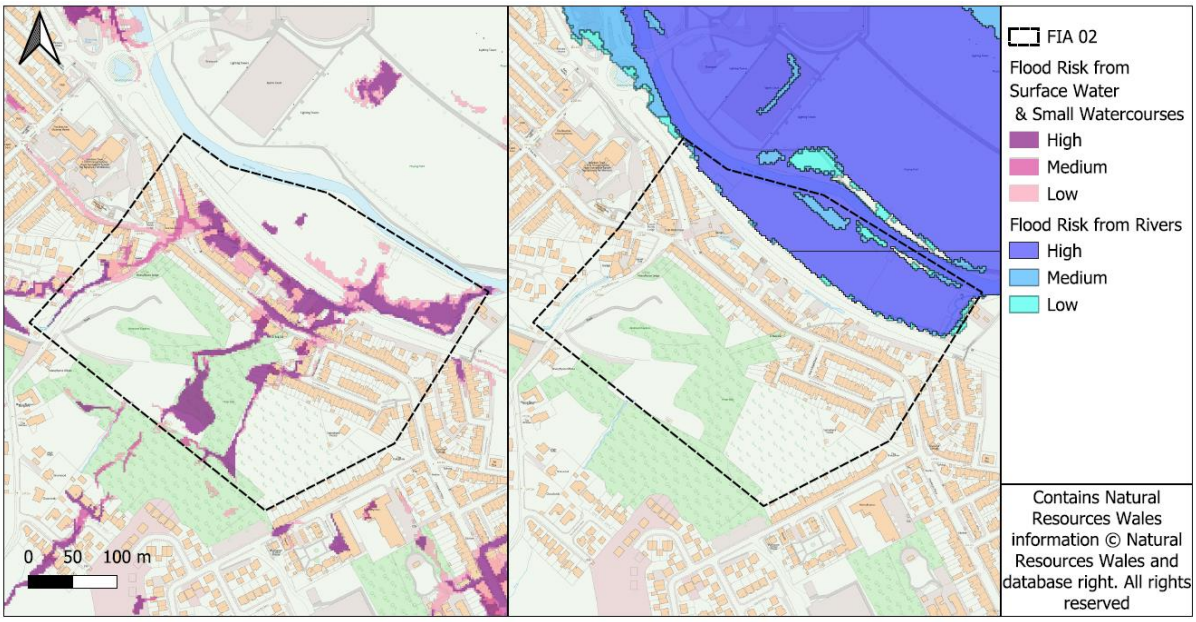

Figure 2: Natural Resources Wales's Flood Risk Assessment (FRAW) map for surface water and small watercourse, and main river flood risk at FIA 02.

The Welsh Government's Communities at Risk Register (CaRR), produced by NRW, provides a national assessment of flood risk and hazard from all sources of flooding, enabling flood risk and hazard to be ranked at a local level to identify those communities at highest risk. The national flood risk rankings for the community of Aberdare, which FIA 02 is located within, have been illustrated in Table 1 for the present day and climate change scenario (CaRR, 2024[5]).

[5] Communities at Risk Register 2024 – Present Day (CaRR) | DataMapWales

Table 1: Surface water and ordinary watercourse, and main river (managed) flood risk ranking for the present day and climate change scenario for Aberdare according to the CaRR, 2024.

Community Name	Present Day		Climate Change Scenario (2120)	
	Surface Water & Ordinary Watercourse	Main River (Managed)	Surface Water & Ordinary Watercourse	Main River (Managed)
Aberdare	11	46	7	31

As illustrated in Table 1, the community of Aberdare is currently ranked 11th highest in Wales for surface water and ordinary watercourse flood risk. This ranking is predicted to increase to 7th highest in the climate change scenario. Similarly, the risk ranking for main river flood risk in Aberdare is also expecting to increase in the climate change scenario, meaning Aberdare is projected to be 31st highest risk community in Wales for main river flood risk in the managed (defended) scenario.

Table 2 shows the projected increase in the number of properties at risk of both surface water and ordinary watercourse, and main river flood risk in the community of Aberdare in line with climate change.

Table 2: Properties at Risk from surface water and ordinary watercourse, and main river flooding in the present day and climate change scenario for Aberdare, according to the CaRR 2024.

Community Name	Properties at Risk- Present Day		Properties at Risk- Climate Change Scenario (2120)	
	Surface Water & Ordinary Watercourse	Main River (Managed)	Surface Water & Ordinary Watercourse	Main River (Managed)
Aberdare	676	375	800	450

1.3. Drainage System

The surface water drainage systems that serve FIA 02 are that of the highway drainage network which is designed to manage the surface water within the highway, and public surface water sewer and combined sewer networks (foul and surface water) operated by Dŵr Cymru Welsh Water (DCWW).

There are also sections of open and culverted ordinary watercourses that convey flows from the hillsides of Aberaman and convey water beneath urban development towards the River Cynon. The primary watercourse and associated culvert network conveying through FIA 02 is known as the ‘Maesyffynon Lane’ network which conveys beneath Cardiff Road and discharges into the River Cynon to the northeast of the investigation area.

1.4. INVESTIGATION EVIDENCE

To support the investigation, a range of qualitative and quantitative evidence has been gathered from numerous sources, the summary of which is listed in Table 3.

Table 3: Investigative evidence gathered in preparation of this Section 19 report

Source	Data
Residents	Photographs, videos, statements, email correspondence, public engagement survey responses
Responders' Statements	Local responders' statements
Risk Management Authority (RMA) Responses	In pursuant of Section 13 (1) of the FWMA, relevant RMAs provided RCTCBC with information to support the production of this report
CCTV Surveys	Internal surveys of the local drainage networks
Met Office Data	Weather Warning information (see FRM- Storm Bert- Overview Report)[3]
Natural Resources Wales	River Level and Flood Warning Data
RCT Local Flood Risk Management Strategy and Action Plan 2024	Site specific information and data for each electoral ward in RCT
Communities at Risk Register 2024	Flood risk ranking and scores for all flood types based on community data in Wales
Envirocheck Report	A comprehensive environmental risk assessment tool used by professionals to evaluate potential hazards on a site. These reports include historical maps, flood risk assessments, geology maps and contamination screening.

1.5. PUBLIC ENGAGEMENT

Following the initial flood event that occurred on the 23 and 24 November 2024 during Storm Bert, flood risk officers from the RCT Flood Risk Management department were deployed to areas across the borough to investigate reports of internal flooding by residents. Residents were engaged with by the Flood Risk Management team to help determine the initial impacts caused by the flooding event and to investigate the potential source(s) and pathways(s) of flood water during the event. Due to the volume of calls received by RCT's Out of Hours department, visits were prioritised to those areas experiencing significant internal flooding to residential properties.

To support these investigations, a public engagement exercise was undertaken by RCTCBC between 17 March and 28 April 2025. This exercise comprised of an online survey which enabled residents who were affected by the flood event to provide further detail on how they were impacted, the source and movement of flood water within an area, how receptors were impacted as well as drawing on local knowledge to query how local conditions could have exacerbated the event. Residents were also encouraged to submit photo/video evidence of flooding to their properties. This data is useful to help the LLFA better understand and validate our assessment of the flood event to support the investigation under Section 19 of the FWMA.

One response to the public engagement exercise was received from individuals within FIA 02.

2. Flooding History

2.1. Previous Flood Incidents

Table 4 lists the previous incidences of flooding to properties within FIA 02 based on resident's accounts and available historical information held by the Council.

The most recent and significant flooding event to have impacted FIA 02 occurred on the 15 and 16 February 2020 during Storm Dennis which internally impacted 1,498 homes and businesses across RCT, of which 17 were impacted within the investigation area, particurarly along Cardiff Road and Sunnybank Street. Flooding was primarily attributed to the surcharging of an ordinary watercourse culvert inlet adjacent to Maesyffynon Lane following intense and persistent rainfall. Flooding to properties was also attributed to the combined and foul sewer network in the area surcharging. Further details of the flooding caused by Storm Dennis at this location can be found in the published Section 19 report titled "Storm Dennis – Flood Investigation Area RCT02 (Aberdare & Aberaman)"[6].

Historical flood records and residents accounts captured by RCT's Flood Risk Management officers indicate that properties along Cardiff Road have been impacted by flooding on at least 3 occasions prior to Storm Dennis. Storm Bronagh in September 2018, Storm Callum in October 2018 and Storm Erik in February 2019 were all noted as causing flooding to properties and the highway at Cardiff Road primarily as a result of overwhelmed surface water, combined and foul sewer drainage.

Incidences of external flooding at Sunnybank Street in recent years as a result of intense rainfall and subsequent overland flows was also noted by residents and Council investigations.

[6] Storm Dennis- Flood Investigation Area RCT02 (Aberdare & Aberaman)

Table 4: Record of historical flood events within FIA 02 prior to Storm Bert in November 2024

Name & Date of Storm Event	Nr Receptors Impacted Internally	Streets Affected
Storm Bronagh – September 2018	1	Cardiff Road
Storm Callum – October 2018	4	Cardiff Road
Storm Erik – February 2019	5	Cardiff Road
Storm Dennis – February 2020	17	Cardiff Road, Wind Street, Sunnybank Street

2.2. FLOOD INCIDENT

The flooding incident that occurred on 23 and 24 November 2024 was a result of an extreme rainfall event, designated by the Met Office as 'Storm Bert'. The rainfall event affected the majority of RCT and caused widespread flooding to communities.

Specific details of Storm Bert, such as rainfall and watercourse level analysis, are covered within a separate overview report that covers the wider RCT area, referenced 'Storm Bert November 2024 – Overview Report'[3].

The post event inspections undertaken on the days following the storm event by RCTCBC's Flood Risk Management team and RCTCBC's Public Health, Protection and Community teams identified 29 residential and 1 non-residential properties as internally flooded within FIA 02.

A summary of the source(s) and pathway(s) for flooding within FIA 02 during Storm Bert have been outlined in Table 5 and further described throughout this section.

Table 5: Summary of the source(s), pathway(s) and receptor(s) affected during Storm Bert within FIA 02.

Source	Pathway	Receptor
Intense rainfall running off the hillsides west of FIA 02 and draining to lower ground via an unnamed ordinary watercourse which flows adjacent to Maesyffynon Lane. The watercourse is culverted beneath residential properties near the junction to Cardiff Road.	Exceedance flows from the overtopped watercourse conveyed down Maesyffynon Lane towards properties at Wind Street and Cardiff Road.	Exceedance flows from the overtopped watercourse contributed to the internal flooding of 16 residential and 1 non-residential property at Wind Street and Cardiff Road.

Source	Pathway	Receptor
The watercourse overtopped its channel immediately upstream of the culvert inlet during the storm event.		
An ordinary watercourse manhole surcharged outside the front of a residential property at Wind Street.	Exceedance flows from the manhole contributed additional overland flows towards Cardiff Road.	The surcharging of the manhole contributed to the internal flooding of 15 residential and 1 non-residential property at Wind Street and Cardiff Road.
An ordinary watercourse manhole surcharged at the junction of Wind Street and Cardiff Road.	Exceedance flows from the manhole contributed additional overland flows towards Cardiff Road.	The surcharging of the manhole contributed to the internal flooding of 13 residential and 1 non-residential property at Cardiff Road.
A section of open watercourse located behind properties at Cardiff Road and adjacent to the A4059 overtopped during the storm event.	Exceedance flows from the open watercourse conveyed to the surrounding area, resulting in water ingress to the rear of several properties.	The overtopping of the section of open watercourse contributed to the internal flooding of 1 residential and 1 non-residential property, as well as contributing to the external flooding of an estimated 3 residential properties at Cardiff Road.
Foul water was reported as seeping through the basements of residential properties at Cardiff Road.	The exact flow path is unknown however, the conveyance is attributed to water seepage from sewer infrastructure into the sub-surface and infiltrating into the foundations and basements of properties at Cardiff Road.	Seepage of foul water through the sub-surface and into the basements of properties resulted in internal flooding to 5 residential properties at Cardiff Road.
Foul water was reported as surcharging via toilet, bath and shower drains within the boundaries of residential	Wastewater surcharged from the private drainage infrastructure and was contained within the boundaries of properties.	The surcharging of drainage infrastructure caused internal flooding to at least 1 residential property at Cardiff Road.

Source	Pathway	Receptor
properties along Cardiff Road.		
Private drainage connected to the combined sewer network surcharged within the rear gardens of 2 residential properties at Cardiff Road during the storm event.	Flood water from the surcharged private drainage conveyed into the rear garden and basements of two properties at Cardiff Road.	Sewer water caused internal flooding to at least 2 residential properties at Cardiff Road.
The combined sewer network at Cardiff Road surcharged via a manhole located in the rear garden of a residential property.	Flood water from the surcharged manhole conveyed into the rear garden and basement of 1 residential property at Cardiff Road.	The surcharging manhole resulted in internal flooding to 1 residential property at Cardiff Road.
Intense rainfall generating significant overland flows and draining to lower ground to the rear of Sunnybank Street.	Surface water runoff flowed overland down the hillside to the rear of Sunnybank Street, causing localised pooling of water at the low point of the hillside before conveying to the rear and side of properties on Sunnybank Street.	Overland flows and surface water accumulation caused internal flooding to 2 residential properties at Sunnybank Street.
Intense rainfall and subsequent surface water runoff from the surrounding area.	Surface water was observed along several highway networks and areas of open hillside within the investigation area. This is considered to have contributed to the ordinary watercourse, main river and sewer flooding throughout FIA 02.	Surface water is considered to have directly impacted 2 residential properties at Cardiff Road and exacerbated the flooding experienced at many internally flooded properties throughout FIA 02 during Storm Bert.

On review of Table 5, the primary source of flooding in this incident originated from intense rainfall generating significant surface water runoff from the steep hillsides to the west of the investigation area and drainage to lower ground. This runoff was routed towards residential dwellings via steep areas of hillside and ordinary watercourses, many of which became overwhelmed during Storm Bert and resulted in property flooding. Surface water flooding as a result of intense rainfall and overwhelmed highway drainage infrastructure was also reported by residents as a contributing source of flooding to several properties.

Sewer flooding via various drainage assets and associated seepage of water into the sub-surface and infiltrating into the basements of properties have also been identified as sources of flooding to properties within the investigation area.

The areas of open watercourse identified to have overtopped, the infrastructure known to have surcharged and contributed to the flooding of properties, and the observed pathways of overland flooding during Storm Bert in FIA 02, have been illustrated in Figure 3.

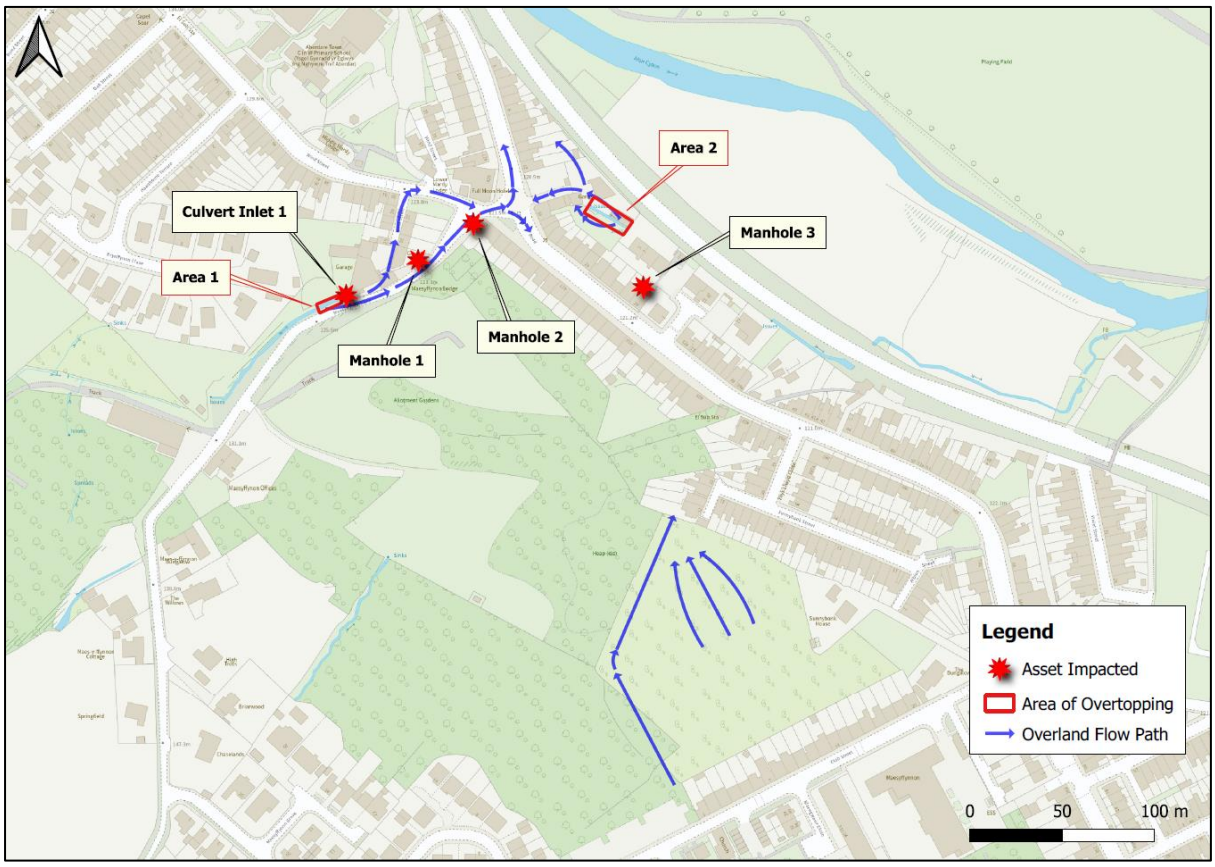

Figure 3: Observed overland flow paths, areas of overtopping and surcharging assets at FIA 02 during Storm Bert (23-24 November 2024)

An unnamed ordinary watercourse adjacent to Maesyffynon Lane was identified as overtopping during the storm event at approximately 06:00 on Sunday 24 November. CCTV footage from RCT's monitoring station shows the culvert inlet (labelled 'Culvert Inlet 1' in Figure 3) surcharging, and the incoming watercourse overtopping at the upper debris screen during the storm event (identified as 'Area 1' in Figure 3). Exceedance flows from the overtopped watercourse travelled down Maesyffynon Lane towards Wind Street and Cardiff Road, where the flows accumulated and entered the front and rear of several homes, contributing to the internal flooding of 16 residential and 1 non-residential properties along Cardiff Road and Wind Street.

Two manholes associated to the culverted watercourse were also identified by residents to have surcharged during the storm event. Both manholes are depicted as 'Manhole 1' and '2' in Figure 3, and both contributed flows towards Cardiff Road.

Exceedance flows travelling along the highway were also observed by residents to have overwhelmed the highway drainage infrastructure along Cardiff Road, contributing to the accumulation of standing flood water outside the fronts of several properties. Figure 4 depicts the rising flood water along Cardiff Road during the storm event. Flood depths in this area were reported to have reached 2 feet within the street.

Figure 4: Image of surface water and ordinary watercourse flooding at Cardiff Road during Storm Bert (image provided by resident).

Residents at Cardiff Road also reported external flooding to their rear gardens during the storm event (depicted in Figure 5). Based on the available evidence, the external flooding to the rear gardens of 3 residential properties at Cardiff Road was a result of

the section of open ordinary watercourse to the east of impacted properties overtopping during the storm event (labelled 'Area 2' in Figure 3) and conveying towards the lower elevations of the rear gardens. These ordinary watercourse flows also contributed to the internal flooding of at least 1 residential and 1 non-residential property at Cardiff Road, situated in close proximity to the watercourse.

Figure 5: Image of flooding to the rear garden of a property at Cardiff Road due to the overtopping of an open watercourse during Storm Bert (image provided by resident).

Further south along Cardiff Road, several other residential properties suffered internal flooding due to a combination of sources. Water was reported to have entered 5 homes via ingress through their basements. Reports from residents indicated dirty, foul-smelling water was entering their properties during the storm event. This would suggest that the source of flooding was originating underground from a defective drainage system (sewer system).

Private combined and foul sewer drainage infrastructure was also reported to have surcharged during the storm event via private drainage in the rear gardens of properties and internally via toilet, bath and shower drains, contributing to the internal flooding of at least 3 residential properties along Cardiff Road.

A combined sewer manhole located in the rear garden of a residential property was also noted as surcharging during the storm event (labelled ‘Manhole 3’ in Figure 3). Flood water from the manhole was mostly contained to the rear garden of one property but was also reported to have conveyed into the basement of the property, resulting in internal flooding.

Flooding to residential properties at Sunnybank Street was also reported to the Council on Sunday 24 November. Upon an investigation carried out by RCT flood risk officers, the primary source of flooding to these properties was identified as overland flows conveying down the hillside to the rear of Sunnybank Street and accumulating at the topographic low point adjacent to properties. The localised pooling of surface water at the bottom of the hillside was reported to have seeped through the external garden walls and fencing of 4 properties, before conveying into the rear of 2 homes. Figure 6 shows evidence of surface water flooding to the rear garden of a property at Sunnybank Street during the storm event.

Isolated incidences of surface water flooding as a result of intense rainfall was also identified as the primary cause of flooding to 2 residential properties, and a contributing source of flooding to several properties within FIA 02.

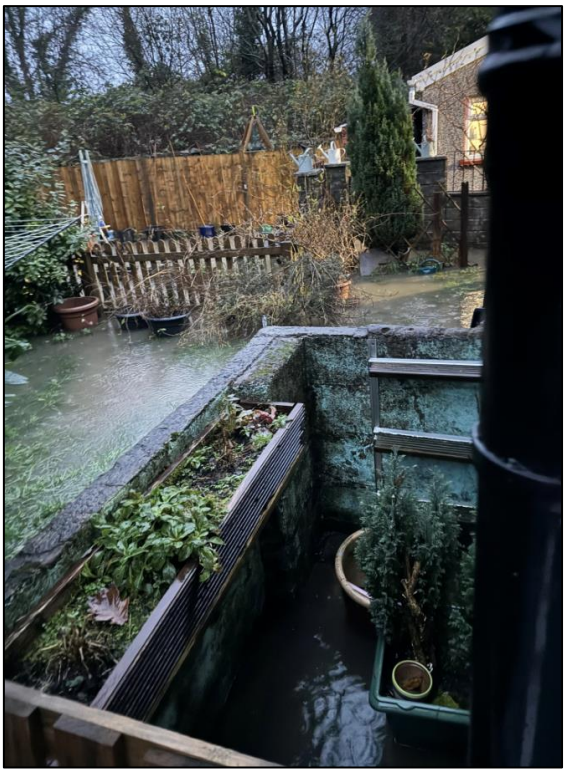

Figure 6: Evidence of flooding to the rear garden of a property at Sunnybank Street during Storm Bert (image provided by resident).

2.3. RAINFALL ANALYSIS

See RCT's 'Storm Bert November 2024 – Overview Report'[3], for a detailed analysis of the rainfall and ordinary watercourse response.

3. POSSIBLE CAUSES

The below sections describe the possible causes of flooding that occurred within FIA 02 during Storm Bert.

3.1. CULVERT CONDITIONS

Within FIA 02 there are unnamed ordinary watercourses which drain the hillsides to the west of the investigation area and discharge into the River Cynon. Many of these watercourses are culverted beneath Aberaman's urban settlements. The known culverted watercourse networks present in FIA 02 are shown in Figure 7.

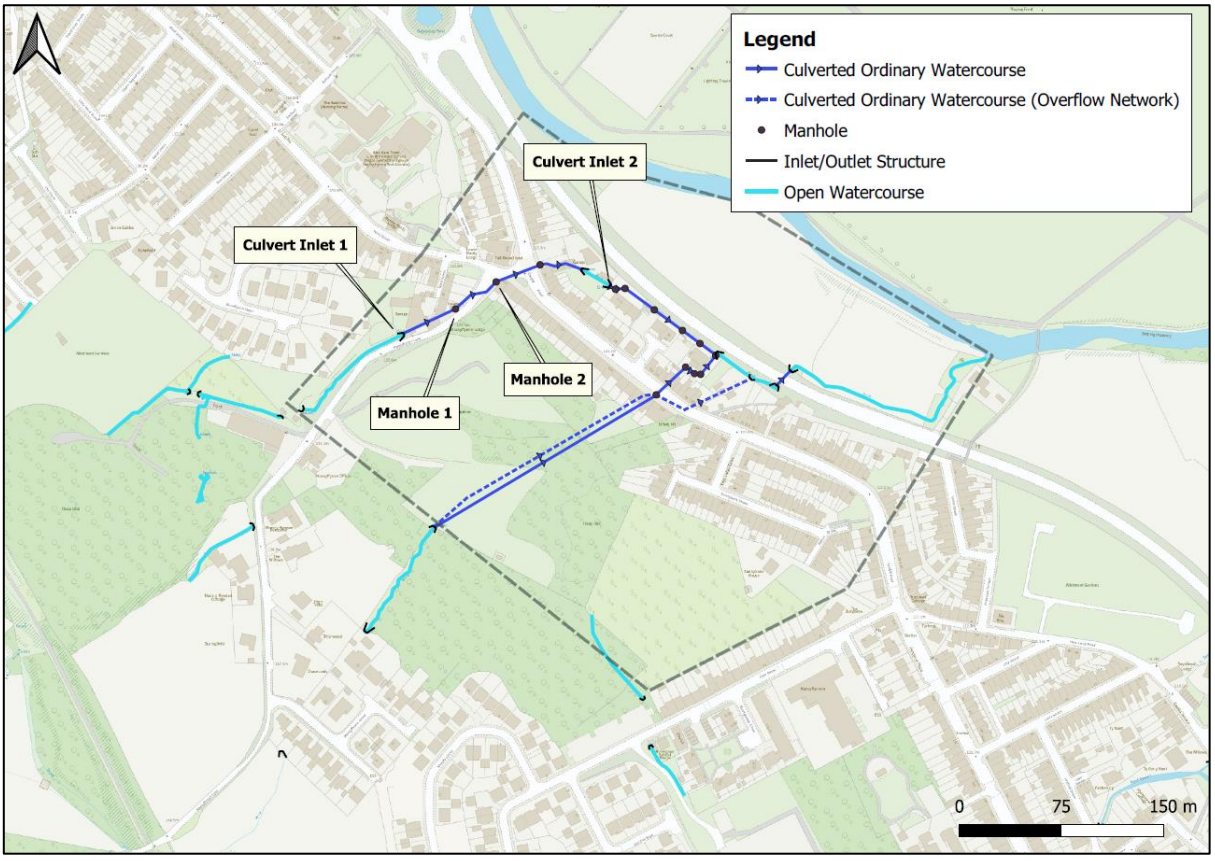

Figure 7: Culverted ordinary watercourse networks within FIA 02

CCTV survey inspections of the culverted watercourse networks identified as possible sources of flooding have been undertaken since Storm Bert to assess their condition and help determine whether they served as a contributing factor to the flooding at FIA 02.

It should be noted that the survey reported in this section was undertaken post flood event. It's not possible to say what debris identified in the survey was mobilised and deposited as a result of the storm event and what had been deposited by previous events. As such, the following should be considered reflective of the asset condition at the end of the storm event and may not be necessarily reflective of the condition of the assets prior to the onset of the storm event.

As noted in Section 2.2, several points along the culverted watercourse network downstream of 'Culvert Inlet 1', in addition to the overtopping of the watercourse immediately upstream of the inlet, contributed to the internal flooding of 17 properties along Cardiff Road and Wind Street during the storm event. The unnamed watercourse, which drains the hillsides west of Aberaman, is culverted beneath Wind Street and Cardiff Road at 'Culvert Inlet 1' and outfalls into a section of open channel located adjacent to the A4059 bypass before entering a second culverted system at 'Culvert Inlet 2'. 'Culvert Inlet 1' is identified as a Council owned asset.

To ensure the effective operation of 'Culvert Inlet 1', RCT have installed a CCTV camera which is monitored regularly by Council operatives. Prior to the onset of the storm event, at approximately 20:00 Saturday 23 November, Council operatives cleansed 'Culvert Inlet 1' and the associated debris screens of minor debris build-up. At the peak of the storm event at approximately 05:30 on Sunday 24 November, levels within the watercourse began to rise rapidly, and within 35 minutes at 06:05, the watercourse upstream of 'Culvert Inlet 1' began to overtop at the upper debris screen, and 'Culvert Inlet 1' showed evidence of surcharge. Evidence of this is presented in Figure 8 captured by RCT's monitoring station.

The rapid rise in levels within 30 minutes is indicative of the steep and fast-flowing catchments in the area. The watercourse continued to overtop for an estimated 45 minutes, before water levels receded. Following the overtopping of the ordinary watercourse, Council operatives cleansed the upper trash screen of debris. The debris largely consisted of leafy, natural debris which is considered to have been transported by the fast flows during the storm.

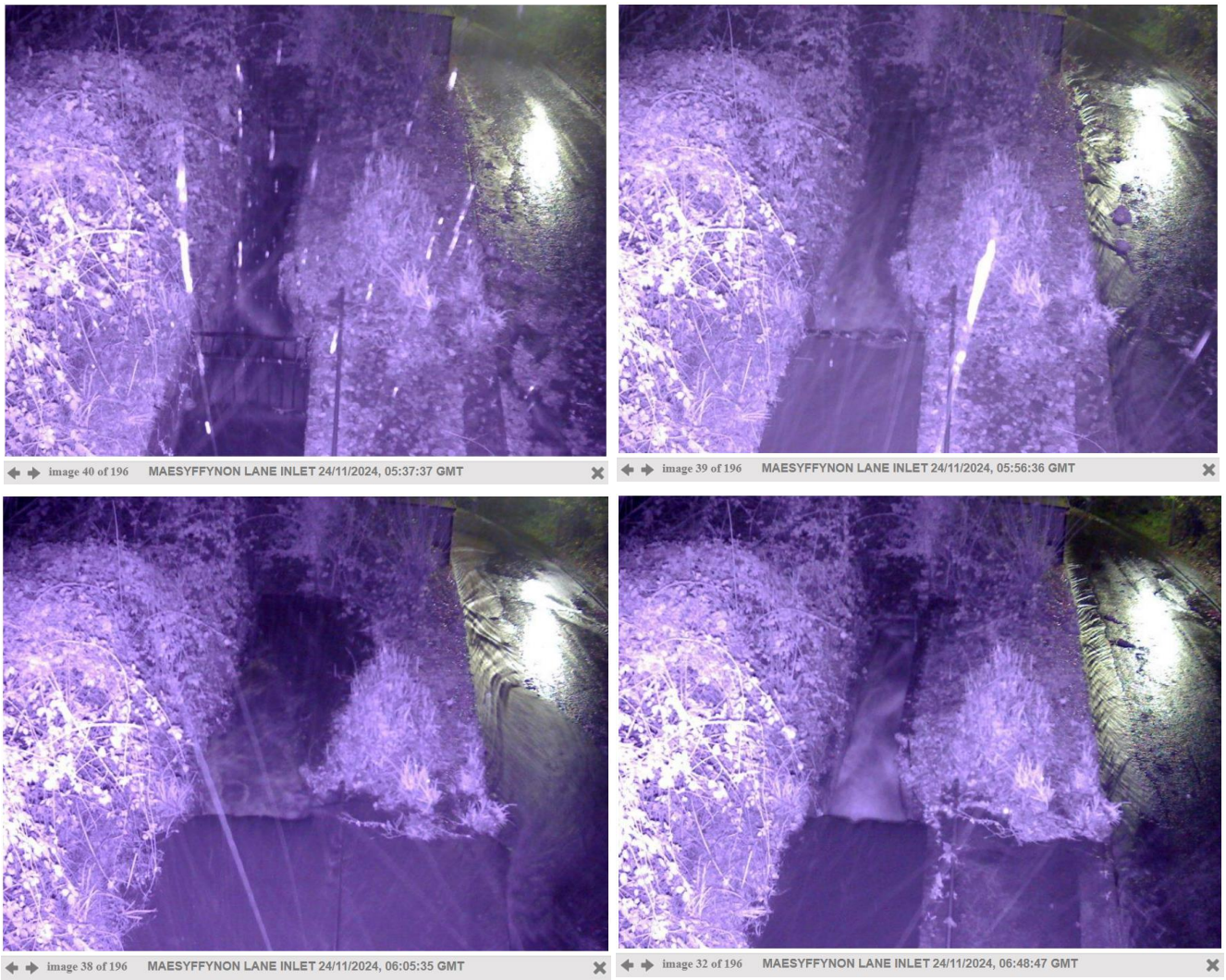

Figure 8: CCTV footage of the unnamed ordinary watercourse and 'Culvert Inlet 1' captured at RCT's monitoring station on Sunday 24 November 2024 at 05:37 (top left), 05:56 (top right), 06:05 (bottom left) and 06:48 (bottom right).

The trash screen upstream of ‘Culvert Inlet 1’ is considered to have become overwhelmed with debris and high flows during the peak of the storm event, causing the watercourse to overtop its channel walls and flow onwards down Maesyffynon Lane towards Cardiff Road.

The surcharging of ‘Manhole 1’ and ‘Manhole 2’ (associated to the culvert network downstream on ‘Culvert Inlet 1’) were identified as secondary sources of flooding to properties along Cardiff Road and Wind Street during Storm Bert. The culverted watercourse network downstream of ‘Culvert Inlet 1’ was assessed as being in poor condition. The results of the survey found various structural and operational defects in the line, indicating that the condition of the culvert network is considered to have contributed to the surcharging of ‘Culvert Inlet 1’, ‘Manhole 1’ and ‘Manhole 2’ during the storm event.

The open section of ordinary watercourse upstream of ‘Culvert Inlet 2’ was also identified as a contributing source of flooding to properties along Cardiff Road following its overtopping during the storm event. The culverted watercourse network downstream of ‘Culvert Inlet 2’ was assessed as being in acceptable condition with limited structural defects and settled debris observed. The condition of the culvert network downstream of ‘Culvert Inlet 2’ is not considered to have contributed to the overtopping of the open watercourse upstream of ‘Culvert Inlet 2’. The condition of the open watercourse has been described in more detail in Section 3.3.

3.2. CULVERT CAPACITY

An assessment of the hydraulic capacity of the culverted watercourse networks identified as sources of flooding within FIA 02 during Storm Bert has been undertaken to ascertain its current standard of protection in free-flowing condition. The results of the capacity assessments are summarised in Table 6 below (refer to Figure 7 for culvert labels).

Table 6: Culvert capacity assessment results which indicate the current standard of protection of the culvert networks in free-flowing condition in FIA 02.

Culvert Network	Current Standard of Protection – Free Flowing
Culvert Inlet 1	Q5 (20% AEP)
Manhole 1	Q5 (20% AEP)
Manhole 2	Q5 (20% AEP)
Culvert Inlet 2	Q5 (20% AEP)

The results infer that the drainage infrastructure associated to the culvert networks downstream of 'Culvert Inlet 1' and 'Culvert Inlet 2' do not provide an adequate standard of protection, as defined by CIRIA C786F[7].

Based on the available evidence presented within this report, it can be concluded that 'Culvert Inlet 1', 'Manhole 1' and 'Manhole 2' became hydraulically overwhelmed during Storm Bert, however, on review of the poor condition of the culvert network downstream of 'Culvert Inlet 1' (described in Section 3.1), it is considered that the network's hydraulic capacity was further reduced, resulting in the surcharging of the inlet and both manholes.

[7] CIRIA Culvert, Screen and Outfall Manual (C786F)

3.3. ORDINARY WATERCOURSE CONDITIONS

Several sections of open watercourses which drain the steep hillsides west of FIA 02 are identified to flow through the investigation area, some of which have been culverted and discharge into the River Cynon. These watercourses are unnamed and are illustrated in Figure 9, along with the sections of open watercourse identified to have overtopped during Storm Bert.

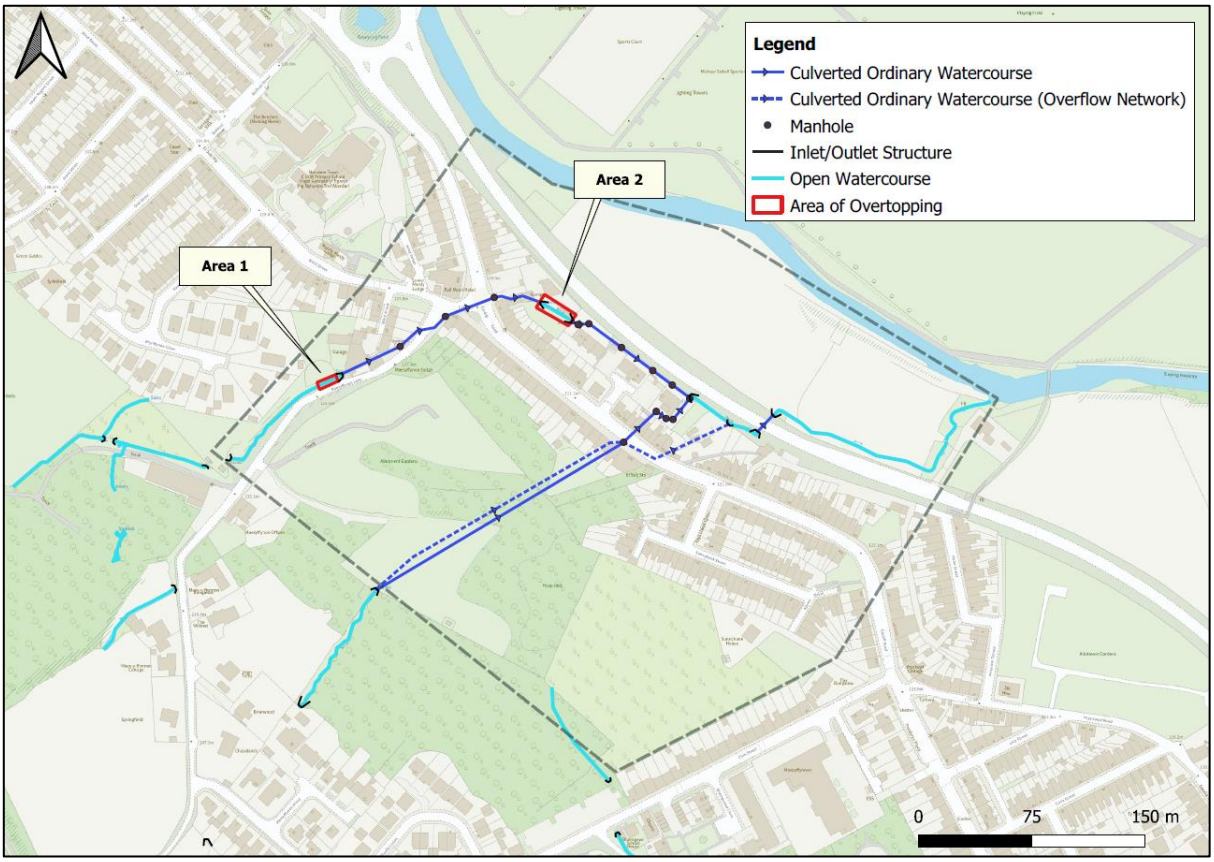

Figure 9: Map of open ordinary watercourses and areas of overtopping within FIA 02

Following the storm event, RCT Flood Risk Management officers carried out a site walk-over assessment, where possible, of the ordinary watercourses identified as sources of flooding to assess the condition of the watercourses for any signs of overtopping, evidence of scour and any land movement of the hillsides.

'Area 1' in Figure 9 was observed via CCTV footage to have overtopped during the storm event. The open channel upstream of 'Area 1' is largely natural while the downstream channel comprises of gabion structures and twin debris screens to minimise the risk of scour and debris mobilisation entering the culvert system. The watercourse was identified to be in acceptable condition albeit with evidence of minor scouring to the eastern embankment and some natural debris deposition in the channel, as shown in Figure 10.

Figure 10: Photo of the unnamed watercourse channel upstream of 'Culvert Inlet 1' and 'Area 1' (captured by RCTCBC officers post event)

The debris removed from the upper trash screen by Council operatives on Sunday 24 November 2024, consisted of primarily leafy debris as opposed to sedimentary rocks which is more typical of occurring where large amounts of scouring has occurred in the upper catchment. It is considered that significant flows conveying downstream, as

a result of intense rainfall during Storm Bert, contributed to the mobilisation of natural material downstream towards the upper trash screen at ‘Culvert Inlet 1’, contributing to its blockage and associated overtopping at ‘Area 1’.

‘Area 2’ (shown in Figure 9) was also identified as a contributing source of flooding to approximately 5 properties along Cardiff Road during Storm Bert. Upon an inspection of ‘Area 2’ following Storm Bert, the watercourse was identified to be in poor condition, with dense vegetation obstructing the flow of water through the channel. On-site inspections were also restricted due to the dense vegetation, as shown in Figure 11. This section of open watercourse and its associated drainage infrastructure is identified to be in private ownership.

Figure 11: Photo of the unnamed watercourse channel upstream of 'Culvert Inlet 2' and ‘Area 2’ (captured by RCTCBC officers post event).

The poor condition of the open watercourse channel in ‘Area 2’ is considered to have contributed to its overtopping however, the primary cause of overtopping at ‘Area 2’ has been attributed to the significant flows entering the system and the poor capacity of the ordinary watercourse and the downstream culvert network resulting in the system becoming hydraulically overloaded and overtopping during the storm event.

3.4. MAIN RIVER

The designated main River Cynon flows from west to east along the northern boundary of the investigation area (Figure 1).

The hydrograph in Figure 12 illustrates the rapid rise in levels of the River Cynon in response to rainfall between the 23 and 25 November 2024, captured at NRW's Aberdare station. The River Cynon at Aberdare reached its highest peak recorded at approximately 07:15 on 24 November 2024, reaching 2.148 metres.

The green bar displayed on the hydrograph shows the typical level of the River Cynon at Aberdare, ranging between approximately 0.1 and 0.55 metres. At its peak, the River Cynon was over 3 times higher than its average level.

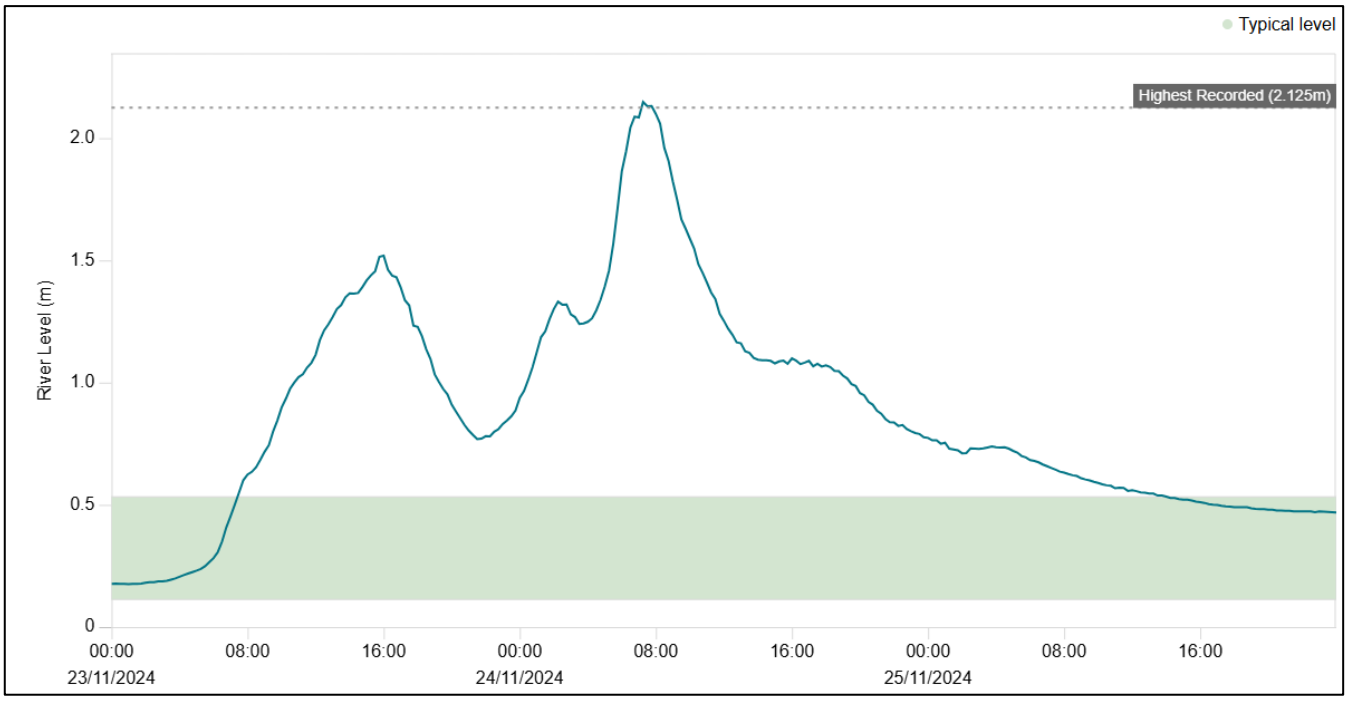

Figure 12: The River Cynon levels at Aberdare station between 23 and 25 November 2024 (Natural Resources Wales).

There is no evidence from this investigation to suggest that the River Cynon significantly contributed to the recorded flooding of properties in FIA 02 during Storm Bert, however, based on the relative high levels recorded within the River Cynon during the storm event, it is considered likely that the outfall conditions of the culverted ordinary watercourse, surface water and sewer structures were influenced by the high levels. There is limited evidence to outline this interaction, however.

3.5. HIGHWAY DRAINAGE CONDITIONS

Surface water runoff along the highway was reported by residents at Cardiff Road, Wind Street and Maesyffynon Lane during Storm Bert, however, there is no evidence to suggest that the condition of the highway drainage within FIA 02 significantly contributed to the flooding of properties. The highway drainage infrastructure was overwhelmed by intense rainfall and subsequent surface water flows, in addition to ordinary watercourse flooding associated to the overtopping of the unnamed watercourse upstream of ‘Culvert Inlet 1’, which led to the accumulation of standing water entering properties within the lower reaches of the investigation area.

Highway drainage is not designed to manage overland flows from private areas, parks or open space. In this instance, the capacity of the highway drainage at Maesyffynon Lane, Wind Street and Cardiff Road was exceeded as a result of the substantial ordinary watercourse and surface water flows entering the drainage network. The maintenance condition of the highway drainage infrastructure in these areas are not considered to have significantly impacted the flooding experienced during Storm Bert.

3.6. DCWW Apparatus

Based on the available evidence, 9 residential properties along Cardiff Road were identified to have flooded during the storm event because of the combined sewer network surcharging via a DCWW owned manhole and private external and internal drainage connected to the combined sewer network.

The DCWW sewer infrastructure within FIA 02 is depicted in Figure 13, along with 'Manhole 3' which was identified by residents' accounts to have surcharged and caused flooding to one residential property during the storm event.

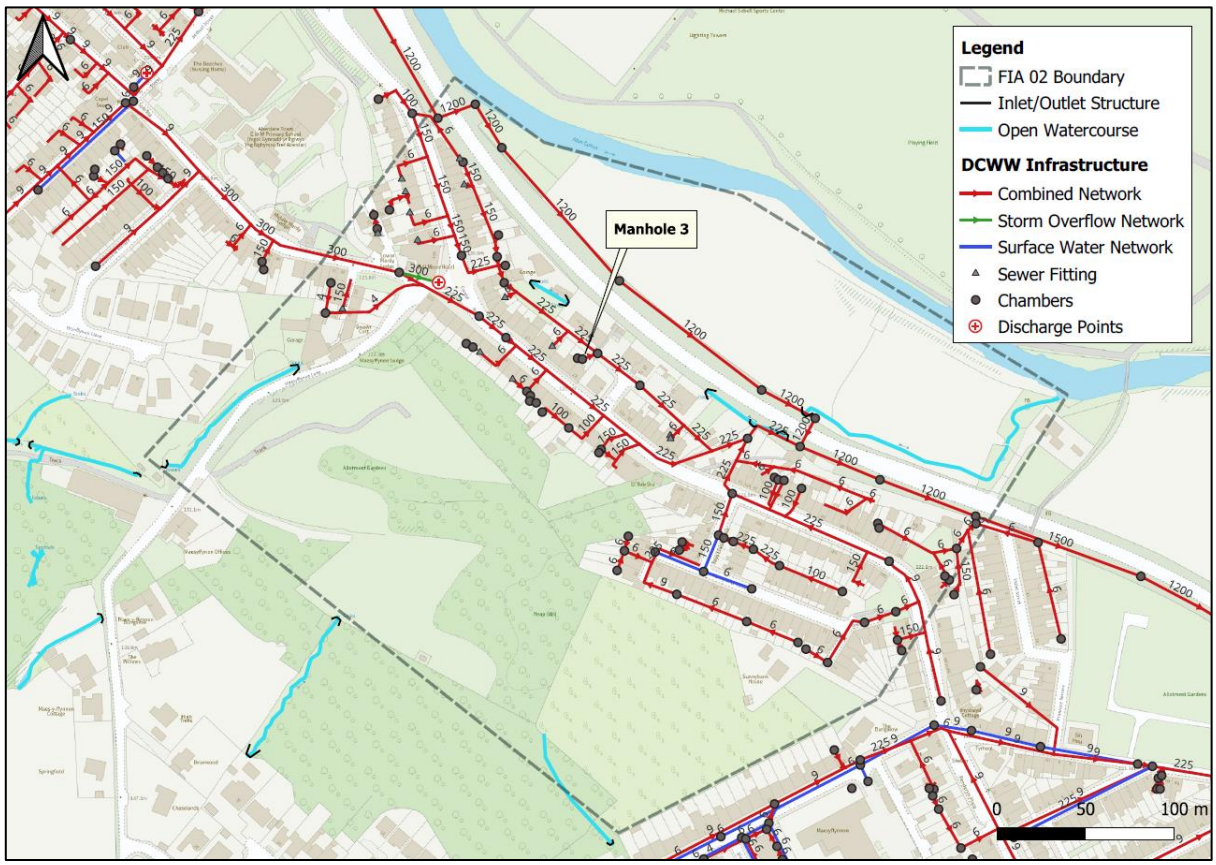

Figure 13: Map of DCWW sewer infrastructure within FIA 02

Accounts provided by residents, and supported by post event inspections, identified foul-smelling, dirty water to have entered the homes of 9 residential properties along Cardiff Road. Water was reported to have entered properties via a surcharging

combined sewer manhole (labelled ‘Manhole 3’ in Figure 14) and internal and external private drainage which is connected to the combined sewer system running to the rear of the impacted properties. Foul-smelling water was also reported to have entered properties via ingress through the basement walls.

Based on the available evidence, and information provided by DCWW, it is considered that the combined sewer system conveying to the rear of impacted properties at Cardiff Road became hydraulically overloaded during the storm event as a result of intense rainfall and exceedance ordinary watercourse flows within the investigation area, which resulted in foul and surface water ingress into several properties.

3.7. SURFACE WATER

Whilst surface water is not considered to have been the primary cause of flooding across parts of FIA 02, surface water is considered to have contributed to and exacerbated the ordinary watercourse and sewer flooding observed across the investigation area.

On review of NRW's national surface water and ordinary ("small") watercourse flood map (Figure 14), the extent of flooding from these sources is significant and correlates with the observed overland flow paths during Storm Bert. Flood risk is primarily associated to the network of ordinary watercourses and culverted infrastructure conveying through FIA 02, with particularly high risk noted across parts of Cardiff Road, Wind Street and the rear of Sunnybank Street.

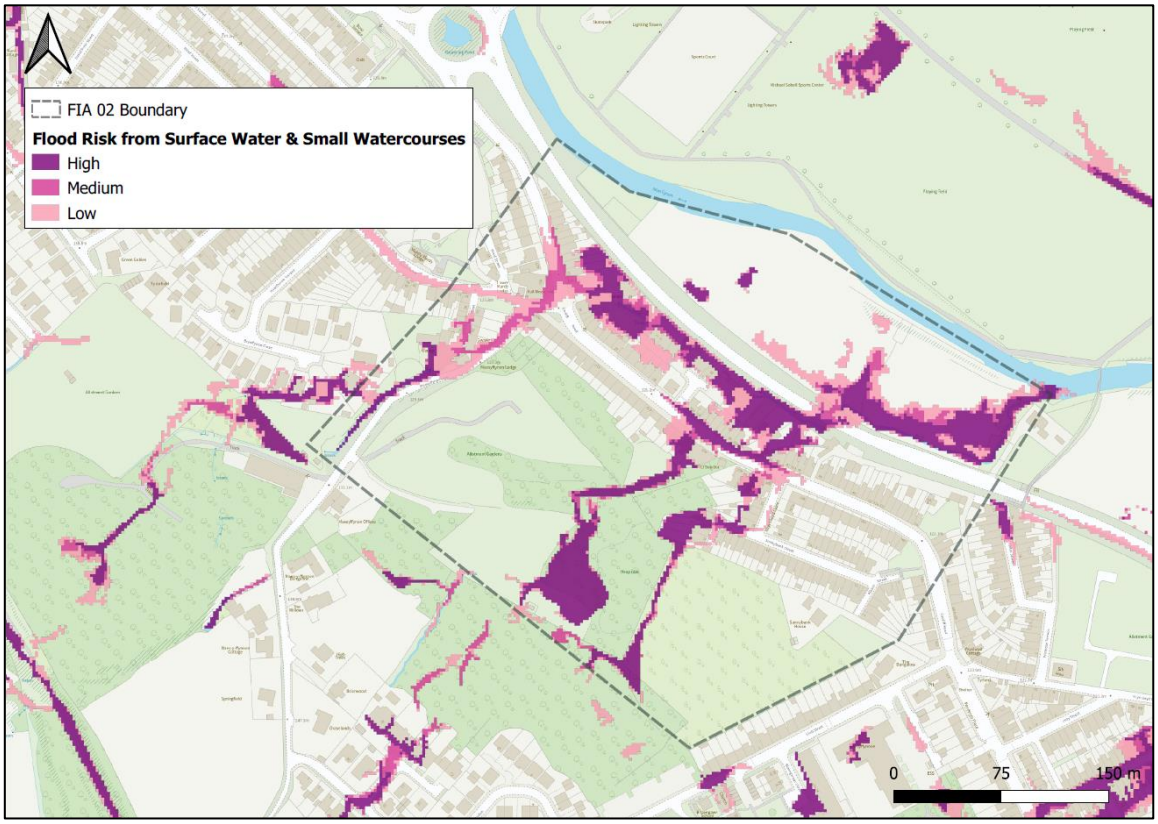

Figure 14: NRW's FRAW map for Surface Water and Ordinary Watercourse flood risk at FIA 02. Natural Resources Wales data.

Two residential properties along Cardiff Road were identified to have been internally flooded as a result of surface water ingress into their properties. This has been attributed to intense and persistent rainfall resulting in the accumulation of runoff towards localised low points, paired with overwhelmed private and highway drainage infrastructure restricting the ability to manage surface water accumulation.

As discussed in Section 2.2, two residential properties at Sunnybank Street were internally impacted by surface water flooding associated to overland flows conveying down an area of open hillside to the rear of Sunnybank Street, and onwards towards a topographic low point adjacent to properties. The observed overland flow paths towards Sunnybank Street during Storm Bert correlate well with the surface water flood risk extents illustrated in Figure 14.

An investigation of the hillside to the rear of Sunnybank Street by RCT's Flood Risk Management team was undertaken post event to assess the topography, surface condition, drainage features and any other evidence to help identify the source(s) and pathway(s) of overland runoff. The hillside falls on land owned by the Council.

Figure 15 presents a location plan with georeferenced photographs taken during the site visit to provide spatial context and visual evidence of the observed conditions across the area.

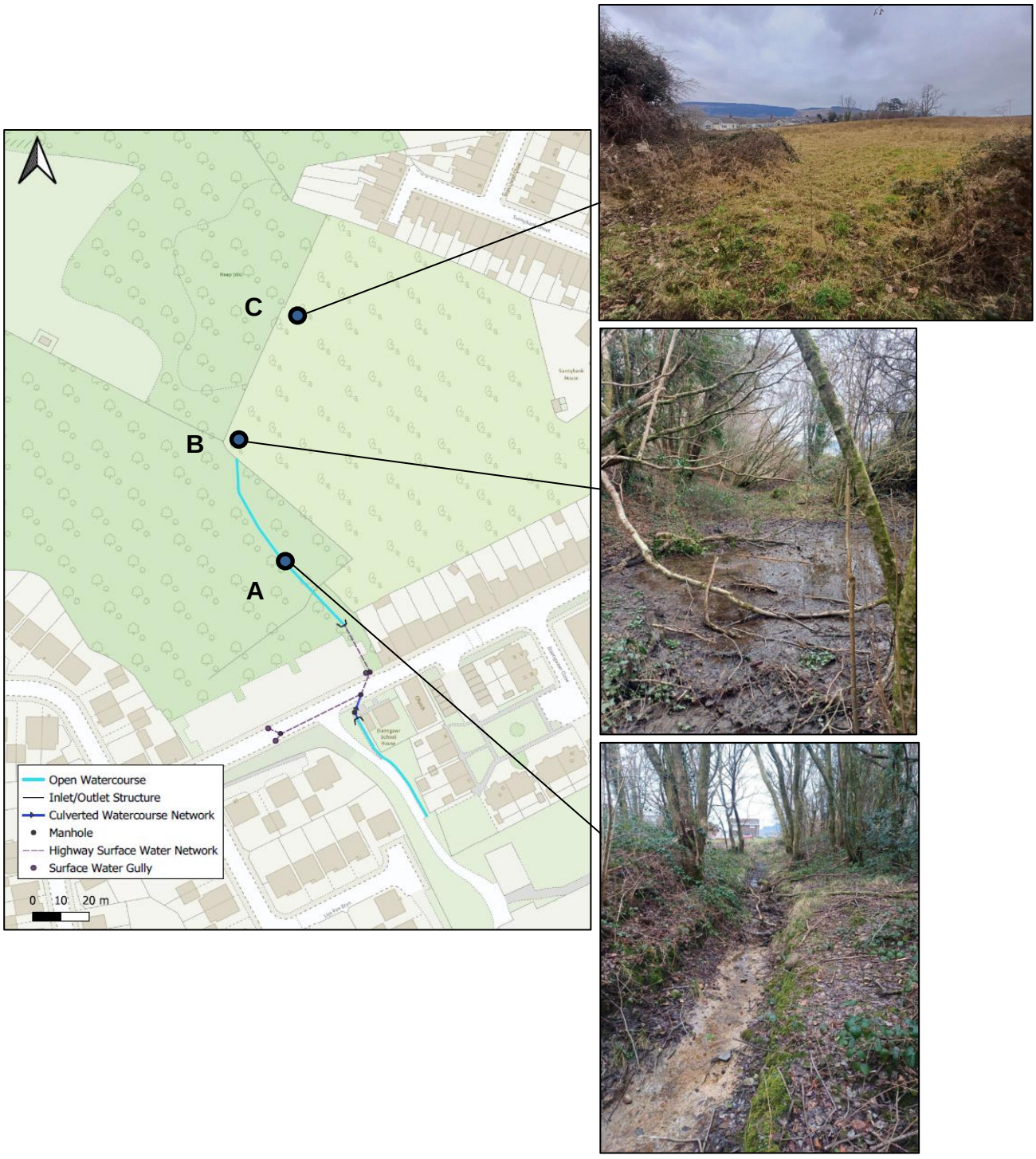

Figure 15: Site map showing photo locations and associated images captured by RCT's Flood Risk Management team post event of the hillside to the rear of Sunnybank Street.

The open field immediately to the rear of the impacted properties at Sunnybank Street ('Area C' in Figure 15) is comprised of dense vegetation and shrubs, with no defined drainage channel present nor drainage infrastructure. The grassy terrain showed evidence of flattened grass, indicative of the overland flow paths during the storm event.

Approximately 100 metres upslope, evidence of an open channel was identified as conveying from the rear of Club Street towards 'Area B' (Figure 15). The channel was dry at the time of inspection ('Area A' in Figure 15) however, based on records held by the Council, the open channel manages flows from a small section of highway and surface water drainage network at Club Street which discharges into the channel via an outfall structure. The surface water drainage network conveying towards the open watercourse shown in 'Area A' is depicted in Figure 15.

Historical mapping from 1944-74[8] (shown in Figure 16), indicates the presence of a natural sink located at the base of the open channel ('Area B' in Figure 15). This feature appears to have historically served as a point of infiltration for surface water flows. Observations made during the site visit did not identify any formal drainage infrastructure at the base of the channel, and the land surrounding the sink was saturated and boggy, indicating limited infiltration capacity.

Based on the available evidence, it is considered that during the flood event, surface water flows travelling down the channel overwhelmed the natural sink, which was unable to accommodate the volume of runoff. As a result, excess water spilled beyond the sink area, generating uncontrolled overland flows that travelled further downstream towards a natural low point in the hillside and entered the rear gardens of adjacent properties, resulting in internal flooding to two residential properties.

[8] Map Finder - with Outlines - National Library of Scotland

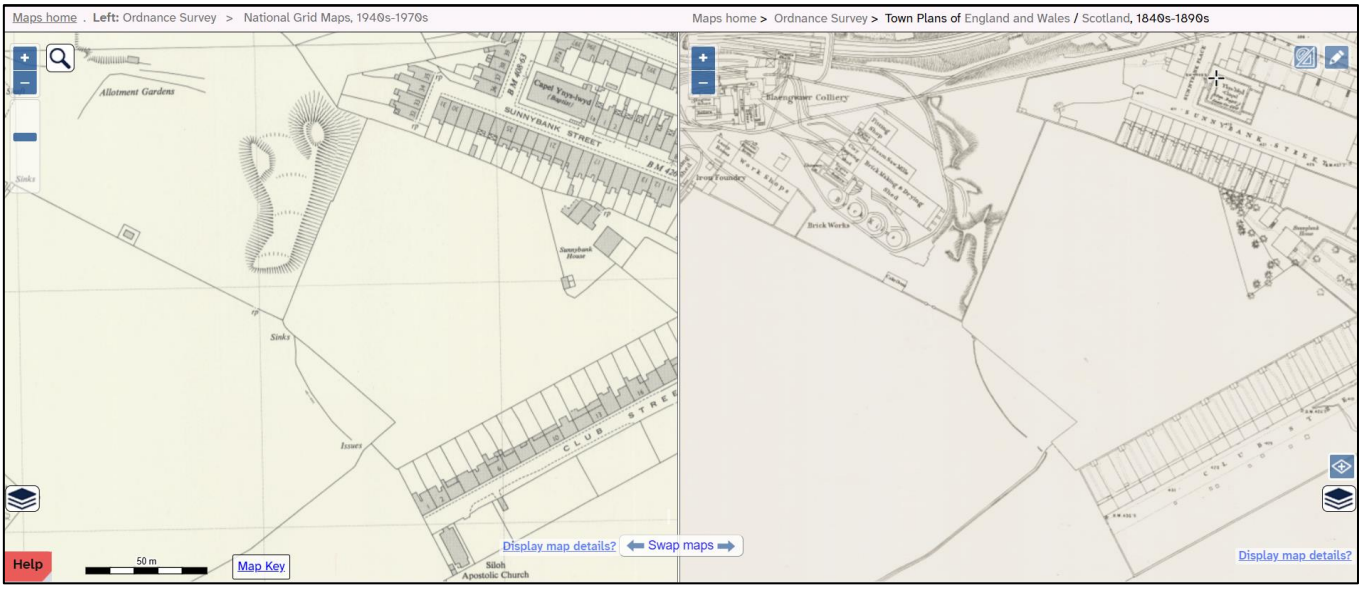

Figure 16: Historic Ordnance Survey maps from the 1840s-1890s (right) and 1940s-1970s (left) (National Library of Scotland) showing the location of a natural sink at the base of an open channel located on the hillside south of Sunnybank Street

3.8. SUMMARY OF POSSIBLE CAUSES

The above sections have identified and described the possible causes of flooding within FIA 02 during Storm Bert. A summary of the identified sources and possible causes of flooding (issue) have been outlined below in Table 7.

Table 7: Summary of the source(s) and possible cause(s) of flooding in FIA 02 during Storm Bert

Ref Nr	Asset (Source)	Issue	Asset Owner	Type of Flooding
1	Culvert Inlet 1	The culvert inlet surcharged during the storm event after becoming hydraulically overwhelmed. The surcharging flows were contained within the channel however it contributed to the overtopping of the watercourse at the debris screen immediately upstream of the inlet. The poor condition and hydraulic capacity of the downstream culvert network is considered to have contributed to the surcharging of the inlet.	RCTCBC Highway Authority	Ordinary Watercourse
2	Unnamed Ordinary Watercourse (Area 1)	The upper debris screen immediately upstream of 'Culvert Inlet 1' became blocked with debris causing the watercourse at 'Area 1' to overtop and convey towards Wind Street and Cardiff Road, contributing to the flooding of 17 properties. The poor condition and hydraulic capacity of the downstream culvert network is	RCTCBC Highway Authority	Ordinary Watercourse

Ref Nr	Asset (Source)	Issue	Asset Owner	Type of Flooding
		considered to have contributed to the overtopping of 'Area 1'.		
3	Manhole 1	An ordinary watercourse manhole surcharged during the storm event after becoming hydraulically overwhelmed. Exceedance flows from the manhole contributed to the flooding at Wind Street and Cardiff Road. The poor condition and hydraulic capacity of the associated culvert network is considered to have contributed to the surcharging of 'Manhole 1'.	Private Landowner	Ordinary Watercourse
4	Manhole 2	An ordinary watercourse manhole surcharged during the storm event after becoming hydraulically overwhelmed. Exceedance flows from the manhole contributed to the flooding at Wind Street and Cardiff Road. The poor condition and hydraulic capacity of the associated culvert network is considered to have contributed to the surcharging of 'Manhole 2'.	RCTCBC Highway Authority	Ordinary Watercourse
5	Unnamed Ordinary Watercourse (Area 2)	The open channel overtopped after becoming hydraulically overwhelmed during the storm event and contributed to the flooding of 5 properties at Cardiff Road.	Private Landowner(s)	Ordinary Watercourse

Ref Nr	Asset (Source)	Issue	Asset Owner	Type of Flooding
		The poor condition of the watercourse and the hydraulic capacity of the downstream culvert network are considered to have contributed to its overtopping.		
6	Overland Runoff (Sunnybank Street)	Intense rainfall resulted in significant overland flows to convey along the open area of hillside to the rear of Sunnybank Street, causing surface water to accumulate at the low point and enter the rear of properties at Sunnybank Street.	RCTCBC	Surface Water
7	Manhole 3	A combined sewer manhole surcharged foul water within the rear garden of a residential properties at Cardiff Road, causing internal flooding to the basement of the property.	DCWW	Sewer
8	Combined sewer network at Cardiff Road	The combined sewer network at Cardiff Road became overwhelmed by intense rainfall during the storm event, resulting in private drainage infrastructure within the boundaries of several properties surcharging. Property owners also reported dirty, foul-smelling brown water entering the basements of their properties during the storm event, indicating the potential seepage from a sewer system.	DCWW	Sewer
9	Private surface water drainage network at Cardiff Road	Residents at Cardiff Road reported surface water ingress entering their properties from the front and rear, as a result	Private Landowner(s)	Surface Water

Ref Nr	Asset (Source)	Issue	Asset Owner	Type of Flooding
		of private surface water drainage infrastructure becoming overwhelmed by intense rainfall, in addition to the combined sewer network becoming overwhelmed and surcharging up through the connected private surface water drainage system.		
10	Surface water drainage network across FIA 02	Intense rainfall across FIA 02, combined with the overtopping of sections of open watercourse, surcharging infrastructure, overland flows and overwhelmed highway drainage infrastructure, resulted in the accumulation of surface water on several streets throughout the investigation area.	RCTCBC Highway Authority	Surface Water

4. Risk Management Authority Functions

4.1. Risk Management Authorities and their Functions

The term 'Risk Management Authority' refers to the organisation(s) that have legislative powers concerning flood risk management. Risk Management Authorities (RMA) across Wales include NRW, the 22 Local Authorities as Lead Local Flood Authority (LLFA) and highway authority, water companies, and the Welsh Government as highway authority for trunk roads. Each RMA is required to fulfil a number of statutory duties, as defined under the FWMA. In addition to these statutory duties, the Act sets out a range of permissive powers for RMAs, enabling them to undertake defined activities if they so wish.

RCTCBC work in partnership with those organisations to investigate and manage flood risk. Whilst RCTCBC as the LLFA has a duty to investigate flood incidents in its area, it may be the responsibility of another RMA, or land/property owner, to take actions to resolve an issue.

Table 8 summarises which RMAs are primarily responsible for managing flood risk dependent on the type of flooding.

Further information pertaining to the roles and responsibilities of each individual RMA to manage flood risk is described in Section 5 of RCTCBC's Local Flood Risk Management Strategy and Action Plan[4].

Table 8: Risk Management Authorities responsible for managing different types of flooding in RCT

Source of Flooding	Lead Local Flood Authority	Natural Resources Wales	Water Company	Highway Authority	South Wales Trunk Road Agency (Trunk Roads & Motorway)
Main River		✓			
Surface Water	✓			✓ (on or coming from the Highway)	✓ (on or coming from the Highway (Trunk Roads & Motorway)
Ordinary Watercourse	✓				
Groundwater	✓				
Sewer Flooding			✓		
Reservoirs		✓			

Risk Management Authorities have direct flood risk management functions under the Flood and Water Management Act 2010, as well as the Land Drainage Act 1991 and the Highways Act 1980. Through analysis of the flooding that impacted FIA 02, the flood risk management functions exercised or proposed to be exercised by relevant RMAs was recorded in pursuant to Section 19 of the Flood and Water Management Act 2010, which states;

“On becoming aware of a flood in its area, a lead local flood authority must, to the extent that it considers it necessary or appropriate, investigate:

a) Which risk management authorities have relevant flood risk management functions and,

b) Whether each of those risk management authorities has exercised, or is proposing to exercise, those functions in the response to the flood."

Through the investigation process, the source(s) and possible causes of flooding in FIA 02 as a result of Storm Bert have been previously identified and summarised within Table 7. The RMAs responsible for managing that flooding have been determined in Table 9.

Table 9: Risk Management Authorities identified in response to the source(s) of flooding in FIA 02 (as per Table 7)

Ref Nr	Asset (Source)	Asset Owner	Type of Flooding	RMA responsible for managing risk
1	Culvert Inlet 1	RCTCBC Highway Authority	Ordinary Watercourse	LLFA
2	Unnamed Ordinary Watercourse (Area 1)	RCTCBC Highway Authority	Ordinary Watercourse	LLFA
3	Manhole 1	Private Landowner	Ordinary Watercourse	LLFA
4	Manhole 2	RCTCBC Highway Authority	Ordinary Watercourse	LLFA
5	Unnamed Ordinary Watercourse (Area 2)	Private Landowner(s)	Ordinary Watercourse	LLFA
6	Overland Runoff (Sunnybank Street)	RCTCBC	Surface Water	LLFA
7	Manhole 3	DCWW	Sewer	DCWW
8	Combined sewer network at Cardiff Road	DCWW	Sewer	DCWW
9	Private surface water drainage network at Cardiff Road	Private Landowner(s)	Surface Water	LLFA
10	Surface water drainage network across FIA 02	RCTCBC Highway Authority	Surface Water	Highway Authority and LLFA

4.2. Lead Local Flood Authority

In review of Ref 1-6 and 9-10 in Table 9, the LLFA have been identified as the relevant Risk Management Authority in relation to the ordinary watercourse and surface water flooding which occurred across FIA 02 during Storm Bert.

The LLFA exercised the following functions in response to the flooding at FIA 02:

- Officers investigated the initial flooding and have produced this report in line with Section 19 of the Flood and Water Management Act 2010.
- Officers contacted residents affected by flooding to offer support and advice to assist in the recovery following the event.
- A public engagement exercise was carried out by the LLFA in order to gain further local insight and anecdotal evidence to support the flood investigation.
- The LLFA has exercised its powers, under Section 13 of the FWMA, to request information and co-operation from the relevant Risk Management Authorities (NRW and DCWW) in relation to their responsibilities as RMAs in response to Storm Bert.
- The LLFA have exercised their permissive powers under Section 64 of the Land Drainage Act 1991 to investigate the condition of culvert structures, network conditions, ordinary watercourse conditions and surface water drainage arrangements to determine their impacts on the flooding within the investigation area.
- An estimated 300 metres of culverted ordinary watercourse network length within FIA 02 has been surveyed following the event to ascertain both the operational condition of the network, and its structural integrity along sections of the network.

- An estimated 3 tonnes of material and debris was removed from the culvert inlet structures and networks within RCT02 during jetting and cleansing operations.
- In review of Ref 5, the LLFA have initiated engagement with riparian landowners to ensure the ordinary watercourse infrastructure is free flowing and unobstructed.
- The LLFA has developed a revised "Flood Response Protocol", designed to pro-actively determine the agreed requisite response and resource levels related to potential storm events.
- The Council's central Control Room, which was established following Storm Dennis, was in operation during Storm Bert to provide a comprehensive and informed response to the residents of RCT as appropriate during storm events, and to accommodate multi departmental / agency meetings where required.
- The Council introduced a Community Flood Recovery Grant (Hardship Payment) programme, with support from the Welsh Government, to provide financial assistance to residents who were subjected to internal flooding as a result of Storm Bert.
- The LLFA, working alongside the Council's Prosperity & Development Directorate, supported businesses impacted by Storm Bert by establishing a Flood Recovery Grant and Flood Resilience Grant, providing financial assistance during the recovery phase and longer-term measures to enhance resilience against future events.
- The LLFA have expanded their interim Property Flood Resistance project offering expandable flood gates to those residential properties who have suffered repeat flooding from the main river during Storm Dennis and Bert.
- The LLFA have completed the development of a Business Justification Case (BJC) to deliver a Flood Alleviation Scheme in the Aberaman area, specifically

to the area of Cardiff Road, Maesyffynon Lane and Sunnybank Street, to manage the risk of ordinary watercourse and surface water flooding.

The LLFA also propose to exercise the following functions in response to the flooding at FIA 02:

- Following a review of Met Office and NRW warning systems and their effectiveness when applied to localised weather events, the Council will establish internal trigger levels for extreme weather to provide a more robust warning and informing arrangement and improve the Council's standby protocol.
- The LLFA will engage with landowners and property owners to provide advice and guidance to help make landowners aware of their personal flood risk and the options available to improve flood resilience.
- The LLFA will continue to engage with riparian landowners and regulate the ordinary watercourse infrastructure to ensure the infrastructure is free flowing and unobstructed.
- The LLFA have received Welsh Government funding to develop a Full Business Case (FBC) to carry out detailed design and development of the preferred option for managing the risk of ordinary watercourse and surface water flooding in the Aberaman area, specifically to the area of Cardiff Road, Maesyffynon Lane and Sunnybank Street.
- The LLFA propose to install remote telemetry monitoring devices at key culvert structures to enable operators to ensure the drainage systems in FIA 02 are operating effectively.
- RCTCBC will cooperate and collaborate with DCWW's program of inflow reduction projects.

4.3. NATURAL RESOURCES WALES

NRW were not identified as a relevant authority in relation to the flooding at FIA 02 during Storm Bert. NRW do not propose to undertake any actions in relation to the event within the investigation area.

4.4. WATER COMPANY

In review of Ref 7-8 in Table 9, DCWW have been identified as the relevant Risk Management Authority in relation to the sewer flooding identified across FIA 02 during Storm Bert.

DCWW have exercised the following functions in response to the flooding at FIA 02:

- DCWW have reviewed all incidents reported to them and ensured all flood risk has been identified to ensure they are investigating and managing any identified risks.
- DCWW have worked closely with RCTCBC's Flood Risk Management team through various meetings and onsite to determine the causes of flooding and working collaboratively to resolve flood risks.
- DCWW have carried out a Root Cause Assessments reviewing all data available including CCTV surveys of their network in Aberaman.
- DCWW have carried out maintenance and desilting where required.

DCWW propose to exercise the following functions in response to the flooding at FIA 02:

- DCWW have recently developed an Inflow Reduction Team with the aim of locating inflows of surface water, land drainage and groundwater in their foul and combined sewer and finding ways to reduce these inflows. The first batch of surveys were carried out in Winter 2024.
- DCWW will continue to take a risk-based approach to the prioritisation of investigations and will seek to work closely with RCTCBC to identify any opportunities for collaboration in the delivery of inflow reduction projects.

4.5. HIGHWAY AUTHORITY

In review of Ref 10 in Table 9, the Highway Authority has been identified as the relevant Risk Management Authority in relation to the surface water flooding that occurred along the highway across FIA 02.

RCTCBC as the Highway Authority have exercised the following functions in response to the flooding within FIA 02:

- The Highway Authority assisted with the emergency response during the event by supplying equipment and sandbags, some to individual properties and using sandbags to redirect flood water away from properties.
- The Highway Authority exercised their functions under Section 100 of the Highways Act 1980, to arrange for all gullies and open drains in the highway to be inspected and cleansed following the influx of fluvial flood water to ensure the safety of the highway post event.
- Since Storm Bert, the Highway Authority have sourced and deployed an additional Gulley cleansing vehicle for 6 months annually to increase gulley cleansing activities ahead of winter to improve the resilience of their highway drainage infrastructure to the impacts of heavy rainfall.
- The Highway Authority have undertaken clearance works to the culvert inlet structures and network systems which fall under the responsibility of the Authority.
- The Highway Authority has jetted, cleansed and mapped an estimated 337 metres of surface water drainage network length within FIA 08 following Storm Bert to ascertain both the operational condition and structural integrity along sections of the network.

RCTCBC as the Highway Authority propose to undertake the following functions in relation to the storm event at FIA 02:

- The Highway Authority's Pluvial Drainage Team, which was established following Storm Dennis, are to be reviewed and restructured to create increased response and resilience including staff, stores, machinery and materials deployment.

USEFUL LINKS/CONTACTS

Blue Pages – property Resilience - http://bluepages.org.uk/

Flood Re – Flooded Property Insurance Scheme - https://www.floodre.co.uk/

Natural Resources Wales – Check Flood Warnings – Natural Resources Wales / Check flood warnings

Natural Resources Wales – Check your flood risk on a map (Flood Risk Assessment Wales Map) - Natural Resources Wales / Check your flood risk on a map (Flood Risk Assessment Wales Map)

Natural Resources Wales – Sign up to receive flood warnings – Natural Resources Wales / Sign up to receive flood warnings

Rhondda Cynon Taf County Borough Council – Flood Risk Management - Flood Risk Management | Rhondda Cynon Taf County Borough Council