

Cavan Town Flood Relief Scheme

Flood Report - October 2022

Cavan County Council

Report No. W3673-BLP-R-W-003 15 August 2023 Revision 02











Document Control

Project: Cavan Town Flood Relief Scheme

Document: Flood Report - October 2022

Client: Cavan County Council

Report Number: W3673-BLP-R-W-003

Document Checking:

Revision	Revision/ Review	Details of Issue	Authorised				
Kevision	Date	Detaits of issue	Prepared By	Checked By	Approved By		
00	28 November 2022	Issued for Information	Olivia Keady	Niall Gibbons	Seán Harrington		
01	16 March 2023	Issued for Information	Niall Gibbons	Seán Harrington	Seán Harrington		
02	15 August 2023	Issued for Information	Olivia Keady	Seán Harrington	Seán Harrington		

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Contents

1	Intr	od	uction	6
	1.1	В	ackground	6
	1.2	R	eport Objectives	6
	1.2.	1	Overview of Flood Event of 28th October 2022	8
2	lmp	ac	ts from Flood Events in October 2022	9
	2.1	Т	he Maples	9
	2.1.	1	Location	9
	2.1.	2	October 2022 Flooding	LO
	2.1.	3	Restoration after flood event	2
	2.1.	4	Aftermath of Flooding in October 2022	13
	2.2	N	3 Dublin Road1	L 5
	2.2.	1	Killygarry Chapel1	L5
	2.2.	2	McDonald's / Kiernan's Service Station	17
	2.2.	3	Dublin Road Roundabout	١9
	2.3	R	212 Flooding2	20
	2.3.	1	Overview	20
	2.3.	2	Cathedral Road2	20
	2.3.	3	Farnham Street	22
	2.4	В	utlersbridge Road2	<u>2</u> 3
	2.5	Т	ullymongan / Laragh Crescent near Aldi Retail Store2	24
3	Rai	nfa	ll Analysis2	25
	3.1	R	ainfall Data2	25
4	Gau	ıge	Analysis2	28
	4.1	Li	isdarn2	28
	4.1.	1	Flow Analysis	28
	4.1.	2	Water Level Analysis	<u> 2</u> 9
	4.2	В	reffni Park3	30
	4.3	F	lood Extent Maps3	31
5	Cor	ıclı	usions and Recommendations3	32
	5.1	С	onclusion3	32
	5.2	R	ecommendations3	33
	Anner	ndi	x A – Flood Area Reports	Α



Appendix B – Flood Articles	В
Appendix C – Flood Extent Maps	C

List of Figures

Figure 1-1 - Reported Flood Locations	(
Figure 1-2 - Cavan River Tributaries	8
Figure 2-1 – Location of The Maples Housing Estate	9
Figure 2-2 – Driveway Flooding at The Maples (28 th October)	
Figure 2-3 - Internal Flooding of The Maples Housing Estate (28 th October)	. 11
Figure 2-4 - 01/11/22 – Flooding at The Maples	
Figure 2-5 - CCC Alleviating Flood Measures	. 12
Figure 2-6 – Results after restoration from flood event at The Maples Housing Estate	. 12
Figure 2-7 - Utility provision at The Maples housing estate	. 13
Figure 2-8 - Relief route for excess water during October flood event at The Maples	. 14
Figure 2-9 - N3 Killygarry Chapel Flood	. 15
Figure 2-10 - Drumcrauve River Channel along the N3	. 15
Figure 2-11 - Culvert opening near Killygarry Chapel	. 16
Figure 2-12 - Kiernan's Service Station (2022) Figure 2-13 – KSS Flood (2020)	17
Figure 2-14 - Watercourse and culvert opening at rear of Service Station	. 18
Figure 2-15 - Catchment Profile at McDonalds/Service Station	. 18
Figure 2-16 - Watercourse flowing parallel to N3 carriageway	. 19
Figure 2-17 - R212 Flooding Locations	. 20
Figure 2-18 - Flooding at Cathedral Road, Cavan Town	. 21
Figure 2-19 - Basement Flooding of GV Maloney & Co. Solicitors	
Figure 2-20 – Butlersbridge Road - Road Location	. 23
Figure 2-21 - Drone footage indicating flooded road near Laragh Crescent from route of Dublin	
Road to Tullymongan – Extract 1	. 24
Figure 2-22 - Drone footage indicating flooded road near Laragh Crescent from route of Dublin	
Road to Tullymongan - Extract 2	. 24
Figure 3-1 – Graph illustrating cumulative rainfall during storm event	. 27
Figure 3-2 - Graph illustrating rainfall during storm event	. 27
Figure 4-1 - Flow Values at Lisdarn during 9-day period	. 29
Figure 4-2 - Water Level Values at Lisdarn during 9-day period	.30
Figure 4-3 - Water Level Values at Breffni Park during 9-day period	.31



List of Tables

Table 1-1 - References to location of significant flood events	6
Table 3-1 - Maximum rainfall at respective time intervals	25
Table 3-2 - Depth Duration Frequency Rainfall Events for Cavan Town	26
Table 4-1 - Highest Flow Recordings at Lisdarn Hydrometric Station before October 2022	28
Table 4-2 - Design Peak Flows for AEP Events at 36031 – Lisdarn	29
Table 4-3 - Water Levels for AFP Events at 36031 – Lisdarn	



1 Introduction

1.1 Background

The Office of Public Works (OPW) have partnered with Cavan County Council to progress a flood relief scheme for Cavan Town. The OPW authorised the Flood Relief Scheme for Cavan Town from the result of work completed in the North Western-Neagh Bann Catchment Flood Risk Assessment and Management (CFRAM) study.

ByrneLooby was officially appointed to the Cavan Town Flood Relief Scheme in May 2022. The scheme is a component of Project Ireland 2040; the government's long-term overarching strategy to make Ireland a better country for all and to build a more resilient and sustainable future. The aims for Cavan Town are to develop and implement a flood relief system, which is technically, socially, environmentally, and economically acceptable to alleviate the risk of flooding.

1.2 Report Objectives

Cavan Town endured heavy rainfall during a period in the month of October, which led to severe spot flooding across the Cavan Town Flood Scheme Area. A particular date of note for this rainfall period was 28th October 2022, in which several records of flooding were provided. Commentary for these respective records is provided in this report. Significant flooding was reported in ten locations within the Flood Relief Scheme Area for Cavan Town, as shown in Figure 1-1. This report will cover the areas and impacts of flooding on residential housing, local facilities, and road infrastructures.

The main areas affected are shown in Table 1-1.

Table 1-1 - References to location of significant flood events

Reference Number	Location
1	The Maples Housing Estate
2	N3 by Killygarry Chapel
3	N3 at McDonalds
4	Butlersbridge Road
5	GV Maloney & Co. Solicitors
6	L2012
7	R188 Cootehill Road from Cavan Town at Centra
8	Con Smith Park
9	L1513 Loretto Road
10	Cathedral Road

This report provides commentary on the significant flood events that were recorded and whilst there has been no media capture of flooding at a minor number of sites (Reference Numbers 6 and 7); the report provides a complete compilation of locations in which significant flooding occurred.



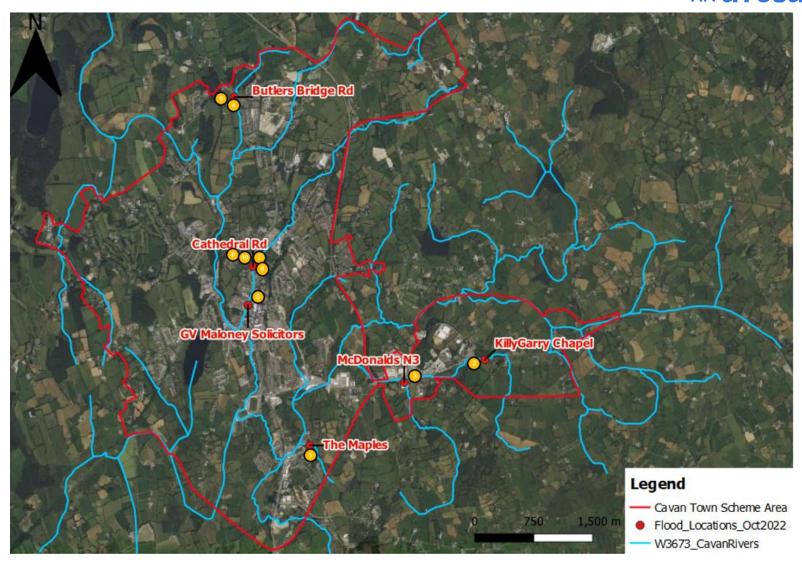


Figure 1-1 - Reported Flood Locations



1.2.1 Overview of Flood Event of 28th October 2022

Met Eireann issued a Status Orange weather warning for Cavan on 27th October valid for the period of 23:00 on 27th October 2022 until 07:00 on Friday 28th October 2022. Met Eireann warned of rain and thunderstorms forecasting "heavy rainfall with embedded thunderstorms likely to cause flooding." The Status Orange rain and thunderstorm warning was also in place for Leinster, Monaghan, Tipperary, and Waterford. The flash floods occurred in the wake of heavy rainfall and the county was designated with a 'Status Yellow' rainfall warning for two days over the October Bank Holiday weekend, which led to a sustained period of flooding. Fire Services personnel and Local Authority staff responded to several incidents in Cavan Town.

Cavan Town has numerous tributaries which amalgamate to form the Cavan River which eventually flows North as shown in Figure 1-2. During a flood event, the tributaries of the Cavan River overflow their banks after heavy rain due to narrow underground and surface channels within the river network, which results in nearby roads and properties being liable to flooding.

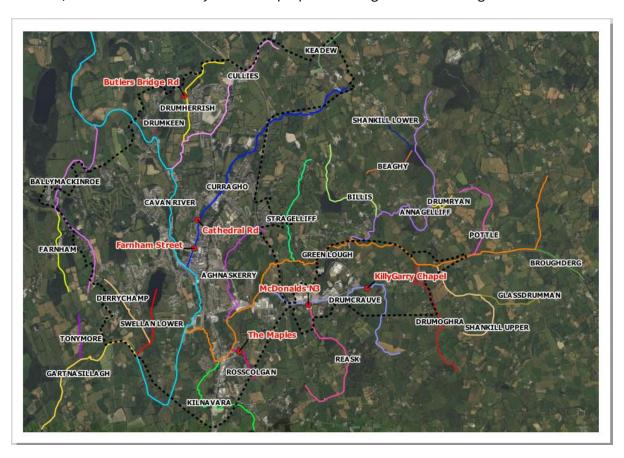


Figure 1-2 - Cavan River Tributaries

Heavy rain and wind prompted the initial flooding in Cavan Town on the 17th of October 2022. Downpours continued throughout the week which led to flooding across the Cavan Town on the 28th of October 2022.

ByrneLooby representatives attended onsite after the storm event on the 28th of October 2022 and again on the 4th of November 2022.



2 Impacts from Flood Events in October 2022

Drone footage was captured on the 28th of October from approximately 12 noon until 6pm in various locations within the Cavan Town FRS Scheme Area. This was approximately four hours after the peak water level at Lisdarn, but prior to the peak at Breffni Park.

2.1 The Maples

2.1.1 Location

The Maples housing estate in Cavan Town is situated above the River Rosscolgan and downstream of Green Lake, within the Cavan Town FRS Scheme Area, see Figure 2-1. Heavy rain causes Green Lake water levels to rise significantly. The Maples housing estate is directly affected by the annual flooding of Rosscolgan River. The homes lie below road level and after heavy downpours excessive water accumulated in driveways and conveyed into the houses of The Maples.



Figure 2-1 - Location of The Maples Housing Estate



2.1.2 October 2022 Flooding

The Maples housing estate experienced flooding on October 17th, 2022, after a Yellow Status for wind and rain. Heavy downpours continued over the course of the week resulting in a recorded peak of flood level on the 28th of October 2022. Flood wrack markers and flood levels were not surveyed on site. But recorded internal flood depth from residents, ground levels and thresholds of each of the six houses an external flood depth ranging from 316mm to 367mm was calculated. Residents had restricted access to their homes because these significantly high levels of water partially covered their access routes to property, see Figure 2-2.



Figure 2-2 - Driveway Flooding at The Maples (28th October)

Internal flooding was reported within six houses of the estate (Figure 2-3 below). Residents reported to Anglo Celt newspapers that internal flooding that occurred on the 17th of October left the floors wet but did not have a significant depth. On the 28th of October, sandbags were breached which caused water levels to rise within the six homes overnight leaving their furniture, kitchen appliances and home luxuries submerged. One house owner reported 150mm of internal flooding with the other properties recording 100mm of internal flooding, (Figure 2-3). Internal household flood depths varied due to different threshold heights and external ground profiles.

Families and residents of The Maples housing estate were left distressed due to resultant power outages and their homes and cars becoming flooded with water.



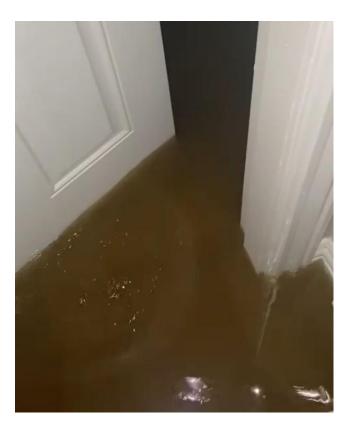


Figure 2-3 - Internal Flooding of The Maples Housing Estate (28th October)

Spot flooding continued on the 1^{st} of November 2022, as shown in Figure 2-4. Footways, drives and routes to properties were dangerous to access as a result of deposited debris, waste, and mud from the flooding.



Figure 2-4 - 01/11/22 - Flooding at The Maples



2.1.3 Restoration after flood event

Cavan County Council (CCC) implemented restoration operations to clear The Maples housing estate of excessive water. These measures included freeing drains of debris and digging up areas surrounding the driveway to direct the flow of water into a nearby field. Effective debris removal resulted in water rapidly draining from the area (Figure 2-5 red arrow). Obstructions were removed such as fencing and branches were removed from their original position to alleviate the excess surface water. The obstruction removal increased the flow of the surface water, allowing it to be easily diverted into the nearby drain. The diversion of surface water did not result in flooding in other regions. Video footage taken the afternoon of the 2nd of November demonstrated the effective restoration of infrastructure by CCC, illustrated in Figure 2-6.



Figure 2-5 - CCC Alleviating Flood Measures



Figure 2-6 - Results after restoration from flood event at The Maples Housing Estate



2.1.4 Aftermath of Flooding in October 2022

Surrounding areas were left saturated with stagnant water remaining in driveways and properties. In the event of further heavy rain, the area would be vulnerable to reoccurring floods. There were no reports of negative environmental impacts. There were no reported loss of life or injuries attained from the flood event.

Figure 2-7 also indicated that there was loose debris several months later (23/02/2023) at The Maples housing estate which may have resulted from the flood event.



Figure 2-7 - Utility provision at The Maples housing estate

Figure 2-8 indicates the environment of the relief route that a significant amount of excess water had conveyed in order to reduce the flood depth level at The Maples housing estate after the flood event.

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Figure 2-8 - Relief route for excess water during October flood event at The Maples



2.2 N3 Dublin Road

2.2.1 Killygarry Chapel

Killygarry Chapel, located on the N3 Dublin Road, in the Eastern region of the Cavan Town Flood Relief scheme area, was subjected to flooding on the 28th of October 2022. The heavy wind and rain occurred overnight on the 27th and continued into the morning of the 28th, which led to the busy national road becoming immersed in surface water, see Figure 2-9. The road was impassable for a period, then later became passable for westbound traffic with diversions for eastbound traffic via the Old Dublin Rd.



Figure 2-9 - N3 Killygarry Chapel Flood

The Drumcrauve River that runs parallel to the flooded area was unable to support the volume of water from the downpours, causing the watercourse to overtop the embankment. The Drumcrauve River has shown evidence of overflowing its banks annually, leaving the road liable to flooding. Drone footage taken on the 28th of October shows the minimal volume capacity of the river due to dense vegetation within the Drumcrauve River, see Figure 2-10.



Figure 2-10 - Drumcrauve River Channel along the N3



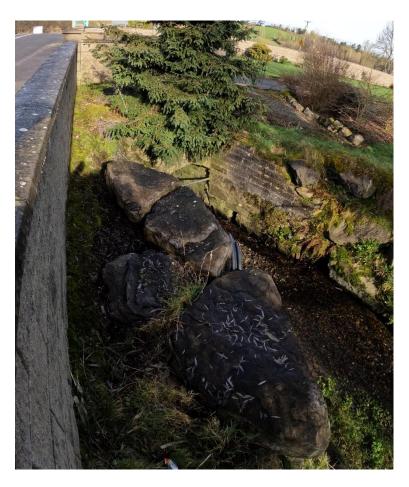


Figure 2-11 - Culvert opening near Killygarry Chapel



2.2.2 McDonald's / Kiernan's Service Station

During this flood event, fire services attended flooding west of Killygarry Chapel at Kiernan's Service station and McDonalds on the N3. 150mm of water covered the forecourt of the two service facilities; see Figure 2-12. Significant flooding in this area occurs on a recurring basis; the last recorded flooding occurred on 02/09/2020 and is illustrated in Figure 2-13. It is likely that remnants of fuel on the service station forecourt contaminated the water during these floods and may have caused negative environmental effects to the surrounding environment. Effects of contamination have not been observed or reported.





Figure 2-12 - Kiernan's Service Station (2022)

Figure 2-13 - KSS Flood (2020)

Succeeding another flood event in 2019, the owner of Kiernan's Service Station stated to the Independent Newspaper 'A local river burst its banks and flooded, which has been happening regularly over the last twelve or thirteen years, it actually never used to happen before that'. The development of the N55 Cavan By-Pass in 2006 coincides with the commencement of annually floods.

The service station and McDonalds are situated where the Reask River is culverted to join the Drumcrauve River (Figure 2-14). The associated catchment for the Reask (Figure 2-15), may be capturing extra surface water drainage from the N55 and commercial development, exceeding the culverts capacity capability, possibly causing the overspill at the entrance to the culvert. Assessing capacity, drainage profile and behaviour in due course could verify that the culvert is undersized. In order to expand the culverts diameter to increase flow of water, evaluations are to be conducted to mitigate flooding occurring on the forecourt without resulting in flooding at the confluence of the Reask and Drumcrauve River.





Figure 2-14 - Watercourse and culvert opening at rear of Service Station



Figure 2-15 - Catchment Profile at McDonalds/Service Station



2.2.3 Dublin Road Roundabout

The N3 Dublin Road and adjoining roundabout were also flooded and were impassable or severely restricted for a period until the water levels subsided. The extent of road impacted was from the Dublin Road Roundabout to Killygarry Chapel.

Depths, sources/pathways and the flood extent in this area have not been recorded due to the flood subsiding before drone footage was captured in the afternoon of October 28th. Flood wrack marks were not evident during the site visit.



Figure 2-16 - Watercourse flowing parallel to N3 carriageway.

The Drumcrauve watercourse runs parallel to the N3 before it culverts under the North exit of the Dublin Road Roundabout. Evidently, from Figure 2-14 to Figure 2-16 there is limited area for storage during a storm event causing the N3 to be vulnerable to overtopping of the river banks. Drainage behaviour and systems worked efficiently to quickly dissipate the stagnant water from road infrastructure after flow intensity decreased in the watercourse.



2.3 R212 Flooding

2.3.1 Overview

The R212 in Cavan Town flooded in two locations on October 28th, 2022. The regional road is directly affected by the Curragho River that runs parallel to this road. The watercourse is culverted under Cathedral Road and Farnham Street (Figure 2-17).

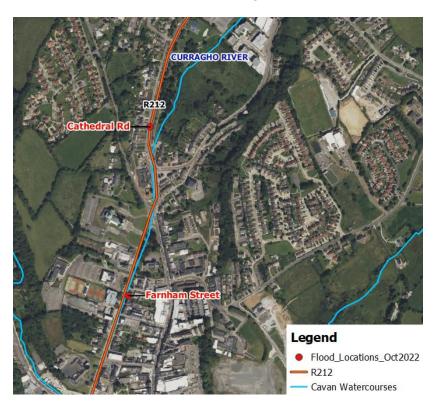


Figure 2-17 - R212 Flooding Locations

2.3.2 Cathedral Road

The Curragho River occasionally overflows its banks after heavy rain which results in Cathedral Road becoming flooded. The image in Figure 2-18 was taken on the 28th of October 2022 illustrating a flood depth that presented a significant restriction for vehicular access along Cathedral Road.

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Figure 2-18 - Flooding at Cathedral Road, Cavan Town

The L2012 and the R188 Cootehill Road from Cavan Town at Centra were also susceptible to flooding in spot areas, which adjoin the Cathedral Road at their respective junctions.



2.3.3 Farnham Street

Farnham Street is located directly above the culverted Curragho River that consists of several businesses and resident housing. Many office properties such as GV Maloney & Co. Solicitors on Farnham Street are three-storey over basement properties, built c.1820.

GV Maloney & Co. Solicitors reported heavy flooding on October 28th, 2022, see Figure 2-19. Pumps extracted water at a height of approximately 300mm from the bottom level of the basement.



Figure 2-19 - Basement Flooding of GV Maloney & Co. Solicitors

Succeeding the public consultation event on the 13th of September 2022, a resident on the opposite side to GV Maloney Solicitors on Farnham Street disclosed detailed information on the occurrence of flooding within the basement of their property. It is reported that water typically enters the basement and fills up to two foot (610mm) after heavy downpours of rain and quickly dissipates when the rainfall period ends.

The resident has owned the property since 1988 and states that the culverts were repaired in 1980 due to becoming porous from wear and tear and is aware of seven other properties whose basements are liable to flooding. Assessments and surveying intended for the associated culvert will determine its conditions, strength, and capacity to validate the statement that porous material is causing the property basements along Farnham Street to flood.



2.4 Butlersbridge Road

Butlersbridge Road is a road located in the Northern region of the Cavan Town scheme area, Figure 2-20. The Drumherrish River is the main nearby watercourse that has been susceptible to overtopping of its banks, resulting in flooding.

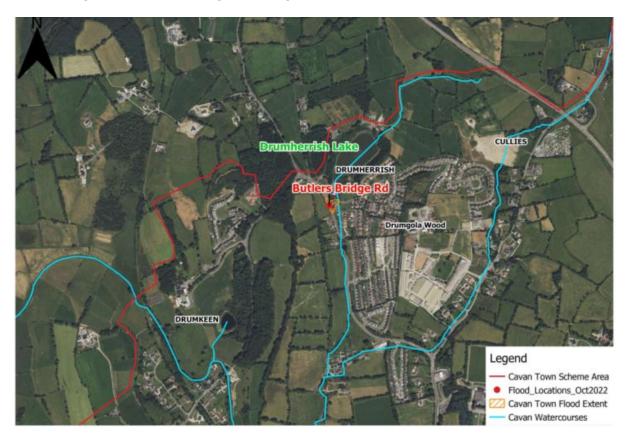


Figure 2-20 - Butlersbridge Road - Road Location

It was noted that the flooding occurred from heavy rain during the storm event that took place on 28th October 2022. This storm event resulted in the nearby roads and the entrance to the Drumgola Wood housing estate being restricted with water because of the flooding. A flood depth of 300mm was estimated from data supplied by Cavan County Council and Drumgola Wood housing estate was temporarily cut off from access due to this flood event. There was a restriction in access to the Drumgola Road as a result of this flood event.



2.5 Tullymongan / Laragh Crescent near Aldi Retail Store

Drone footage indicated that the road was flooded from the route up to Tullymongan from the Aldi supermarket at Dublin Road. Extracts from the drone footage are indicated in Figure 2-21 and Figure 2-22.



Figure 2-21 - Drone footage indicating flooded road near Laragh Crescent from route of Dublin Road to Tullymongan - Extract 1



Figure 2-22 - Drone footage indicating flooded road near Laragh Crescent from route of Dublin Road to Tullymongan - Extract 2



3 Rainfall Analysis

To analyse rainfall events sub-daily data is preferable as it can be used to define rainfall storm events at short durations. A sub-daily rainfall station was installed in Ballyhaise, 7.7km to the northeast of Cavan Town and has provided automatic recordings since 2003 to present day. This is the nearest sub-daily synoptic station to Cavan Town and is particularly useful in providing high resolution rainfall data for historic and future events over the project lifespan. It has been stated in the accompanying Hydrological Method Statement that Ballyhaise rainfall station will be used to facilitate with decision making for event magnitudes over the course of the Scheme; and this flood event in October 2022 provides another significant opportunity to assess the magnitude of a storm event.

3.1 Rainfall Data

Rainfall was measured in Ballyhaise, Co. Cavan, which is a synoptic station managed by Met Eireann. Sub-daily rainfall data was collected at Ballyhaise rainfall station after the event for review.

Table 3-1 indicates the maximum cumulative rainfall for respective time intervals that occurred during the storm event on 28/10/2022; which was recorded at Ballyhaise rainfall station.

Table 3-1 - Maximum rainfall at respective time intervals

		Duration								
		Mir	nutes				Но	ours		
Time Intervals	5	10	15	30	1	2	3	4	6	9
Maximum Rainfall (mm)	2.5	3.6	4.4	5.2	10.3	22.0	28.7	34.9	38.5	39.0

Table 3-2 has been adapted from Met Éireann's Depth Duration Frequency (DDF) Model. The national dataset provides sliding durations for a suite of return periods over 1x1km² grids. This table shows the short duration storm events for the Cavan Town area. This data can be used to attribute return periods to rainfall events or as inputs to forming the design storm for pluvial analysis. Further information about the adoption of Met Eireann's Depth Duration Frequency (DDF) Model can be found in the Hydrological Method Statement for Cavan Town FRS.

The maximum cumulative rainfall totals were plotted on Met Eireann's Return Period Rainfall Depths for Sliding Durations at coordinates: 241910, 304777. The values in the table are derived from Met Eireann's Depth Duration Frequency Model, which is widely used in meteorology and hydrology. Table 3-2 illustrates the expected amount of rainfall for a particular return period of an event; and the indication of the magnitude of cumulative rainfall for the October 2022 storm event is highlighted in green.



Table 3-2 - Depth Duration Frequency Rainfall Events for Cavan Town

	Cavan Rainfall Depth (mm)										
Duration	Return Period (Years)										
Duralion	0.5	1	2	5	10	20	50	100	200		
5 mins	2.5	3.6	4.1	6.0	7.5	9.3	12.0	14.5	17.6		
10 mins	3.5	5.0	5.8	8.4	10.5	12.9	16.7	20.2	24.5		
15 mins	4.1	5.9	6.8	9.9	12.4	15.2	19. <i>7</i>	23.8	28.8		
30 mins	5.4	7.5	8.7	12.5	15.4	18. <i>7</i>	23.9	28.7	34.5		
1 hours	<i>7</i> .1	9.7	11.1	15. <i>7</i>	19.2	23.1	29.2	34.7	41.3		
2 hours	9.2	12.5	14.2	19. <i>7</i>	23.9	28.4	35.5	41.9	49.4		
3 hours	10.8	14.5	16.4	22.6	27.1	32.2	39.9	46.8	54.9		
4 hours	12.1	16.1	18.2	24.8	29.7	35.1	43.3	50.7	59.2		
6 hours	14.2	18.7	21.1	28.4	33.8	39.7	48.7	56.6	65.8		
9 hours	16.6	21.7	24.3	32.5	38.4	44.9	54.6	63.2	73.1		

The matrix shown in Table 3-2 illustrates the return periods for a short duration storm event approximate to less than a 1-year event. However, as the storm duration increased, it grew in magnitude and peaked to between a 1 in 10-year and 1 in 20-year return period for the duration of 3 to 9 hours. The amount of cumulative rainfall over a duration of 6 hours equated to an Annual Exceedance Probability (AEP) event between 10% and 5% (likelihood of a 1 in 10-year and 1 in 20-year storm event respectively).

The cumulative rainfall that was recorded within the 6-hour storm period was 38.5mm. Figure 3-1 illustrates the build-up of cumulative rainfall over this 6-hour period.



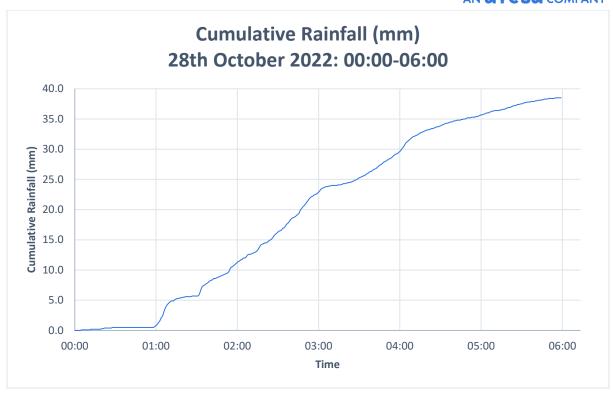


Figure 3-1 - Graph illustrating cumulative rainfall during storm event.

A breakdown of the rainfall measurements across the 6-hour period is provided in Figure 3-2.

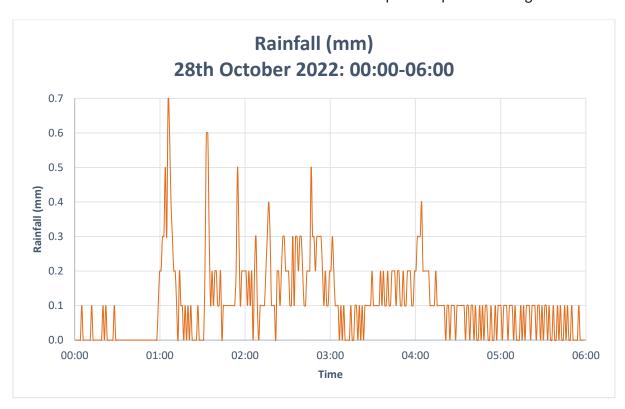


Figure 3-2 - Graph illustrating rainfall during storm event.



4 Gauge Analysis

The gauges considered most significant and relatable to the Cavan Town FRS were reviewed as part of the analysis. The results of two respective gauges were reviewed; Lisdarn (36031) and Breffni Park (36042).

4.1 Lisdarn

Lisdarn is a hydrometric station in which gauge data is recorded by the EPA. The primary purpose of this gauge is to monitor the low flow conditions at this location. However, high flows have been recorded at Lisdarn when flood events did occur as outlined in the Hydrological Method Statement. The gauge has recorded data and not malfunctioned, performing suitably during high flow conditions. The gauge is therefore considered to be useful based on previous events.

4.1.1 Flow Analysis

The gauge at Lisdarn hydrometric station provides water level readings and flow readings. The peak flow was 9.70 m³/s which occurred on 28/10/2022 at 08:00. This value illustrates the severity of the flood event that occurred in October 2022. The peak flow has been ranked as the third highest flow value ever recorded within the entire flow record collection provided at Lisdarn. Table 4-1 indicates the highest historical flow recordings recorded at Lisdarn before the October 2022 flood event.

Table 4-1 - Highest Flow Recordings at Lisdarn Hydrometric Station before October 2022

Rank	Date	Flow [m³/s]
1	22/10/1987	14.3
2	19/10/2002	10. <i>7</i>
3	08/01/2005	9.38

Flow recordings were extracted from a 9-day period from 27th October 00:00 until 5th November 00:00 and evaluated. The flow values for the entire 9-day period are represented in Figure 4-1 below.



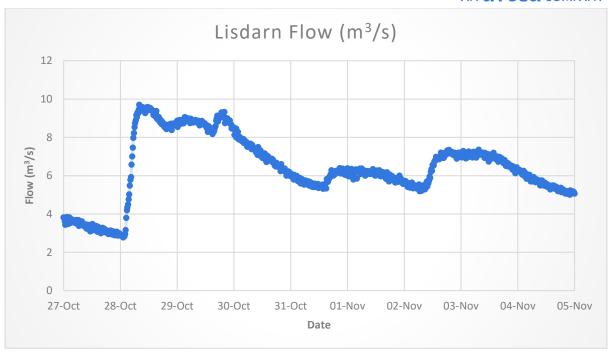


Figure 4-1 - Flow Values at Lisdarn during 9-day period

The lead time from the rainfall event on the 28^{th} of October 00:00 - 06:00 to the time of the peak flow recording lasted several hours, which demonstrated a significant influence from rainfall to the flow recordings. The flow recordings start to significantly increase from 02:00 on 28/10/2022 from a flow value of 2.96 m³/s to the peak flow of 9.70 m³/s at 08:00 on 28/10/2022; a six-hour period.

The peak flow value recorded on 28th October 2022 of 9.70m³/s was evaluated in comparison to the typical return periods at Lisdarn hydrometric station. Design peak flows were extracted from the CFRAM GIS data which provides output information at the CFRAM Nodes. The range of values are shown in Table 4-2.

Table 4-2 - Design Peak Flows for AEP Events at 36031 - Lisdarn

	Annual Exceedance Probability (AEP) Event					
	50%	20%	10%	5%	2%	1%
Design Peak Flows (m³/s)	6.87	8.94	10.55	12.24	14.70	17.65

Comparison of the recorded peak water level value with the design water levels in Table 4-2, the peak flow is in between the 20% and 10% AEP event. The equivalent return period corresponds to a 1 in 5-year to 1 in 10-year event.

4.1.2 Water Level Analysis

The water level recordings were extracted from a nine-day period from 27th October 00:00 until 5th November 00:00. The highest water level recorded was 53.671mOD Malin. The water level values for the entire 9-day period are shown in Figure 4-2 below.



The time taken to increase in water levels was relatively short; rising from 52.744mOD Malin to the peak water level of 53.671mOD Malin; an increase of 0.927m in water levels in a six-hour period.

The water levels were extracted from the Geographical Information System (GIS) files which provide information about the CFRAM Nodes, and the range of values are shown in Table 4-3.

Table 4-3 - Water Levels for AEP Events at 36031 - Lisdarn

	Annual Exceedance Probability (AEP) Event					
	50%	20%	10%	5%	2%	1%
Design Water Levels (mOD Malin)	53.43	53.62	53.75	53.88	54.06	54.20

Upon comparison of the recorded peak water level value with the design water levels in Table 4-3, the peak water level is in between the 20% and 10% AEP event. The equivalent return period corresponds to a 1 in 5-year and 1 in 10-year period.

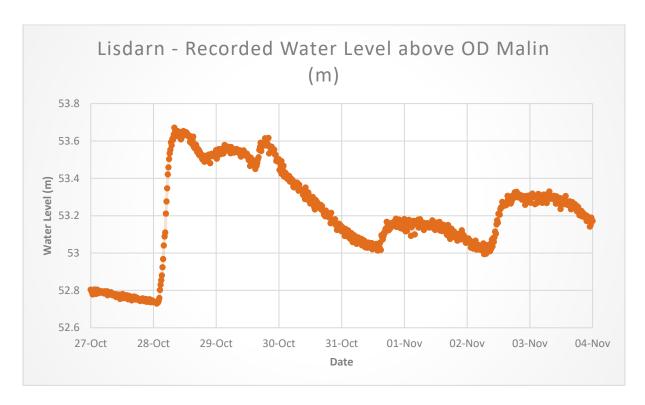


Figure 4-2 - Water Level Values at Lisdarn during 9-day period

4.2 Breffni Park

The gauge at Breffni Park provides water level readings. The water level recordings were extracted from a 9-day period from 27th October 00:00 until 5th November 00:00. The highest water level recorded was 62.739mOD Malin on 29/10/2022 at 02:15, as shown in Figure 4-3. The time taken to increase to the peak water level was of a much longer duration at Breffni Park; rising from 61.697mOD Malin on 27th October at 23:45 to the peak water level of 62.739mOD Malin on 29th October at 02:15; an increase of 1.042m in water levels over a period of 26.5 hours.



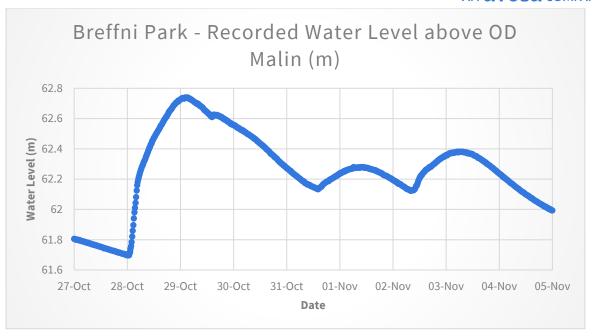


Figure 4-3 - Water Level Values at Breffni Park during 9-day period

The results illustrate a much greater lead time from the rainfall event on the 28th of October 00:00 – 06:00 until the peak flow which is approximately 24 hours after the rainfall event. The time taken to increase from its base water level to the respective peak water level is relatively long; approximately a 24-hour period. This may indicate that areas downstream of Breffni Park are a major contributing source to peak flows at Lisdarn gauging station, or that significant storage is occurring upstream of Breffni Park. This will become apparent during the hydraulics modelling and calibration.

4.3 Flood Extent Maps

Flood Extent Maps describe the characteristics of the flood event in a visual format; setting out the extent of the area that was susceptible to flooding. The recorded flood extents that occurred during the October 2022 flood event have been produced in a Geographic Information System (GIS) format and supplement this report in addition to the Technical Forms in Appendix A that provided further information on the flood events.



5 Conclusions and Recommendations

5.1 Conclusion

Cavan Town endured heavy rainfall for a sustained period in the month of October, which led to severe spot flooding across the Cavan Town Flood Scheme Area.

Heavy rain and wind prompted the initial flooding in Cavan Town on the 17th of October 2022. Downpours continued throughout the week which led to severe flooding across Cavan Town on the 28th of October 2022. Significant flooding was reported in ten locations within the Flood Relief Scheme Area for Cavan Town. Internal flooding was recorded in six homes of The Maples housing estate and property basements along Farnham Street. External flooding caused access difficulties for Drumgola Woods Estate and Pullamore Business Park which facilities food, retail, and car services.

Road networks and access such as sections of the N3, Butlersbridge Road and R212 were impassable, due to significant flood depths, within the early hours of 28th of October 2022. Further assessment and surveys are to continue to valid if bridge locations, culvert quality and size and river capacity etc. are hindering the flow of the watercourses during a storm event which results in backflow and spot flooding.

Rainfall was measured in Ballyhaise, Co. Cavan, which is a synoptic station managed by Met Eireann. The cumulative rainfall that was recorded within the 6-hour storm period was 38.5mm. The duration of the storm event took place on 28/10/2022 at 00:00 – 06:00. The cumulative rainfall over the duration of six hours equated to an Annual Exceedance Probability (AEP) event between 10% and 5% (likelihood of a 1 in 10-year and 1 in 20-year storm event respectively).

The data from two gauges were reviewed; Lisdarn (36031) and Breffni Park (36042). The flow and water level recordings were extracted from a 9-day period from 27th October until 5th November. The peak flow was 9.70 m³/s which occurred on 28/10/2022 at 08:00. The peak flow has been ranked as the third highest flow value recorded at Lisdarn.

The highest water level recorded at Breffni Park was 62.739mOD Malin on 29/10/2022 at 02:15. The time taken to increase to the peak water level was of a much longer duration at Breffni Park; rising from the lowest recorded water level of 61.697mOD Malin on 27th October at 23:45 to the peak water level of 62.739mOD Malin on 29th October at 02:15; an increase of 1.042m in water levels over a period of 26.5 hours. The time taken to increase from its base water level to the respective peak water level is comparatively long compared to Lisdarn. This may indicate the effect of storage within the catchment.

The extreme flow and water level values illustrated in this report highlight that the fluvial network was relatively overburdened during this storm event; indicating that the watercourses were too full to convey runoff from the sustained period of rainfall to alleviate flooding. As a result, drainage systems were unable to discharge to the rivers and pluvial flooding also occurred.



5.2 Recommendations

Based on the review completed the following recommendations are proposed:

- Given the frequency of flooding that is apparent at The Maples, a separate review of quick wins in this location and a review of the measures undertaken by CCC to alleviate flooding should be undertaken.
- Consideration should be given to fast-tracking the hydrology and hydraulic modelling of the catchment within which The Maples lies as it represents an isolated flood cell, unaffected by other watercourses, which could be addressed quickly.
- The owners of the property on Farnham Street should be engaged with to establish if nonreturn valves have been fitted within the property. This may require a site survey of the property with the owner.
- Hydrological assessment for potential pluvial flooding within outstanding areas of the scheme area to be conducted including an estimation of rainfall depths and intensities for a range of design rainfall events, point discharges from urban storm water drainage systems, AEP, and duration of storm event data. Further assessment would benefit optioneering by determining profiles, behaviours, and capacity for the Cavan Town FRS scheme area. Surveys of problematic areas have also been conducted to establish regions where flood defences, removal of vegetation, repairs/expansions/cleaning of culverts and storage areas should be allocated.



Appendix A – Flood Area Reports

FLOOD EVENT REPORT FORM (Excel format) Version 3.2 - Help Note No. 1.0 edited Flood Event Report Form OPW SECTION 1:- To be completed by person submitting report Name and Address of ByrneLooby Organisation Building 2100, Unit K, Ground Floor Cork Airport Business Park Kinsale Road Cork Name of Person Submitting Report Niall Gibbons Signature NGibbons Telephone Number 021 2407988 Report Date 23/11/2022 Site Visit Date 28/10/2022 e-mail CavanTownFRS@ByrneLooby.com NOTE: Please forward this form, along with any additional information, to the OPW at the address contained in the help notes Help Note No. 1.0

2.1 Location of Flood Event	Drumgola Wood			
	Butlers Bridge R	oad		
	Cavan Town			
	Co. Cavan			
2.2 Grid Reference				Help Note No. 2.1
2.2 Grid Reference				
E	asting	Northing		Help Note No. 2.2
Irish Grid Co-ordinates	241,863.00	307,747.00		
2.3 Flood Dates and Time				
Flood Start	Flood Peak	Flood End		
Date 28-Oct-22	28-Oct-22	28-Oct-22		Help Note No. 2.3
Time 2:00 AM	2:00 PM	6:00 PM		
2.4 Additional Information				
2.4 Additional Information				

Select Flood Source from list		Select Flood Cause from list
Lake	▼	Surface Water Drainage
(i.e. from where the flood waters original	ted)	(i.e. what caused the flood to occur)
Name of Catchment (if applicable)		Name of Waterbody (if applicable)
(
Erne Catchment Please give a brief description of the flo		Drumherrish River

SECTION 4:- FLOOD DATA			
Flood Parameter	Max Value	Typical Value	Comments
Flood Level (metres OD Malin)			
Flood Depth (metres)	0.3		Estimates based on the video footage provided by Cavan County Council.
Flood Flow (m ³ /s)			
Flood Velocity (m/s)			
Has flooding occurred at this loca	tion before ?	NOT KNOW₹	<u>.</u>
Details of Flooding Frequency	Other		Comments
	Other	•	<u> </u>
			Help Note No. 4.0

SECTION 5:- IMPACTS					
5.1 IMPACTS TO PEO	PLE				
(i) Was there any loss		NO	~		
ii) Were there any seri		NO	▼		
iii) Please give details o	of any loss of life	e or persor	nal injuries (e.g.	number of persons, t	ypes of injuries, risk of death or serious injury etc)
N/A					
ŕ					
5.2 IMPACTS TO PRO	PERTY				
5.2.1 Residential Were any residential p	roperties affecte	ed by the f	flooding event ar	nd if so please give de	etails?
Property Type	Yes / No)	Number of Properties	Number of People Affected	Details
Residential	YES	▼	70		Drumgola Wood housing estate had 0.4m at the entrance to the estate. No internal flooding was
					recorded Help Note No. 5.2.1
E 2.2. Community					пеір ноге но. 5.2.1
5.2.2 Community Were any of the follow	ing community p	properties	affected by the f	looding event and if s	so please give details ?
Property Type	Yes / No	,	Number of Properties		Details
Hospital / Care Home	NO	~	1100011100		
School	NO	~			
ov / Local Administratio	NO	▼			
Fire Station	NO	▼			
Garda Station		▼		The Creche location	within the housing estate was affected by fleeding.
Garda Station Other 5.2.3 Commercial	NO NO YES	·	1	within the housing e	Help Note No. 5.2.2
Garda Station Other 5.2.3 Commercial Were any of the follow	NO NO YES	properties	s affected by the	within the housing e	state.
Garda Station Other 5.2.3 Commercial	NO NO YES	properties	s affected by the	within the housing e	Help Note No. 5.2.2 so please give details ?
Garda Station Other 5.2.3 Commercial Were any of the follow Property Type	NO NO YES	properties	s affected by the	within the housing e	Help Note No. 5.2.2 so please give details ?
Garda Station Other 5.2.3 Commercial Were any of the follow Property Type Office	NO NO YES ing commercial Yes / No	properties	s affected by the	within the housing e	Help Note No. 5.2.2 so please give details ?
Garda Station Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House	NO NO YES Ing commercial Yes / No NO NO	properties	s affected by the	within the housing e	Help Note No. 5.2.2 so please give details ?
Garda Station Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House Fast Food/ Restaurant	NO NO YES ing commercial Yes / No NO NO NO	properties	s affected by the	within the housing e	Help Note No. 5.2.2 so please give details ?
Garda Station Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House Fast Food/ Restaurant	NO NO YES Ing commercial Yes / No NO NO NO	properties	s affected by the	within the housing e	Help Note No. 5.2.2 so please give details ?
Garda Station Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House Fast Food/ Restaurant	NO NO YES Ing commercial Yes / No NO NO NO NO NO	properties	s affected by the	within the housing e	Help Note No. 5.2.2 so please give details ?
Garda Station Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House Fast Food/ Restaurant Garage / Vehicle Service	NO NO VES ing commercial Yes / No	properties	s affected by the	within the housing e	Help Note No. 5.2.2 so please give details ?
Garda Station Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House Fast Food/ Restaurant Garage / Vehicle Service Industry Leisure Facility	NO NO VES Ing commercial Yes / No	properties	s affected by the	within the housing e	Help Note No. 5.2.2 so please give details ?
Garda Station Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House Fast Food/ Restaurant Garage / Vehicle Service Industry Leisure Facility Warehouse / Storage	NO NO NO YES Ing commercial Yes / No	properties	s affected by the	within the housing e	so please give details ? Details
Garda Station Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House Fast Food/ Restaurant Garage / Vehicle Service Industry Leisure Facility Warehouse / Storage	NO NO NO YES Ing commercial Yes / No	properties	s affected by the	within the housing e	Help Note No. 5.2.2 so please give details ?
Garda Station Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House Fast Food/ Restaurant Garage / Vehicle Service Industry Leisure Facility Warehouse / Storage	NO NO NO YES Ing commercial Yes / No	properties	s affected by the	within the housing e	so please give details ? Details
Garda Station Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House Fast Food/ Restaurant Garage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other	NO NO NO YES Ing commercial Yes / No	properties	s affected by the	within the housing e	so please give details ? Details
Garda Station Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House Fast Food/ Restaurant Garage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other 5.3.1 RANSPORT INFR	NO NO VES Ing commercial Yes / No	properties	s affected by the Number of Properties	within the housing e	so please give details ? Details
Garda Station Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House Fast Food/ Restaurant Garage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other 5.3.1 RANSPORT INFR	NO NO VES Ing commercial Yes / No	properties	s affected by the Number of Properties and if so please givength of Road	within the housing e	so please give details ? Details
Garda Station Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House Fast Food/ Restaurant Garage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other 5.3.1 ROAD Were any roads affecte	NO N	properties properties gevent anne	s affected by the Number of Properties and if so please given	ve details?	So please give details ? Details Help Note No. 5.2.2 Help Note No. 5.2.3 Details Octails
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Garda Station Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House Fast Food/ Restaurant Garage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other 5.3.1 ROAD Were any roads affecte Road Category Local None None	NO N	properties properties gevent anne	s affected by the Number of Properties and if so please givength of Road Affected (km)	ve details ?	So please give details ? Details Help Note No. 5.2.2 Help Note No. 5.2.3 Details Octails

5.3.2 RAIL

Was any rail infrastructure affected by the flooding event and if so please give details?

Rail C	ategory	Rail Name / Description	Length of Rail Affected (km)	Details
None	~			
None	~			

Rail Infrastructure	Description	Details
None v		

Help Note No. 5.3.2

5.4 COMMUNICATIONS INFRASTRUCTURE

Was any of the following communication infrastructure affected by the flooding event and if so please give details?

	Туре	Spatial Impact	Disruption Period (Days)	Details
	None •	National T		
I	None •	National		
ĺ	None •	National		

Help Note No. 5.4

5.5 ELECTRICAL INFRASTRUCTURE

Was any of the following Electricity Generation and/or Distribution Infrastructure affected by the flooding event and if so please give details?

	Туре	Spatial Impact	Disruption Period (Days)	Details
ſ	None	National		
ſ	None v	National		
ſ	None ▼	National		

Help Note No. 5.5

5.6 GAS INFRASTRUCTURE

Was any of the following Gas Distribution Infrastructure affected by the flooding event and if so please give details?

l	Туре	Spatial Impact	Disruption Period (Days)	Details
	None	National		
	None v	National		
I	None ▼	National T		

Help Note No. 5.6

5.7 WATER & WASTEWATER INFRASTRUCTURE

5.7.1 Water SupplyWere any of the following Water Supply facilities affected by the flooding event and if so please give details?

Туре	Spatial Impact	Disruption Period (Days)	Details
None	National		
None 🔻	National		
None	National		

5.7.2 Wastewater

Were any of the following Wastewater facilities affected by the flooding event and if so please give details?

l	Туре	Type Spatial Impact		Details
	None 🔻	National v		
	None 🔻	National		
	None 🔻	National		

		Water Body Affected			Details
None	~	Alleoted			
None	~				
5.8.2 Heritage					
Were any Built or N				y the flooding e	vent, if so please give details
Туре	N	lame / Ref of Si	ite		Details
None	▼		-		
None	~				
					Help Note No. 5.6
5.9 AGRICULTUR	AL & FO	ORESTRY			
5.9.1 Land Was any Agricultura	al Land	affected by the	flooding	g event, if so ple	ase give details
Туре		Land Quality		Area of Land (Hectares)	Details
Forestry	▼ (Good / Moderate	~	, ,	Surrounding areas of Butlersbridge Road were flooded.
None	▼ 1	Not Known	~		
None	▼ [Not Known	~		
None	▼ 1	Not Known	~		
					Help Note No. 5.9
Describe environment	tal impa	cts e.g oil spillage		ig any environmei	ntal impacts.
Describe environment There are no records	tal impa	cts e.g oil spillage		ig any environmei	ntal impacts.
Describe environment There are no records	of any o	cts e.g oil spillage	ns causin	ig any environmen	ntal impacts.
Describe environment There are no records SECTION 6:- ADDI	of any o	cts e.g oil spillage	ns causin		ntal impacts.
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SECTION 6:- ADDI If you have any add	tal impaid of any of an	L INFORMATIO information regal	ns causin	e flood event ple	ease give details in the box below.
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Describe environment There are no records SECTION 6:- ADDI If you have any add Do you have any ac Map of Lo	tal impact of any of an	L INFORMATIO information regal il information ? be & Extent age	ns causin	e flood event pla Yes / No YES VES VES	Details OGIS map showing the extent of the flooding.
Describe environment There are no records SECTION 6:- ADDI If you have any add Do you have any ac Map of Lc Vide	tal impactor of any of	L INFORMATIO information regal al information ? be & Extent age	ns causin	e flood event ple	Details OGIS map showing the extent of the flooding.

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Should you consider any of this additional information to be sensitive and not suitable for public display on the Flood KISK Management website please give details in the box below.	
management website please give details in the sox selow.	
Help Note No. 6	

SECTION 1- To be completed by person submitting report Name of Person Subming Report Report Date 291/10022 Telephone Number 60 Erreducibly Openisation Secretary Openisation Secretary Secretary Report Date 291/10022 Telephone Number 60 Erreducibly Openisation Secretary Openisation Secretary Openisation Secretary Set Visit Date 291/10022 Telephone Number 60 Erreducibly Openisation Secretary Intelligence Secretary Openisation Secretary Intelligence Secretary Intelli			Flood Event Report Form	ELOOD EVENT REPORT FORM
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SECTION 1: To be completed by person submitting report Name and Address of Distraction Completed by Person Submitting Report Signature Proof Person Report Date 2011/2012 Site Visit Date 2011/2012 Site Visit Date 2011/2012 Section 2: Location of Flood Event Contract Contract				Version 3.2 - Help Note No. 1.0
Signature Signature Comments Signature Comments Signature Comments	SECTION 1:- To be c	ompleted by person submitt	ing report	edited
Signature Comments Comments	Name of Person		Name and Address	es of Ryrnel coby
Signature Cont. Agric Road Contract Road		Niall Gibbons		
Report Date 291100022 e-mail Count Tourit Fis 6 Bornel oddy von NOTE: Please forward this form, along with any additional information, to the OPW at the address contained in the help notes BECTION 2:- LOCATION OF FLOOD EVENT 2.1 Location of Flood Event Countries (Cathedral Road Countries) Cathedral Road Countries (Cathedral Road Countries) Litch Circl Co-ordinates 2.2 Grid Reference Litch Circl Co-ordinates Litch Circl Ci				Cork Airport Business Park
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NOTE: Please forward this form, along with any additional information, to the OPW at the address contained in the help notes. Note: Please forward this form, along with any additional information, to the OPW at the address contained in the help notes.				
NOTE: Please forward this form, along with any additional information, to the OPW at the address contained in the help notes Help Note No. 1.0 SECTION 2: LOCATION OF FLOOD EVENT 2.1 Location of Flood Event Carbed Road Road	Site Visit Date	28/10/2	2022	
NOTE: Please forward this form, along with any additional information, to the OPW at the address contained in the help notes. Note: Please forward this form, along with any additional information, to the OPW at the address contained in the help notes.			e-	-mail CavanTownERS@Byrnel ooby.com
SECTION 2:- LOCATION OF FLOOD EVENT 2.1 Location of Flood Event Cameral Town Co. Carvan Melip Note No. 2.1 2.2 Grid Reference Easting Northing Irish Grid Co-ordinates 2.3 Flood Dates and Time Plood Start Flood Peak 2.4 Additional Information (i) is a map showing the location and extent of the flood available? (if a map is available? it would be of great assistance if you could include a copy of this map showing the location and extents of the flooding including.) SECTION 3:- SOURCE & CAUSE OF FLOOD EVENT Select Flood Source from list Name of Catchment (if applicable) The Carragho River that runs alongiste the #212 had overtoged its river banks; which resulted in excess surface water forming along the R212. The road wards was not visible along some parts of the road because of the amount of excess urface water, which caused some cars to be partially submerged water community of such the 128 Town the 188 Contehlil Road from Cavan Town at Centra was also susceptible to flooding in sot areas, which adjoin the Cathedral Road at their respective junctions. SECTION 4:- FLOOD DATA Flood Parameter Max Value Typical Value Comments Estimates based on the photo evidence provided by Cavan Country (mile) Letters of Flooding Frequency Comments Estimates based on the photo evidence provided by Cavan Country (mile) Letters of Flooding Frequency Comments Comments Comments Comments Comments Comments Comments Comments Comments				
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2.1 Location of Flood Event Cathedral Road Cavan Town				Help Note No. 1.0
2.1 Location of Flood Event Cathedral Road Cavan Town				
Cavan Town Co. Catvan Co.	SECTION 2:- LOCATI	ON OF FLOOD EVENT		
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The Carragho River that runs alongside the R212 had overtopped its river banks; which resulted in excess surface water forming along the R212. The road surface was not visible along some parts of the road because of the amount of excess surface water forming along the R212. The road surface was not visible along some parts of the road because of the amount of excess surface water; which adjoin the Cathedral Road at their respective junctions. SECTION 4:- FLOOD DATA Flood Parameter Max Value Flood Poly (m²/s) Flood Flood (m²/s) Flood Poly (m²/s) Flood Flooding Frequency	Irish Grid Co-ordinates	241,991.00	305,529.00	
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Details of Flooding Frequency	(i) Is a map showing the (iff a map is available incident.) SECTION 3:- SOURC Select Flood Source for Heavy Rainfall- Prolonged (i.e. from where the flood Name of Catchment (in Erne Catchment Please give a brief destance of the Catchment of Catchment (in Erne Catchment of Catchment) The Curragho River the Troad surface was not submerged when cornareas; which adjoin the SECTION 4:- FLOOD Flood Parameter Flood Level (metres Of Flood Depth (metres) Flood Flow (m³/s) Flood Velocity (m/s)	the location and extent of the fit would be of great assistance E & CAUSE OF FLOOD EVELOW Tom list Todd waters originated) If applicable) Scription of the flooding cause that runs alongside the R212 had wisible along some parts of the runsuling via this road. The L2012 the Cathedral Road at their respective Cathedral Road at	Select Flood Cause from Overtopping (i.e. what caused the floo Name of Waterbody (if ag Curragho and source overtopped its river banks; which resulted in expect of the amount of excess surface wand the R188 Cootehill Road from Cavan Town tive junctions. Typical Value O.1 Estimates base County Council	d to occur) oplicable) ccess surface water forming along the R212. The vater; which caused some cars to be partially at Centra was also susceptible to flooding in spot Help Note No. 3.0 Comments
	(i) Is a map showing the (iff a map is available incident.) SECTION 3:- SOURC Select Flood Source for Heavy Rainfall- Prolonged (i.e. from where the flood Name of Catchment (in Erne Catchment Please give a brief destance of the Catchment of Catchment (in Erne Catchment of Catchment) The Curragho River the Troad surface was not submerged when cornareas; which adjoin the SECTION 4:- FLOOD Flood Parameter Flood Level (metres Of Flood Depth (metres) Flood Flow (m³/s) Flood Velocity (m/s)	the location and extent of the fit would be of great assistance E & CAUSE OF FLOOD EVELOW Tom list Todd waters originated) If applicable) Scription of the flooding cause that runs alongside the R212 had wisible along some parts of the runsuling via this road. The L2012 the Cathedral Road at their respective Cathedral Road at	Select Flood Cause from Overtopping (i.e. what caused the floo Name of Waterbody (if ag Curragho and source overtopped its river banks; which resulted in expect of the amount of excess surface wand the R188 Cootehill Road from Cavan Town tive junctions. Typical Value O.1 Estimates base County Council	d to occur) pplicable) Access surface water forming along the R212. The vater; which caused some cars to be partially at Centra was also susceptible to flooding in spot Help Note No. 3.0 Comments and on the photo evidence provided by Cavan I.

SECTION 5:- IMPACTS OF FLOODING EVENT								
5.1 IMPACTS TO PEOF	PLE							
(i) Was there any loss of	of life ?	NO 🔻						
(ii) Were there any serio	ous injuries ?	NO ▼						
(iii) Please give details of any loss of life or personal injuries (e.g. number of persons, types of injuries, risk of death or serious injury etc)								
5.2 IMPACTS TO PROF	PERTY							
5.2.1 Residential Were any residential pr		he flooding event and	if so please give deta	ils?				
Property Type	Yes / No	Number of Properties Affected	Number of People Affected	Details				
Residential	YES 🔻	30	100	Road access was restricted and significant parts of car was submerged in excess surface water on road. The access to private driveways were more inaccessible too.				
5.2.2 Community Were any of the following	ing community proper		oding event and if so	Help Note No. 5.2.1 please give details?				
Property Type	Yes / No	Number of Properties Affected		Details				
Hospital / Care Home	NOT KNOW ▼							
School	NOT KNOW. ▼							
ov / Local Administratio	NOT KNOW ▼							
Fire Station	NOT KNOW ▼							
Garda Station Other	NOT KNOW ▼							
5.2.3 Commercial Were any of the following	ing commercial proper	ties affected by the flo	oding event and if so	please give details ?				
Property Type	Yes / No	Number of Properties Affected		Details				
Office	NOT KNOV ▼							
Shop / Retail	NOT KNOV ▼							
Public House	NOT KNOV ▼							
Fast Food/ Restaurant	NOT KNOV ▼							
arage / Vehicle Service	NOT KNOV ▼							
Industry	NOT KNOV ▼							
Leisure Facility	NOT KNOV ▼							
Warehouse / Storage	NOT KNOV ▼							
Other								
Other NOT KNOV ▼ Help Note No. 5.2.3								
5.3 TRANSPORT INFR	ASTRUCTURE							
5.3.1 ROAD Were any roads affected	d by the flooding even	t and if so please give	details ?					
Road Category	Road Name	Length of Road Affected (km)		Details				
Regional ▼	R212	0.3	road was not visible	ffected by flooding. Approximately 0.05 km of this due to flood depth of 0.3m				
Regional	R188	0.1	R188 Cootehill Rd fre	om Cavan town at Centra – road flooded on inbound				
Local	L2012	0.1	L2012 - road flooded	, impassable and closed to traffic.				
None ▼								
None ▼								

5.3.2 RAIL Was any rail infrastructure affected by the flooding event and if so please give details? Length of Rail Rail Name / Rail Category Details Description Affected (km) None Rail Infrastructure Description Details Help Note No. 5.3.2 5.4 COMMUNICATIONS INFRASTRUCTURE

Was any of the following communication infrastructure affected by the flooding event and if so please give details?

Туре		Spatial Impact	Disruption Period (Days)	Details
None	+	National •		
None	•	National T		
None	•	National		

Help Note No. 5.4

5.5 ELECTRICAL INFRASTRUCTURE

Was any of the following Electricity Generation and/or Distribution Infrastructure affected by the flooding event and if so please give details?

Туре	Spatial Impact	Disruption Period (Days)	Details
None	National ▼		
None ▼	National ▼		
None 🔻	National		

Help Note No. 5.5

5.6 GAS INFRASTRUCTURE

Was any of the following Gas Distribution Infrastructure affected by the flooding event and if so please give details?

Туре		Spatial Impact	t	Disruption Period (Days)	Details
None	~	National	4		
None	~	National	-		
None	-	National	+		

Help Note No. 5.6

5.7 WATER & WASTEWATER INFRASTRUCTURE

5.7.1 Water SupplyWere any of the following Water Supply facilities affected by the flooding event and if so please give details?

Туре	Spatial Impact	Disruption Period (Days)	Details
None ▼	National		
None ▼	National v		
None ▼	National		

5.7.2 Wastewater

Were any of the following Wastewater facilities affected by the flooding event and if so please give details?

Туре	Spatial Impact		Disruption Period (Days)	Details
None v	National	•		
None v	National	•		
None v	National	•		

5.8.1 Water Quality Vas Water Quality affect	ted by the hooding ev	, ee p g	dotallo .
Туре	Water Body Affected		Details
None ▼	Aireoted		
None ▼			
None			
5.8.2 Heritage Were any Built or Natura	al Heritage sites affect	ed by the flooding eve	ent, if so please give details
Туре	Name / Ref of Site		Details
None ▼			
None ▼			
			Help Note No. 5.8
5.9 AGRICULTURAL &	FORESTRY		
5.9.1 Land Was any Agricultural Lai	nd affected by the floo	oding event, if so plea	se give details
		Area of Land	Details
Туре	Land Quality	(Hectares)	Details
None <	Not Known ▼		
None ▼	Not Known ▼		
None v	Not Known ▼		
None ▼	Not Known ▼		
			Help Note No. 5.9
Describe environmental im	pacts e.g oil spillage	ausing any environment	al impacts.
Describe environmental im	pacts e.g oil spillage	ausing any environment	al impacts.
Describe environmental im	pacts e.g oil spillage	ausing any environment	al impacts.
Describe environmental im	pacts e.g oil spillage	ausing any environment	al impacts.
Describe environmental im	pacts e.g oil spillage	ausing any environment	al impacts.
Describe environmental im	pacts e.g oil spillage y oils or hydrocarbons c:	ausing any environment	al impacts.
Describe environmental im There are no records of any	pacts e.g oil spillage y oils or hydrocarbons ci		al impacts. ase give details in the box below.
Describe environmental im There are no records of any	pacts e.g oil spillage y oils or hydrocarbons ci		
Describe environmental im There are no records of any	pacts e.g oil spillage y oils or hydrocarbons ci		
Describe environmental im There are no records of any	pacts e.g oil spillage y oils or hydrocarbons ci		
Describe environmental im There are no records of any	pacts e.g oil spillage y oils or hydrocarbons ci		
Describe environmental im There are no records of any	pacts e.g oil spillage y oils or hydrocarbons ci		
Describe environmental im There are no records of any	pacts e.g oil spillage y oils or hydrocarbons ci		
Describe environmental im	pacts e.g oil spillage y oils or hydrocarbons ci		
Describe environmental im There are no records of any	pacts e.g oil spillage y oils or hydrocarbons ci		
Describe environmental im There are no records of any	pacts e.g oil spillage y oils or hydrocarbons ci		
Describe environmental im	pacts e.g oil spillage y oils or hydrocarbons ci		
Describe environmental im	pacts e.g oil spillage y oils or hydrocarbons ci		
SECTION 6:- ADDITION	pacts e.g oil spillage y oils or hydrocarbons ci		
Describe environmental im	pacts e.g oil spillage y oils or hydrocarbons ci IAL INFORMATION al information regardir		
Describe environmental im There are no records of any SECTION 6:- ADDITION of you have any additional Do you have any additional	pacts e.g oil spillage y oils or hydrocarbons ci IAL INFORMATION al information regardir	rg the flood event plea	ase give details in the box below. Details
Do you have any additio	pacts e.g oil spillage y oils or hydrocarbons ci lal INFORMATION al information regardir nal information?	Yes / No	ase give details in the box below. Details QGIS map showing flood extents
Describe environmental im There are no records of any SECTION 6:- ADDITION If you have any addition Do you have any addition Data T	pacts e.g oil spillage y oils or hydrocarbons ci lal information regardir nal information ? ype on & Extent sotage	Yes / No	Details QGIS map showing flood extents
Describe environmental im There are no records of any SECTION 6:- ADDITION If you have any additions Do you have any addition Data T Map of Location	pacts e.g oil spillage y oils or hydrocarbons ci lal INFORMATION al information regardir nal information? ype on & Extent lotage taphs	Yes / No	Details QGIS map showing flood extents Photographs provided by Cavan County Council

Other

Please forward this additional information to the OPW at the address contained in Help Note No.1

		I IOOU L VEIIL IN	Report Form	ELOOD EVENT DEDODT	
				FLOOD EVENT REPORT FORM (Excel format)	-
				Version 3.2 - Help Note No. 1.0 edited	- Mc
SECTION 1:- To be con	mpleted by person subr	mitting report		earrea	The Copy
Name of Person			Name and Address of	ByrneLooby	
Submitting Report	Niall Gibbons			Building 2100, Unit K, Ground Floor	
	N 1 <			Cork Airport Business Park Kinsale Road	
Signature	NGibbons			Cork	
Concrt Data			Telephone Number	021 2407988	
Report Date	23/	/11/2022	·		
Site Visit Date					
	28/	/10/2022			
			e-mail	CavanTownFRS@ByrneLooby.com	
SECTION 2:- LOCATIO	N OF FLOOD EVENT				
2.1 Location of Flood	Event GV Maloney ar	nd Co. Solicitors			
	Farnham St				
	Cavan Town				
	Co. Cavan			Help Note N	ln 21
2.2 Grid Reference				ricip Note N	10. <u>2. 1</u>
rish Grid Co-ordinates	Easting 241,928.00	Northing 305,036.00		Help Note N	lo. 2.2
2.3 Flood Dates and T Flood Star 28-Oct-22 2:00 AM	Flood Peak 28-Oct-22	Flood End 28-Oct-22 6:00 PM		Help Note N	lo. 2.3
2.4 Additional Informa	ation				
i) Is a map showing the If a map is available in looding incident.)	location and extent of the would be of great assi	ne flood available? istance if you could ind	YES Victorial YES VICTOR THIS Map	showing the location and extents	of the
SECTION 3:- SOURCE	& CAUSE OF FLOOD E	EVENT			
Select Flood Source fro	m list	Sele	ect Flood Cause from list		
eavy Rainfall- Prolonged	▼	Sur	face Water Drainage	▼	
i.e. from where the floo	d waters originated)	(i.e.	what caused the flood to	occur)	
Name of Catchment (if a	applicable)	Nan	ne of Waterbody (if applica	able)	
Erne Catchment		С	urragho		
Please give a brief desc	cription of the flooding ca	ause and source			
Definitive cause not kn		dications of perforation of		d on either side of Farnham Street. ter extreme rainfall events and/or sur	charge
				Help Note N	ln 3.0

SECTION 4:- FLOOD DATA			
Flood Parameter	Max Value	Typical Value	Comments
Flood Level (metres OD Malin)			
Flood Depth (metres)	0.3		Internal Flooding of depths 0.3m were recorded in the basement of an office house on Farnham Street.
Flood Flow (m ³ /s)			
Flood Velocity (m/s)			
Has flooding occurred at this loca	ation before ?	YES ▼	
Details of Floriding Francisco			Comments
Details of Flooding Frequency	Occasionally	•	-
			After heavy rainfall, water from the underground
			culvert breaches the basement threshold of this property and neighbouring basements.
			Help Note No. 4.0

1 IMPACTS TO PEOP					
) Was there any loss o		▼			
) Were there any serior	us injuries ? NO	▼			
i) Please give details of	any loss of life or pe	rsonal injuries (e.g. ı	number of persons, types of	f injuries, risk of death or serious injury etc)	
5.2 IMPACTS TO PROPERTY					
5.2.1 Residential Were any residential properties affected by the flooding event and if so please give details?					
Property Type	Yes / No	Number of Properties Affected	Number of People Affected	Details	
Residential	NOT KNOWN ▼				
				Help Note No. 5.2.1	
5.2.2 Community Were any of the following	ng community proper	ties affected by the fl	ooding event and if so plea	se give details ?	
Property Type	Yes / No	Number of	and it do plea	Details	
Hospital / Care Home		Properties Affected			
School	NOT KNOWN ▼				
v / Local Administratio	NOT KNOWN ▼				
Fire Station	NOT KNOWN ▼				
Garda Station					
Garda Station	NOT KNOWN ▼				
Other	NOT KNOWN ▼ NOT KNOWN ▼	ties affected by the f	looding event and if so plea	Help Note No. 5.2.2 ase give details ?	
Other 5.2.3 Commercial Were any of the followin	NOT KNOWN ▼		looding event and if so plea	ase give details ?	
Other	NOT KNOWN ▼	ties affected by the f Number of Properties	looding event and if so plea		
Other 5.2.3 Commercial Were any of the followin	NOT KNOWN ▼	Number of	The basement of GV Mal	ase give details ?	
Other 5.2.3 Commercial Were any of the followir Property Type	ng commercial proper Yes / No VES ▼	Number of Properties	The basement of GV Mal	Details Oney and Co. Solicitors was heavily	
Other 5.2.3 Commercial Were any of the followir Property Type Office	NOT KNOWN ▼ ng commercial proper Yes / No VES ▼ NOT KNOWP ▼	Number of Properties	The basement of GV Mal	Details Oney and Co. Solicitors was heavily	
Other 5.2.3 Commercial Were any of the followin Property Type Office Shop / Retail	NOT KNOWN ▼ ng commercial proper Yes / No YES ▼ NOT KNOWP ▼	Number of Properties	The basement of GV Mal	Details Oney and Co. Solicitors was heavily	
Other 5.2.3 Commercial Were any of the followin Property Type Office Shop / Retail Public House	NOT KNOWN ▼ Ing commercial proper Yes / No YES NOT KNOWP ▼ NOT KNOWP ▼	Number of Properties	The basement of GV Mal	Details Oney and Co. Solicitors was heavily	
Other 5.2.3 Commercial Were any of the followir Property Type Office Shop / Retail Public House Fast Food/ Restaurant	NOT KNOWN ▼ ng commercial proper Yes / No VES ▼ NOT KNOWP ▼ NOT KNOWP ▼ NOT KNOWP ▼	Number of Properties	The basement of GV Mal	Details Oney and Co. Solicitors was heavily	
Other 5.2.3 Commercial Were any of the followir Property Type Office Shop / Retail Public House Fast Food/ Restaurant arage / Vehicle Service	NOT KNOWN ▼ ng commercial proper Yes / No YES ▼ NOT KNOWP ▼ NOT KNOWP ▼ NOT KNOWP ▼	Number of Properties	The basement of GV Mal	Details Oney and Co. Solicitors was heavily	
Other 5.2.3 Commercial Were any of the followin Property Type Office Shop / Retail Public House Fast Food/ Restaurant arage / Vehicle Service Industry	NOT KNOWN ▼ Ing commercial proper Yes / No YES NOT KNOWP ▼	Number of Properties	The basement of GV Mal	Details Oney and Co. Solicitors was heavily	
Other 5.2.3 Commercial Were any of the followin Property Type Office Shop / Retail Public House Fast Food/ Restaurant arage / Vehicle Service Industry Leisure Facility	NOT KNOWN ▼ NOT KNOWP ▼	Number of Properties	The basement of GV Mal	Details Oney and Co. Solicitors was heavily	
Other 5.2.3 Commercial Were any of the followir Property Type Office Shop / Retail Public House Fast Food/ Restaurant arage / Vehicle Service Industry Leisure Facility Warehouse / Storage	NOT KNOWN ▼ Ing commercial proper Yes / No YES NOT KNOWP ▼	Number of Properties	The basement of GV Mal	Details Oney and Co. Solicitors was heavily ther side of street were affected.	
Other 5.2.3 Commercial Were any of the followir Property Type Office Shop / Retail Public House Fast Food/ Restaurant arage / Vehicle Service Industry Leisure Facility Warehouse / Storage	NOT KNOWN ▼ NOT KNOWP ▼	Number of Properties	The basement of GV Mal	Details Oney and Co. Solicitors was heavily	
Other 5.2.3 Commercial Were any of the followin Property Type Office Shop / Retail Public House Fast Food/ Restaurant arage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other	NOT KNOWN ▼ NOT KNOWP ▼	Number of Properties	The basement of GV Mal	Details Oney and Co. Solicitors was heavily ther side of street were affected.	
Other 5.2.3 Commercial Were any of the followir Property Type Office Shop / Retail Public House Fast Food/ Restaurant arage / Vehicle Service Industry Leisure Facility Warehouse / Storage	NOT KNOWN ▼ NOT KNOWP ▼	Number of Properties	The basement of GV Mal	Details Oney and Co. Solicitors was heavily ther side of street were affected.	
Other 5.2.3 Commercial Were any of the followin Property Type Office Shop / Retail Public House Fast Food/ Restaurant arage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other 3 TRANSPORT INFRA	NOT KNOWN ▼ NOT KNOWP ▼	Number of Properties	The basement of GV Mal flooded. Properties on e	Details Oney and Co. Solicitors was heavily ther side of street were affected.	
Other 5.2.3 Commercial Were any of the followin Property Type Office Shop / Retail Public House Fast Food/ Restaurant arage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other 3. TRANSPORT INFRA	NOT KNOWN ▼ NOT KNOWP ▼	Number of Properties	The basement of GV Mal flooded. Properties on e	Details Oney and Co. Solicitors was heavily ther side of street were affected. Help Note No. 5.2.3	
Other 5.2.3 Commercial Were any of the followin Property Type Office Shop / Retail Public House Fast Food/ Restaurant arage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other 3. TRANSPORT INFRA	NOT KNOWN ▼ NOT KNOWP ▼	Number of Properties 5	The basement of GV Mal flooded. Properties on e	Details Oney and Co. Solicitors was heavily ther side of street were affected.	
Other 5.2.3 Commercial Were any of the followin Property Type Office Shop / Retail Public House Fast Food/ Restaurant arage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other 3 TRANSPORT INFRA 5.3.1 ROAD //ere any roads affected Road Category None	NOT KNOWN ▼ NOT KNOWP ▼	Number of Properties 5 t and if so please give Length of Road	The basement of GV Mal flooded. Properties on e	Details Oney and Co. Solicitors was heavily ther side of street were affected. Help Note No. 5.2.3	
Other 5.2.3 Commercial Were any of the followin Property Type Office Shop / Retail Public House Fast Food/ Restaurant arage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other 3 TRANSPORT INFRA 5.3.1 ROAD //ere any roads affected Road Category None None	NOT KNOWN ▼ NOT KNOWP ▼	Number of Properties 5 t and if so please give Length of Road	The basement of GV Mal flooded. Properties on e	Details Oney and Co. Solicitors was heavily ther side of street were affected. Help Note No. 5.2.3	
Other 5.2.3 Commercial Were any of the followir Property Type Office Shop / Retail Public House Fast Food/ Restaurant arage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other 3. TRANSPORT INFRA 5.3.1 ROAD //ere any roads affected Road Category None None None	NOT KNOWN ▼ NOT KNOWP ▼	Number of Properties 5 t and if so please give Length of Road	The basement of GV Mal flooded. Properties on e	Details Oney and Co. Solicitors was heavily ther side of street were affected. Help Note No. 5.2.3	
Other 5.2.3 Commercial Were any of the followin Property Type Office Shop / Retail Public House Fast Food/ Restaurant arage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other 3 TRANSPORT INFRA 5.3.1 ROAD //ere any roads affected Road Category None None	NOT KNOWN ▼ NOT KNOWP ▼	Number of Properties 5 t and if so please give Length of Road	The basement of GV Mal flooded. Properties on e	Details Oney and Co. Solicitors was heavily ther side of street were affected. Help Note No. 5.2.3	

5.3.2 RAIL

Was any rail infrastructure affected by the flooding event and if so please give details?

Rail C	ategory	Rail Name / Description	Length of Rail Affected (km)	Details
None	~			
None	~			

Rail Infrastructure	Description	Details
None		

Help Note No. 5.3.2

5.4 COMMUNICATIONS INFRASTRUCTURE

Was any of the following communication infrastructure affected by the flooding event and if so please give details?

ĺ	Туре	Spatial Impact	Disruption Period (Days)	Details
	None	National		
	None ▼	National		
	None ▼	National		

Help Note No. 5.4

5.5 ELECTRICAL INFRASTRUCTURE

Was any of the following Electricity Generation and/or Distribution Infrastructure affected by the flooding event and if so please give details?

Туре	Spatial Impact	Disruption Period (Days)	Details
None ▼	National		
None v	National		
None	National		

Help Note No. 5.5

5.6 GAS INFRASTRUCTURE

Was any of the following Gas Distribution Infrastructure affected by the flooding event and if so please give details?

Туре	Spatial Impact	Disruption Period (Days)	Details
None	National		
None ▼	National		
None	National		

Help Note No. 5.6

5.7 WATER & WASTEWATER INFRASTRUCTURE

5.7.1 Water SupplyWere any of the following Water Supply facilities affected by the flooding event and if so please give details?

Туре	Spatial Impact	Disruption Period (Days)	Details
None v	National v		
None v	National v		
None	National T		

5.7.2 Wastewater

Were any of the following Wastewater facilities affected by the flooding event and if so please give details?

ĺ	Туре	Spatial Impact	Disruption Period (Days)	Details
	None v	National		
	None v	National		
	None v	National		

Type None ▼ 5.8.2 Heritage Were any Built or Natural Her Type Nan	Affected		Details
5.8.2 Heritage Were any Built or Natural Her Type Nan	itage sites affecte		
5.8.2 Heritage Were any Built or Natural Her Type Nan	itage sites affecte		
Were any Built or Natural Her Type Nam	itage sites affecte		
	-	ed by the flooding ev	vent, if so please give details
None 🔻	ne / Ref of Site		Details
None 🔻			
			Help Note No. 5
5.9 AGRICULTURAL & FOR	ESTDV		
5.9.1 Land Was any Agricultural Land aff	ected by the floo	ding event, if so plea	1
	and Quality	(Hectares)	Details
	t Known 🔻		
	t Known 🔻		
	t Known 🔻		
None V Not	t Known 🔻		
			Help Note No. 5
CECTION C. ADDITIONAL IN	IFORMATION		
SECTION 6:- ADDITIONAL IN		g the flood event ple	
f you have any additional info	ormation regardin		ass give details in the box below.
	ormation regardin		race give details in the box below.
	ormation regardin		race give details in the box below.
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	ormation regardin		race give details in the DOA Delow.
	ormation regardin		race give details in the DOA Delow.
	ormation regardin		race give details in the DOA Delow.
	ormation regardin		race give details in the box below.
	ormation regardin		race give details in the box below.
	ormation regardin		race give details in the box below.
If you have any additional info		V 11-	
If you have any additional info	formation ?	Yes / No	Details
of you have any additional info Do you have any additional in Data Type	formation ?	YES ▼	
Do you have any additional info Data Type Map of Location & f	iformation ?	YES ▼	Details QGIS Map of flood extents.
of you have any additional info Do you have any additional in Data Type	formation ?	YES ▼	Details

Please forward this additional information to the OPW at the address contained in Help Note No.1

Objected and the state of the s

Should you consider any of this additional information to be sensitive and not suitable for public display on the Flood KISK Management website please give details in the box below.	
management website pieuse give details in the box below:	
Help Note No. 6	

FLOOD EVENT REPORT FORM (Excel format) Version 3.2 - Help Note No. 1.0 edited Flood Event Report Form OPW SECTION 1:- To be completed by person submitting report Name and Address of ByrneLooby Organisation Building 2100, Unit K, Ground Floor Cork Airport Business Park Kinsale Road Cork Name of Person Submitting Report Niall Gibbons Signature NGibbons Telephone Number 021 2407988 Report Date 23/11/2022 Site Visit Date 28/10/2022 e-mail CavanTownFRS@ByrneLooby.com NOTE: Please forward this form, along with any additional information, to the OPW at the address contained in the help notes Help Note No. 1.0

2.1 Location of Flood Event	Kiernans Service	Station / McDonalds		
	Dublin Road N3			
	Cavan Town			
	Co. Cavan			
2.2 Grid Reference				Help Note No. 2.1
2.2 Grid Reference				
E	Easting	Northing		Help Note No. 2.2
Irish Grid Co-ordinates	244,049.00	304,104.00		
2.3 Flood Dates and Time				
Flood Start	Flood Peak	Flood End		
Date 28-Oct-22	28-Oct-22	28-Oct-22		Help Note No. 2.3
Time 2:00 AM	2:00 PM	6:00 PM		
2.4 Additional Information				
2.4 Additional information				

Select Flood Source from list Heavy Rainfall- Prolonged	Select Flood Cause from list Surface Water Drainage
(i.e. from where the flood waters originated)	(i.e. what caused the flood to occur)
Name of Catchment (if applicable)	Name of Waterbody (if applicable)
Erne Catchment	Drumcrauve
Please give a brief description of the flooding cause a	and source of the N3 road. This pooling of water intruded significantly into the carriageways which

Flood Parameter	Max Value	Typical Value	Comments
Flood Level (metres OD Malin)			
Flood Depth (metres)	0.3	0.15	
Flood Flow (m ³ /s)			
Flood Velocity (m/s)			
Has flooding occurred at this loca	ation before ?	YES 🔻	
Details of Flooding Frequency			Comments
Details of Flooding Frequency	Occasionally	▼	
			Local river burst its banks after heavy rainfall causing water to overflow on the forecourt of commercial properties nearby.

1 IMPACTS TO PEO	PLE			
(i) Was there any loss	of life ?	▼		
ii) Were there any serio	ous injuries ? NO	▼		
ii) Please give details o	f any loss of life or pe	ersonal injuries (e.g.	number of persons, type	es of injuries, risk of death or serious injury etc)
.2 IMPACTS TO PRO	PERTY			
5.2.1 Residential Were any residential p	roperties affected by	the flooding event a	nd if so please give detai	s?
Property Type	Yes / No	Number of	Number of People	Details
Residential	NO ▼	Properties	Affected	
			<u> </u>	
				Help Note No. 5.2.1
5.2.2 Community	ing community prope	rties affected by the	flooding event and if so p	uleace give details 2
Property Type	Yes / No	Number of	Tiooding event and it so p	Details
Hospital / Care Home		Properties		Details
School	NOT KNOWN ▼			
ov / Local Administratio	NOT KNOWN ▼			
Fire Station	NOT KNOWN ▼			
	NOT KNOW!			
Garda Station	NOT KNOWN ▼			
Other 5.2.3 Commercial	NOT KNOWA ▼			Help Note No. 5.2.2
Other 5.2.3 Commercial	NOT KNOWA ▼		flooding event and if so	
Other	NOT KNOWA ▼	rities affected by the Number of Properties	flooding event and if so	
Other 5.2.3 Commercial Were any of the follow	NOT KNOWN ▼	Number of	flooding event and if so	olease give details ?
Other 5.2.3 Commercial Were any of the follow Property Type Office	NOT KNOWN ▼ ing commercial prope Yes / No	Number of Properties	Flooding occurred in	Details Pullamore Business Park, the forecourt was
Other 5.2.3 Commercial Were any of the follow Property Type	NOT KNOWN ▼ ing commercial prope Yes / No NOT KNOWN ▼	Number of Properties	Flooding occurred in	Details Pullamore Business Park, the forecourt was acting electrical, fireplace, home lighting and
Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail	NOT KNOWN ▼ Yes / No NOT KNOWN ▼ YES	Number of Properties	Flooding occurred in 4 immersed in 0.3m; aff	Details Pullamore Business Park, the forecourt was acting electrical, fireplace, home lighting and
Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House	NOT KNOWN ▼ ing commercial prope Yes / No NOT KNOWN ▼ VES NOT KNOWN ▼	Number of Properties	Flooding occurred in 4 immersed in 0.3m; aff bathroom tile stores k	Details Pullamore Business Park, the forecourt was acting electrical, fireplace, home lighting and
Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House Fast Food/ Restaurant	NOT KNOWN ▼ Yes / No NOT KNOWN ▼ YES ▼	Number of Properties	Flooding occurred in 4 immersed in 0.3m; aff bathroom tile stores ke McDonalds share the flooded Auto Point N3, NCT Ca	Details Pullamore Business Park, the forecourt was secting electrical, fireplace, home lighting and scated in the vicinity.
Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House Fast Food/ Restaurant	NOT KNOWN ▼ Yes / No NOT KNOWN ▼ YES ▼ VES ▼	Number of Properties	Flooding occurred in 4 immersed in 0.3m; aff bathroom tile stores k	Details Pullamore Business Park, the forecourt was secting electrical, fireplace, home lighting and located in the vicinity.
Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House Fast Food/ Restaurant arage / Vehicle Service	NOT KNOWN ▼ YES / NO NOT KNOWN ▼ VES ▼ NOT KNOWN ▼ VES ▼ NOT KNOWN ▼	Number of Properties	Flooding occurred in 4 immersed in 0.3m; aff bathroom tile stores ke McDonalds share the flooded Auto Point N3, NCT Ca	Details Pullamore Business Park, the forecourt was secting electrical, fireplace, home lighting and located in the vicinity.
Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House Fast Food/ Restaurant tarage / Vehicle Service Industry Leisure Facility	NOT KNOWN ▼ Yes / No NOT KNOWN ▼ YES ▼ NOT KNOWN ▼ YES ▼ NOT KNOWN ▼	Number of Properties	Flooding occurred in 4 immersed in 0.3m; aff bathroom tile stores ke McDonalds share the flooded Auto Point N3, NCT Ca	Details Pullamore Business Park, the forecourt was secting electrical, fireplace, home lighting and located in the vicinity.
Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House Fast Food/ Restaurant larage / Vehicle Service Industry Leisure Facility Warehouse / Storage	NOT KNOWN ▼ YES NOT KNOWN ▼ VES VES NOT KNOWN ▼ NOT KNOWN ▼ NOT KNOWN ▼ NOT KNOWN ▼	Number of Properties	Flooding occurred in 4 immersed in 0.3m; aff bathroom tile stores k	Details Pullamore Business Park, the forecourt was secting electrical, fireplace, home lighting and located in the vicinity.
Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House Fast Food/ Restaurant arage / Vehicle Service	NOT KNOWN ▼ YES / NO NOT KNOWN ▼ VES ▼ NOT KNOWN ▼ VES ▼ NOT KNOWN ▼	Number of Properties	Flooding occurred in 4 immersed in 0.3m; aff bathroom tile stores k	Details Pullamore Business Park, the forecourt was secting electrical, fireplace, home lighting and located in the vicinity.
Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House Fast Food/ Restaurant tarage / Vehicle Service Industry Leisure Facility	NOT KNOWN ▼ Yes / No NOT KNOWN ▼ YES ▼ NOT KNOWN ▼ YES ▼ NOT KNOWN ▼	Number of Properties	Flooding occurred in 4 immersed in 0.3m; aff bathroom tile stores k	Details Pullamore Business Park, the forecourt was secting electrical, fireplace, home lighting and located in the vicinity.
Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House Fast Food/ Restaurant arage / Vehicle Service Industry Leisure Facility Warehouse / Storage	NOT KNOWN ▼ YES NOT KNOWN ▼ VES VES NOT KNOWN ▼ NOT KNOWN ▼ NOT KNOWN ▼ NOT KNOWN ▼	Number of Properties	Flooding occurred in 4 immersed in 0.3m; aff bathroom tile stores k	Details Pullamore Business Park, the forecourt was secting electrical, fireplace, home lighting and located in the vicinity.
Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House Fast Food/ Restaurant arage / Vehicle Service Industry Leisure Facility Warehouse / Storage	NOT KNOWN ▼ YES NOT KNOWN ▼ VES VES NOT KNOWN ▼ NOT KNOWN ▼ NOT KNOWN ▼ NOT KNOWN ▼	Number of Properties	Flooding occurred in 4 immersed in 0.3m; aff bathroom tile stores k	Details Pullamore Business Park, the forecourt was ecting electrical, fireplace, home lighting and located in the vicinity. same forecourt their entrance was partially ar Test Centre, Speed Wash, Kiernans
Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House Fast Food/ Restaurant larage / Vehicle Service Industry Leisure Facility Warehouse / Storage	NOT KNOWN ▼ YES NOT KNOWN ▼ VES NOT KNOWN ▼ VES NOT KNOWN ▼ NOT KNOWN ▼ NOT KNOWN ▼ NOT KNOWN ▼	Number of Properties	Flooding occurred in 4 immersed in 0.3m; aff bathroom tile stores k	Details Pullamore Business Park, the forecourt was ecting electrical, fireplace, home lighting and located in the vicinity. same forecourt their entrance was partially ar Test Centre, Speed Wash, Kiernans
Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House Fast Food/ Restaurant tarage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other	NOT KNOWN ▼ YES NOT KNOWN ▼ VES NOT KNOWN ▼ VES NOT KNOWN ▼ NOT KNOWN ▼ NOT KNOWN ▼ NOT KNOWN ▼	Number of Properties	Flooding occurred in 4 immersed in 0.3m; aff bathroom tile stores k	Details Pullamore Business Park, the forecourt was ecting electrical, fireplace, home lighting and located in the vicinity. same forecourt their entrance was partially ar Test Centre, Speed Wash, Kiernans
Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House Fast Food/ Restaurant larage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other	NOT KNOWN ▼ YES NOT KNOWN ▼ VES NOT KNOWN ▼ VES NOT KNOWN ▼	Number of Properties	Flooding occurred in 4 immersed in 0.3m; aff bathroom tile stores in 1 McDonalds share the flooded 4 Auto Point N3, NCT Caservice station	Details Pullamore Business Park, the forecourt was ecting electrical, fireplace, home lighting and located in the vicinity. same forecourt their entrance was partially ar Test Centre, Speed Wash, Kiernans
Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House Fast Food/ Restaurant larage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other 5.3.1 ROAD	NOT KNOWN ▼ YES NOT KNOWN ▼ VES NOT KNOWN ▼ VES NOT KNOWN ▼	Number of Properties At and if so please g	Flooding occurred in 14 immersed in 0.3m; affibathroom tile stores kill McDonalds share the flooded Auto Point N3, NCT Cill Service station	Details Pullamore Business Park, the forecourt was ecting electrical, fireplace, home lighting and located in the vicinity. same forecourt their entrance was partially ar Test Centre, Speed Wash, Kiernans
Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House Fast Food/ Restaurant arage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other 5.3.1 ROAD Vere any roads affected	NOT KNOWN ▼ YES	Number of Properties	Flooding occurred in 1 immersed in 0.3m; aff bathroom tile stores in 1 immersed in 0.3m; aff bathroom tile stores in 1 immersed in 0.3m; aff bathroom tile stores in 1 immersed in 0.3m; aff control in 1 immersed i	Details Pullamore Business Park, the forecourt was acting electrical, fireplace, home lighting and acated in the vicinity. same forecourt their entrance was partially ar Test Centre, Speed Wash, Kiernans Help Note No. 5.2.3 Details purt conveyed onto the N3, covering a section of
Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House Fast Food/ Restaurant larage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other 5.3 TRANSPORT INFR 5.3.1 ROAD Were any roads affected Road Category	NOT KNOWN ▼ YES ▼ NOT KNOWN ▼ VES ▼ NOT KNOWN ▼ VES ▼ NOT KNOWN ▼	Number of Properties And if so please g Length of Road Affected (km)	Flooding occurred in 14 immersed in 0.3m; aff bathroom tile stores in 15 immersed in 0.3m; aff bathroom tile stores in 16 immersed in 17 imme	Details Pullamore Business Park, the forecourt was acting electrical, fireplace, home lighting and acated in the vicinity. same forecourt their entrance was partially ar Test Centre, Speed Wash, Kiernans Help Note No. 5.2.3 Details purt conveyed onto the N3, covering a section of
Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House Fast Food/ Restaurant Barage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other 5.3.1 ROAD Were any roads affected Road Category National Primary	NOT KNOWN ▼ YES ▼ NOT KNOWN ▼ VES ▼ NOT KNOWN ▼ VES ▼ NOT KNOWN ▼	Number of Properties And if so please g Length of Road Affected (km)	Flooding occurred in 1 immersed in 0.3m; aff bathroom tile stores in 1 immersed in 0.3m; aff bathroom tile stores in 1 immersed in 0.3m; aff bathroom tile stores in 1 immersed in 0.3m; aff control in 1 immersed i	Details Pullamore Business Park, the forecourt was acting electrical, fireplace, home lighting and acated in the vicinity. same forecourt their entrance was partially ar Test Centre, Speed Wash, Kiernans Help Note No. 5.2.3 Details purt conveyed onto the N3, covering a section of
Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House Fast Food/ Restaurant tarage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other 5.3 TRANSPORT INFR 5.3.1 ROAD Were any roads affected Road Category National Primary Nane	NOT KNOWN ▼ Yes / No NOT KNOWN ▼ YES ▼ NOT KNOWN ▼ VES ▼ NOT KNOWN ▼	Number of Properties And if so please g Length of Road Affected (km)	Flooding occurred in 1 immersed in 0.3m; aff bathroom tile stores in 1 immersed in 0.3m; aff bathroom tile stores in 1 immersed in 0.3m; aff bathroom tile stores in 1 immersed in 0.3m; aff control in 1 immersed i	Details Pullamore Business Park, the forecourt was acting electrical, fireplace, home lighting and acated in the vicinity. same forecourt their entrance was partially ar Test Centre, Speed Wash, Kiernans Help Note No. 5.2.3 Details purt conveyed onto the N3, covering a section of
Other 5.2.3 Commercial Were any of the follow Property Type Office Shop / Retail Public House Fast Food/ Restaurant arage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other 5.3.1 ROAD Vere any roads affected Road Category National Primary None	NOT KNOWN ▼ Yes / No NOT KNOWN ▼ YES ▼ NOT KNOWN ▼ VES ▼ NOT KNOWN ▼	Number of Properties And if so please g Length of Road Affected (km)	Flooding occurred in 1 immersed in 0.3m; aff bathroom tile stores in 1 immersed in 0.3m; aff bathroom tile stores in 1 immersed in 0.3m; aff bathroom tile stores in 1 immersed in 0.3m; aff control in 1 immersed i	Details Pullamore Business Park, the forecourt was acting electrical, fireplace, home lighting and acated in the vicinity. same forecourt their entrance was partially ar Test Centre, Speed Wash, Kiernans Help Note No. 5.2.3 Details purt conveyed onto the N3, covering a section of

5.3.2 RAIL

Was any rail infrastructure affected by the flooding event and if so please give details?

Rail C	ategory	Rail Name / Description	Length of Rail Affected (km)	Details
None	~			
None	~			

Rail Infrastructure	Description	Details
None v		

Help Note No. 5.3.2

5.4 COMMUNICATIONS INFRASTRUCTURE

Was any of the following communication infrastructure affected by the flooding event and if so please give details?

	Туре	Spatial Impact	Disruption Period (Days)	Details
	None •	National T		
I	None •	National		
ĺ	None •	National		

Help Note No. 5.4

5.5 ELECTRICAL INFRASTRUCTURE

Was any of the following Electricity Generation and/or Distribution Infrastructure affected by the flooding event and if so please give details?

	Туре	Spatial Impact	Disruption Period (Days)	Details
ſ	None	National		
ſ	None v	National		
ſ	None ▼	National		

Help Note No. 5.5

5.6 GAS INFRASTRUCTURE

Was any of the following Gas Distribution Infrastructure affected by the flooding event and if so please give details?

l	Type Spatial Impact		Disruption Period (Days)	Details
	None	National		
	None v	National		
I	None ▼	National T		

Help Note No. 5.6

5.7 WATER & WASTEWATER INFRASTRUCTURE

5.7.1 Water SupplyWere any of the following Water Supply facilities affected by the flooding event and if so please give details?

Туре	Spatial Impact	Disruption Period (Days)	Details
None	National		
None 🔻	National		
None	National		

5.7.2 Wastewater

Were any of the following Wastewater facilities affected by the flooding event and if so please give details?

l	Туре	Spatial Impact	Disruption Period (Days)	Details
	None 🔻	National •		
	None 🔻	National		
	None 🔻	National		

5.8 WATER QUALITY & HERITAGE
5.8.1 Water Quality Was Water Quality affected by the flooding event, if so please give details?

Туре	Water Body Affected	Details
None		
None v		

5.8.2 HeritageWere any Built or Natural Heritage sites affected by the flooding event, if so please give details

Туре	Name / Ref of Site	Details
None v		
None		

Help Note No. 5.8

5.9 AGRICULTURAL & FORESTRY

5.9.1 Land
Was any Agricultural Land affected by the flooding event, if so please give details

Туре	Land Quality	Area of Land (Hectares)	Details
Forestry V	Not Known		
None	Not Known		
None	Not Known		
None v	Not Known		

Help Note No. 5.9

5.10 ENVIRONMENTAL IMPACTS

Describe environmental impacts e.g oil spillage

Although there hasn't been any reports or visual affects of water contamination, it is likely that residues of hydrocarbons and fuels on the service station forecourt intercepted into the surface water arising from the flood. There has not been any water sampling conducted to verify whether contamination has occurred or not.

Data Type	Yes / No		Details
Map of Location & Extent	YES	T	QGIS Map of flood extents
Video Footage	YES	~	Drone footage provided in afternoon of 28th October - flood event. Video Footage on youtube
Photographs	NO	▼	
Press Articles	YES	~	Anglo Celt 'Serious Flooding after Downpour' 28/10/22
Rainfall Data	NO	~	
Other	NO	•	

Observations and the state of different testing to the constitution and a second testing the distriction of the First Birth

Please forward this additional information to the OPW at the address contained in Help Note No.1

Should you consider any of this additional information to be sensitive and not suitable for public display on the Flood KISK Management website please give details in the box below.	
management website please give details in the sox selow.	
Help Note No. 6	

Flood Event Report Form FLOOD EVENT REPORT FORM (Excel format) Version 3.2 - Help Note No. 1.0 edited **OPW** SECTION 1:- To be completed by person submitting report Name of Person Name and Address of ByrneLooby Niall Gibbons Organisation Building 2100, Unit K, Ground Floor Cork Airport Business Park Kinsale Road Cork Submitting Report Signature VGibbons Telephone Number 021 2407988 Report Date 23/11/2022 Site Visit Date 28/10/2022 e-mail CavanTownFRS@ByrneLooby.com NOTE: Please forward this form, along with any additional information, to the OPW at the address contained in the help notes Help Note No. 1.0 SECTION 2:- LOCATION OF FLOOD EVENT 2.1 Location of Flood Event Killygarry Chapel Dublin Rd N3 Cavan Town Co. Cavan Help Note No. 2.1 2.2 Grid Reference Easting Northing Help Note No. 2.2 Irish Grid Co-ordinates 245,407.00 304,417.00 2.3 Flood Dates and Time Flood Start Flood End Help Note No. 2.3 Date 28-Oct-22 28-Oct-22 28-Oct-22 2.4 Additional Information (i) Is a map showing the location and extent of the flood available? (if a map is available it would be of great assistance if you could include a copy of this map showing the location and extents of the flooding incident.) SECTION 3:- SOURCE & CAUSE OF FLOOD EVENT Select Flood Source from list Select Flood Cause from list Heavy Rainfall- Prolonged (i.e. from where the flood waters originated) (i.e. what caused the flood to occur) Name of Waterbody (if applicable) Name of Catchment (if applicable) Erne Catchment Drumcrauve Please give a brief description of the flooding cause and source Heavy rainfall led to the pooling of water along the sides of the N3 road; any pooling of water was not apparent in the mid-point of the width of the road; which is likely due to the significant camber in the road. This pooling of water intruded significantly into the carria geways which vehicles had to pass through. Help Note No. 3.0

SECTION 4:- FLOOD DATA			
Flood Parameter	Max Value	Typical Value	Comments
Flood Level (metres OD Malin)			
Flood Depth (metres)	0.3	0.15	
Flood Flow (m ³ /s)			
Flood Velocity (m/s)			
Has flooding occurred at this local	tion before ? YES	▼	<u>.</u>
Details of Flooding Frequency	Always after Heavy Rai	infall $lacktriangleright$	Comments
,	Aways arter ricary nar	Thui T	
			Help Note No. 4.0

5.1 IMPACTS TO PEOF		▼		
(i) Was there any loss (51 IIIC .			
(ii) Were there any serio		▼		
(iii) Please give details o	f any loss of life or pe	ersonal injuries (e.g.	number of persons, t	ypes of injuries, risk of death or serious injury etc)
5.2 IMPACTS TO PROF	PERTY			
5.2.1 Residential Were any residential pr		the flooding event an	d if so please give de	etails ?
Property Type	Yes / No	Number of	Number of People	Details
Residential	NO ▼	Properties	Affected	
				Help Note No. 5.2.1
				<u>пер моте мо. 5.2.1</u>
5.2.2 Community				
Were any of the followi	ng community proper	Number of	looding event and if	
Property Type	Yes / No	Properties		Details
Hospital / Care Home	NO ▼			
School	NO ▼			
Gov / Local Administratio	NO ▼			
Fire Station	NO ▼			
Garda Station	NO ▼			
Garda Station Other	NO ▼			Help Note No. 5.2.2
	NO ▼	rties affected by the	flooding event and if	
Other 5.2.3 Commercial	NO ▼	vities affected by the I	flooding event and if	
Other 5.2.3 Commercial Were any of the followi	NO ▼	Number of	flooding event and if	so please give details ?
Other 5.2.3 Commercial Were any of the followi Property Type	ng commercial prope	Number of	looding event and if	so please give details ?
Other 5.2.3 Commercial Were any of the followi Property Type Office	ng commercial prope Yes / No	Number of	flooding event and if	so please give details ?
5.2.3 Commercial Were any of the followi Property Type Office Shop / Retail	ng commercial prope Yes / No NO VES VES VES	Number of	flooding event and if	so please give details ?
Other 5.2.3 Commercial Were any of the followi Property Type Office Shop / Retail Public House	ng commercial proper Yes / No NO VES NO NO VES	Number of	looding event and if	so please give details ?
Other 5.2.3 Commercial Were any of the followi Property Type Office Shop / Retail Public House Fast Food/ Restaurant	ng commercial proper Yes / No NO YES NO VES VES VES VES	Number of	flooding event and if	so please give details ?
5.2.3 Commercial Were any of the followi Property Type Office Shop / Retail Public House Fast Food/ Restaurant Garage / Vehicle Service	NO V Yes / No NO V YES V NO V YES V	Number of	flooding event and if	so please give details ?
5.2.3 Commercial Were any of the followi Property Type Office Shop / Retail Public House Fast Food/ Restaurant Garage / Vehicle Service	ng commercial proper Yes / No NO YES VES NO NO VES NO NO NO VES NO NO NO NO NO NO NO NO NO N	Number of	flooding event and if	so please give details ?
Other 5.2.3 Commercial Were any of the followi Property Type Office Shop / Retail Public House Fast Food/ Restaurant Garage / Vehicle Service Industry Leisure Facility Warehouse / Storage	NO V Ing commercial proper Yes / No NO V YES V NO V NO V NO V NO V	Number of	looding event and if	so please give details ?
Other 5.2.3 Commercial Were any of the followi Property Type Office Shop / Retail Public House Fast Food/ Restaurant Garage / Vehicle Service Industry Leisure Facility	NO V NO V YES V NO V YES V NO V NO V NO V NO V NO V	Number of	flooding event and if	so please give details ? Details
Other 5.2.3 Commercial Were any of the followi Property Type Office Shop / Retail Public House Fast Food/ Restaurant Garage / Vehicle Service Industry Leisure Facility Warehouse / Storage	NO V NO V YES V NO V YES V NO V NO V NO V NO V NO V	Number of	flooding event and if	so please give details ?
5.2.3 Commercial Were any of the followi Property Type Office Shop / Retail Public House Fast Food/ Restaurant Garage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other	NO V Ing commercial proper Yes / No NO V YES V NO V NO V NO V NO V NO V	Number of	flooding event and if	so please give details ? Details
Other 5.2.3 Commercial Were any of the followi Property Type Office Shop / Retail Public House Fast Food/ Restaurant Garage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other 5.3 TRANSPORT INFR.	NO V Ing commercial proper Yes / No NO V YES V NO V	Number of Properties		so please give details ? Details
S.2.3 Commercial Were any of the followi Property Type Office Shop / Retail Public House Fast Food/ Restaurant Garage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other 5.3 TRANSPORT INFR. 5.3.1 ROAD Were any roads affected	NO V NO V YES V NO V YES V NO V NO V NO V ASTRUCTURE	Number of Properties It and if so please give Length of Road		Details Help Note No. 5.2.3
Other 5.2.3 Commercial Were any of the followi Property Type Office Shop / Retail Public House Fast Food/ Restaurant Garage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other 5.3 TRANSPORT INFR.	NO V NO V YES V NO V YES V NO V	Number of Properties Int and if so please give Length of Road Affected (km)		so please give details ? Details
Stat Food/ Restaurant Garage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other 5.3 TRANSPORT INFR. 5.3.1 ROAD Were any roads affected Road Category	NO V NO V YES V NO V YES V NO V NO V NO V ASTRUCTURE	Number of Properties It and if so please give Length of Road		Details Help Note No. 5.2.3
S.2.3 Commercial Were any of the followi Property Type Office Shop / Retail Public House Fast Food/ Restaurant Garage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other 5.3 TRANSPORT INFR. 5.3.1 ROAD Were any roads affected Road Category National Primary	NO V NO V YES V NO V YES V NO V	Number of Properties Int and if so please give Length of Road Affected (km)		Details Help Note No. 5.2.3

5	2	2	D	۸	ш

Was any rail infrastructure affected by the flooding event and if so please give details ?

Rail	Category	Rail Name / Description	Length of Rail Affected (km)	Details
None	•			
None	4			

Rail Infrastructure	Description	Details
None ▼		

Help Note No. 5.3.2

5.4 COMMUNICATIONS INFRASTRUCTURE

Was any of the following communication infrastructure affected by the flooding event and if so please give details?

Туре	Spatial Impact	Disruption Period (Days)	Details
None	National		
None	National		
None 🔻	National v		

Help Note No. 5.4

5.5 ELECTRICAL INFRASTRUCTURE

Was any of the following Electricity Generation and/or Distribution Infrastructure affected by the flooding event and if so please give details?

Туре	Spatial Impact	Disruption Period (Days)	Details
None 🔻	National		
None ▼	National		
None 🔻	National v		

5.6 GAS INFRASTRUCTURE

Was any of the following Gas Distribution Infrastructure affected by the flooding event and if so please give details?

Туј	ре	Spatial I	mpact	Disruption Period (Days)	Details
None	~	National	~		
None	~	National	~		
None	~	National	~		

Help Note No. 5.6

5.7 WATER & WASTEWATER INFRASTRUCTURE

5.7.1 Water SupplyWere any of the following Water Supply facilities affected by the flooding event and if so please give details?

Туре		Spatial Impact		Disruption Period (Days)	Details
None	1	National	~		
None	1	National	7		
None	1	National	~		

5.7.2 Wastewater

Were any of the following Wastewater facilities affected by the flooding event and if so please give details?

Туре	Spatial Impact	Disruption Period (Days)	Details
None ▼	National		
None ▼	National		
None 🔻	National v		

Type	Water Body		Details
Type None ▼	Affected		Detallo
None ▼			
		ted by the flooding e	event, if so please give details
Type None	Name / Ref of Site		Details
None ▼			
			Help Note No. 5.6
5.9 AGRICULTURAL	& FORESTRY		
5.9.1 Land Was any Agricultural L	and affected by the floo		ease give details
Туре	Land Quality	Area of Land (Hectares)	Details
None v	Not Known ▼		
None	Not Known ▼		
None ▼	Not Known ▼		
None ▼	Not Known ▼		
			Help Note No. 5.5
Describe environmental i	AL IMPACTS impacts e.g oil spillage		
Describe environmental i			
	impacts e.g oil spillage		
SECTION 6:- ADDITIC	impacts e.g oil spillage	ng the flood event pl	ease give details in the box below.
SECTION 6:- ADDITIC	impacts e.g oil spillage	ng the flood event pl	lease give details in the box below.
Describe environmental i	impacts e.g oil spillage	ng the flood event pl	lease give details in the box below.
SECTION 6:- ADDITIC	impacts e.g oil spillage	ng the flood event pl	lease give details in the box below.
SECTION 6:- ADDITIC	impacts e.g oil spillage	ng the flood event pl	lease give details in the box below.
SECTION 6:- ADDITIC	impacts e.g oil spillage	ng the flood event pl	lease give details in the box below.
SECTION 6:- ADDITIC	impacts e.g oil spillage	ng the flood event pl	lease give details in the box below.
SECTION 6:- ADDITIC	impacts e.g oil spillage	ng the flood event pl	lease give details in the box below.
SECTION 6:- ADDITIC	impacts e.g oil spillage	ng the flood event pl	lease give details in the box below.
SECTION 6:- ADDITIC	impacts e.g oil spillage	ng the flood event pl	lease give details in the box below.
SECTION 6:- ADDITIC	impacts e.g oil spillage	ng the flood event pl	lease give details in the box below.
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SECTION 6:- ADDITION f you have any addition to you have any addition t	DNAL INFORMATION onal information regarding	Yes / No	lease give details in the box below.
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Do you have any addition to you have any you ha	DNAL INFORMATION onal information regarding tional information ? Type tion & Extent Footage	Yes / No NO ▼ YES ▼	
Do you have any addition Do you have any addition Map of Loca Video F	DNAL INFORMATION onal information regarding tional information? Type attion & Extent Footage graphs	Yes / No NO ▼ YES ▼ NO ▼	Details
Do you have any addition Do you have any addition Data Map of Loca Video F Photo Press	DNAL INFORMATION onal information regarding tional information ? Type tion & Extent Footage	Yes / No NO ▼ YES ▼	Details

Should you consider any of this additional information to be sensitive and not suitable for public display on the Flood KISK Management website please give details in the box below.	
management website please give details in the sox selow.	
Help Note No. 6	

Flood Event Report Form FLOOD EVENT REPORT FORM (Excel format) Version 3.2 - Help Note No. 1.0 OPW edited SECTION 1:- To be completed by person submitting report Name of Person Name and Address of ByrneLooby Niall Gibbons Organisation Building 2100, Unit K, Ground Floor Cork Airport Business Park Kinsale Road Submitting Report Signature Telephone Number 021 2407988 Report Date 23/11/2022 Site Visit Date 28/10/2022 e-mail ngibbons@byrneloc NOTE: Please forward this form, along with any additional information, to the OPW at the address contained in the help notes Help Note No. 1.0 SECTION 2:- LOCATION OF FLOOD EVENT 2.1 Location of Flood Event The Maples Tirquin Cavan Town Co. Cavan Help Note No. 2.1 2.2 Grid Reference Easting Northing Help Note No. 2.2 Irish Grid Co-ordinates 242,710.00 303,252.00 2.3 Flood Dates and Time Flood Start Flood End Help Note No. 2.3 Date 17-Oct-22 28-Oct-22 ######## 2.4 Additional Information (i) Is a map showing the location and extent of the flood available? YES YES (if a map is available it would be of great assistance if you could include a copy of this map showing the location and extents of the flooding incident.) SECTION 3:- SOURCE & CAUSE OF FLOOD EVENT Select Flood Cause from list Select Flood Source from list Heavy Rainfall- Prolonged Surface Water Drainage (i.e. from where the flood waters originated) (i.e. what caused the flood to occur) Name of Catchment (if applicable) Name of Waterbody (if applicable) Erne Catchment Rosscolgan Please give a brief description of the flooding cause and source The area flooded significantly due to heavy rain; flooding houses and roads in The Maples housing estate in Cavan Town. The nearby watercourse is the River Rosscolgan which overtopped its banks and flowed down the road for The Maples housing estate. Help Note No. 3.0

Flood Parameter	Max Value	Typical Value	Comments
Flood Level (metres OD Malin)			
Flood Depth (metres)	0.367		The maximum depth recorded in this area was 0.367m on the 28th of October.
Flood Flow (m ³ /s)			
Flood Velocity (m/s)			
Has flooding occurred at this loc	ation before ?	YES 🔻	
			Comments
Details of Flooding Frequency	Every Year	•	

SECTION 5:- IMPACTS OF FLOODING EVENT								
5.1 IMPACTS TO PEOPLE								
(i) Was there any loss of	of life ?	NO	▼					
(ii) Were there any serio	ous injuries ?	NO	▼					
(iii) Please give details o	f any loss of life of	or pers	sonal injuries (e.g. n	umber of persons, t	ypes of injuries, risk of death or serious injury etc)			
5.2 IMPACTS TO PROF	PERTY							
5.2.1 Residential Were any residential pr	roperties affected	by the	ne flooding event and	l if so please give de	otails ?			
Property Type	Yes / No	F	Number of Properties Affected	Number of People Affected	Details			
Residential	YES	-	6		Maximum internal flooding recorded was 0.15m. Internal flooding affected all six properties			
5.2.2 Community Were any of the followi		opertie	es affected by the flo	poding event and if s				
Property Type	Yes / No	F	Properties Affected		Details			
Hospital / Care Home School	NO	~						
ov / Local Administratio	NO	~						
ov / Local Administratio	NO	~						
Fire Station								
Fire Station Garda Station	NO NO	▼						
	NO NO NO	*			Help Note No. 5.2.2			
Garda Station Other 5.2.3 Commercial	NO NO	•	Number of	ooding event and if	Help Note No. 5.2.2 so please give details ? Details			
Garda Station Other 5.2.3 Commercial Were any of the following	NO NO Yes / No	roperti		ooding event and if	so please give details ?			
Garda Station Other 5.2.3 Commercial Were any of the following Property Type	NO NO NO NO NO NO	roperti	Number of	ooding event and if	so please give details ?			
Garda Station Other 5.2.3 Commercial Were any of the following Property Type Office	NO NO NO NO NO NO NO NO	roperti	Number of	ooding event and if	so please give details ?			
Garda Station Other 5.2.3 Commercial Were any of the followin Property Type Office Shop / Retail Public House	NO NO NO NO NO NO NO NO	roperti	Number of	ooding event and if	so please give details ?			
Garda Station Other 5.2.3 Commercial Were any of the followi Property Type Office Shop / Retail Public House Fast Food/ Restaurant	NO NO NO NO NO NO NO NO NO	roperti	Number of	ooding event and if	so please give details ?			
Garda Station Other 5.2.3 Commercial Were any of the followi Property Type Office Shop / Retail Public House Fast Food/ Restaurant	NO	v v v v v v v v v v v v v v v v v v v	Number of	ooding event and if	so please give details ?			
Garda Station Other 5.2.3 Commercial Were any of the followin Property Type Office Shop / Retail Public House Fast Food/ Restaurant Garage / Vehicle Service	NO	v v	Number of	ooding event and if	so please give details ?			
Garda Station Other 5.2.3 Commercial Were any of the followi Property Type Office Shop / Retail Public House Fast Food/ Restaurant Garage / Vehicle Service Industry Leisure Facility	NO N	v v v v v v v v v v v v v v v v v v v	Number of	ooding event and if	so please give details ?			
Garda Station Other 5.2.3 Commercial Were any of the followi Property Type Office Shop / Retail Public House Fast Food/ Restaurant Garage / Vehicle Service Industry Leisure Facility	NO N	roperti	Number of	ooding event and if	so please give details ?			
Garda Station Other 5.2.3 Commercial Were any of the followin Property Type Office Shop / Retail Public House Fast Food/ Restaurant Garage / Vehicle Service Industry Leisure Facility Warehouse / Storage	NO N	v v v v v v v v v v v v v v v v v v v	Number of	ooding event and if	so please give details ?			
Garda Station Other 5.2.3 Commercial Were any of the followi Property Type Office Shop / Retail Public House Fast Food/ Restaurant Garage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other 5.3.1 ROAD Were any roads affected	NO N	v v v v v v v v v v v v v v v v v v v	Number of Properties		Details			
Garda Station Other 5.2.3 Commercial Were any of the following Property Type Office Shop / Retail Public House Fast Food/ Restaurant Garage / Vehicle Services Industry Leisure Facility Warehouse / Storage Other 5.3 TRANSPORT INFR. 5.3.1 ROAD	NO N	v v v v v v v v v v v v v v v v v v v	Number of Properties and if so please give Length of Road Affected (km)	e details ?	Details Help Note No. 5.2.3 Details			
Garda Station Other 5.2.3 Commercial Were any of the followi Property Type Office Shop / Retail Public House Fast Food/ Restaurant Garage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other 5.3.1 ROAD Were any roads affected	NO N	v v v v v v v v v v v v v v v v v v v	Number of Properties and if so please give Length of Road Affected (km)	e details ?	Details Help Note No. 5.2.3			
Garda Station Other 5.2.3 Commercial Were any of the followi Property Type Office Shop / Retail Public House Fast Food/ Restaurant Garage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other 5.3.1 ROAD Were any roads affected Road Category Local V	NO N	v v v v v v v v v v v v v v v v v v v	Number of Properties and if so please give Length of Road Affected (km)	e details ?	Details Help Note No. 5.2.3 Details			
Garda Station Other 5.2.3 Commercial Were any of the followi Property Type Office Shop / Retail Public House Fast Food/ Restaurant Garage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other 5.3.1 ROAD Were any roads affected Road Category Local None	NO N	v v v v v v v v v v v v v v v v v v v	Number of Properties and if so please give Length of Road Affected (km)	e details ?	Details Help Note No. 5.2.3 Details			
Garda Station Other 5.2.3 Commercial Were any of the following Property Type Office Shop / Retail Public House Fast Food/ Restaurant Barage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other 5.3 TRANSPORT INFR 5.3.1 ROAD Were any roads affected Road Category Local None None	NO N	v v v v v v v v v v v v v v v v v v v	Number of Properties and if so please give Length of Road Affected (km)	e details ?	Details Help Note No. 5.2.3 Details			
Garda Station Other 5.2.3 Commercial Were any of the following Property Type Office Shop / Retail Public House Fast Food/ Restaurant Garage / Vehicle Service Industry Leisure Facility Warehouse / Storage Other 5.3.1 ROAD Were any roads affected Road Category Local None None	NO N	v v v v v v v v v v v v v v v v v v v	Number of Properties and if so please give Length of Road Affected (km)	e details ?	Details Help Note No. 5.2.3 Details			

5.3.2 RAIL

Was any rail infrastructure affected by the flooding event and if so please give details?

Rail Ca	itegory	Rail Name / Description	Length of Rail Affected (km)	Details
None	~			
None	4	_		

Rail Infrastructure	Description	Details
None ▼		

Help Note No. 5.3.2

5.4 COMMUNICATIONS INFRASTRUCTURE

Was any of the following communication infrastructure affected by the flooding event and if so please give details?

Туре	Spatial Impact	Disruption Period (Days)	Details
None	National		
None ▼	National		
None ▼	National		

Help Note No. 5.4

5.5 ELECTRICAL INFRASTRUCTURE

Was any of the following Electricity Generation and/or Distribution Infrastructure affected by the flooding event and if so please give details?

Туре		Spatial Impact	Disruption Period (Days)	Details
Underground Cables		Local	Unknown	There is a low voltage underground cable connected to the six houses. A power outage was recorded on the 28th by a resident. Restoration time has not been disclosed
None		National		
None	·	National		

Help Note No. 5.5

5.6 GAS INFRASTRUCTURE

Was any of the following Gas Distribution Infrastructure affected by the flooding event and if so please give details?

ĺ	Туре	Spatial Impact	Disruption Period (Days)	Details
	None v	National		
	None v	National		
١	None v	National		

Help Note No. 5.6

5.7 WATER & WASTEWATER INFRASTRUCTURE

5.7.1 Water Supply
Were any of the following Water Supply facilities affected by the flooding event and if so please give details?

Туре	Spatial Impact	Disruption Period (Days)	Details
None	National		
None ▼	National		
None v	National		

5.7.2 Wastewater

Were any of the following Wastewater facilities affected by the flooding event and if so please give details?

Туре	Spatial Impact	Disruption Period (Days)	Details
None v	National		
None v	National		
None v	National		

Туре	Water Body		Details
_	Affected ▼		Details
None		+	
None	<u> </u>		
5.8.2 Heritage Were any Built or N	latural Heritage sites aff	ected by the flooding e	vent, if so please give details
Туре	Name / Ref of Sit	е	Details
None	•		
None	▼		
			Help Note No. 5.8
5.9 AGRICULTUR	AL & FORESTRY		
5.9.1 Land			
	al Land affected by the f	looding event, if so ple	ase give details
Туре	Land Quality	Area of Land	Details
		(Hectares)	An area of land inbetween Green Lake and The Maples housing estate was fli
Pasture		▼ 0.1	and the mapped recoving soldie was in
None		*	
None		v	
TOTIC	THE KINDS		Help Note No. 5.9
	ITAL IMPACTS tal impacts e.g oil spillage		
Describe environmen			
Describe environmen	tal impacts e.g oil spillage		ease give details in the box below.
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Describe environmen	tal impacts e.g oil spillage		ease give details in the box below.
SECTION 6:- ADDI	TIONAL INFORMATION ititional information regar	rding the flood event pla	
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Should you consider any of this additional information to be sensitive and not suitable for public display on the Flood KISK. Management website please give details in the box below.	
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Help Note No. 6	



Appendix B – Flood Articles



Council counts the cost of flooding as further warning issued

Data to inform the development of flood prevention measures

Homeowners and motorists are being advised of further flash flooding today as a 'Status Yellow' wind and rain warning comes into effect for all of Ireland, including Cavan.

It's a blow to Cavan County Council, which is already counting the cost of flooding damage over the past week.

Fire Services personnel and outdoor staff responded to scores of incidents around the county since last Friday and are braced to deal with further flood-related incidents over the coming days.

The local authority is, meanwhile, set to use the data to inform the development of flood relief measures in future.

Over the past week, six houses in the Gortnakesh area flooded, a number of roads were waterlogged, some impassable, while 17 flooding incidents were reported in the Ballyjamesduff Municipal District alone.

The flash floods occurred in the wake of heavy rain fall when the county was covered by a 'Status Yellow' rainfall warning on two days over the October Bank Holiday weekend.

As the clean up operation continued yesterday (Tuesday), a spokesperson for Cavan County Council confirmed in relation to the Gortnakesh homes:

"MD staff have been in constant contact with residents and have implemented temporary mitigation measures and are investigating preventative measures."

Cavan Belturbet MD staff attended incidents at the N3 at Killygarry, the N3 at Pollamore, the R212 at Cathedral Road and Cullies, between Drumalee cross and the Conaty Centre, and the N54 at Leggykelly.

Seventeen flooding incidents were reported in the Ballyjamesduff Municipal District between October 24-28 in Munterconnaught, Bruskey, Cornafean, Ballinagh, Main St, Virginia Town; R194 Ballyjamesduff, and Gowna.

Roads affected in the Cootehill-Bailieborough MD area included the R191 Tonyhull and Dernakesh, R188 Corranure, L-5555 Ballyhaise, L-1503 Drumeena, L-7600 Lismagiril.

"The extent of flash flooding, contributing factors, and any mitigation measures is currently being assessed by the Municipal District teams," confirmed the spokesperson yesterday afternoon.

The Cavan Town area was particularly impacted with approach roads on the N3 on the Dublin side dramatically flooded last Friday with traffic backed up and motorists struggling to get through.

In that regard, Cavan County Council, in partnership with The Office of Public Works (OPW), is currently advancing the Cavan Town Flood Relief Scheme.

"These flood records help to inform future planning and development and can assist emergency response preparation. Data collected from within the AFA from last week's events will also be used to calibrate hydraulic models for Cavan Town flood relief scheme," confirmed the spokesman.

In a statement, the council further confirmed: 'Cavan County Council has commissioned ByrneLooby Consulting Engineers to develop and implement the Flood Relief Scheme for Cavan Town. This project will be delivered over five stages with works on Stage one, the identification and development of a preferred scheme, having commenced in June 2022.

'Stage one will broadly comprise of hydrometric and environmental surveys, hydrological and hydraulic analysis of the watercourses within the AFA, flood relief options appraisal and selection, all environmental assessments and public consultation.'

Further information and updates relating to the Cavan Town Flood Relief scheme are available on the project website:

https://www.floodinfo.ie/frs/en/cavan-town/home/



WATCH: Serious flooding after downpour

Heavy rain last night and this morning has led to flooding across County Cavan.

Meanwhile fire service were in attendance at the Hotel Kilmore roundabout. They are advising motorists the road is not passable from the roundabout at Cavan Crystal to Killygarry.

There's flooding on the forecourts of McDonalds and Kiernan's service station.

Other roads flooded are the R212 at Cullies, R188 Cootehill Road, L1532 at Drumgola from Drumalee Cross to St Pat's.



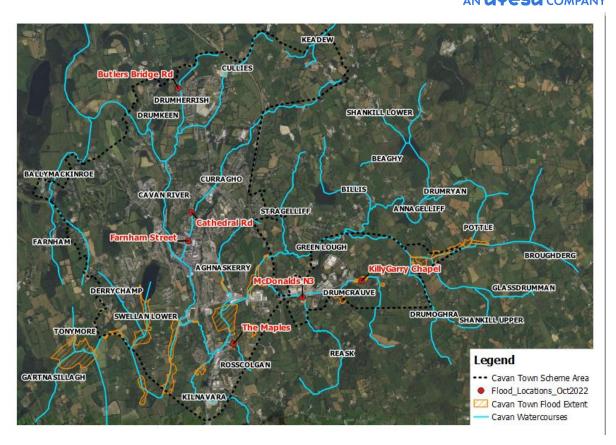
https://youtu.be/YVbR3SD7LIM

https://www.anglocelt.ie/2022/11/02/watch-spot-flooding-leads-to-warning-to-drive-carefully/



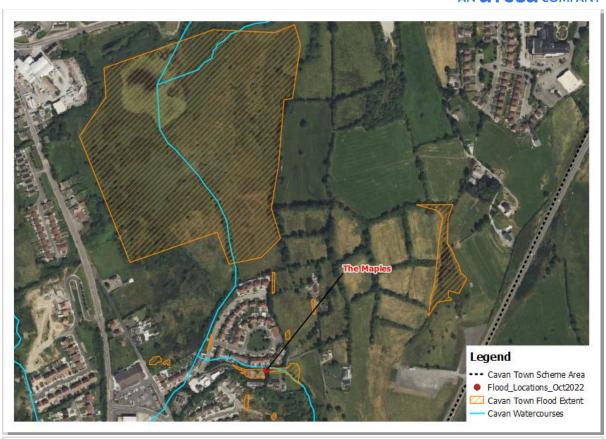
Appendix C – Flood Extent Maps

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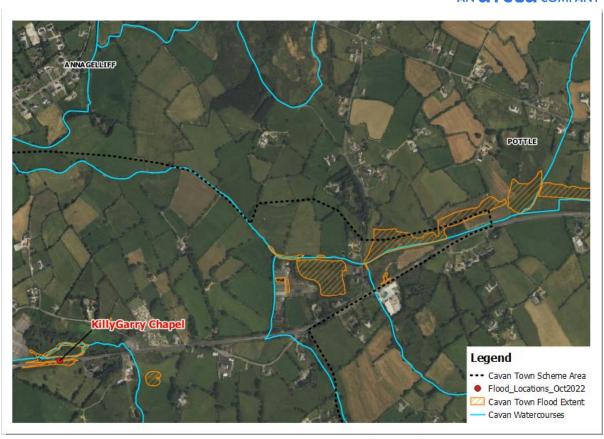
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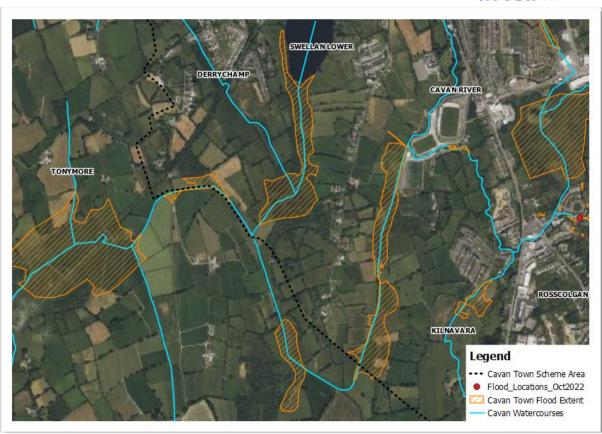
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