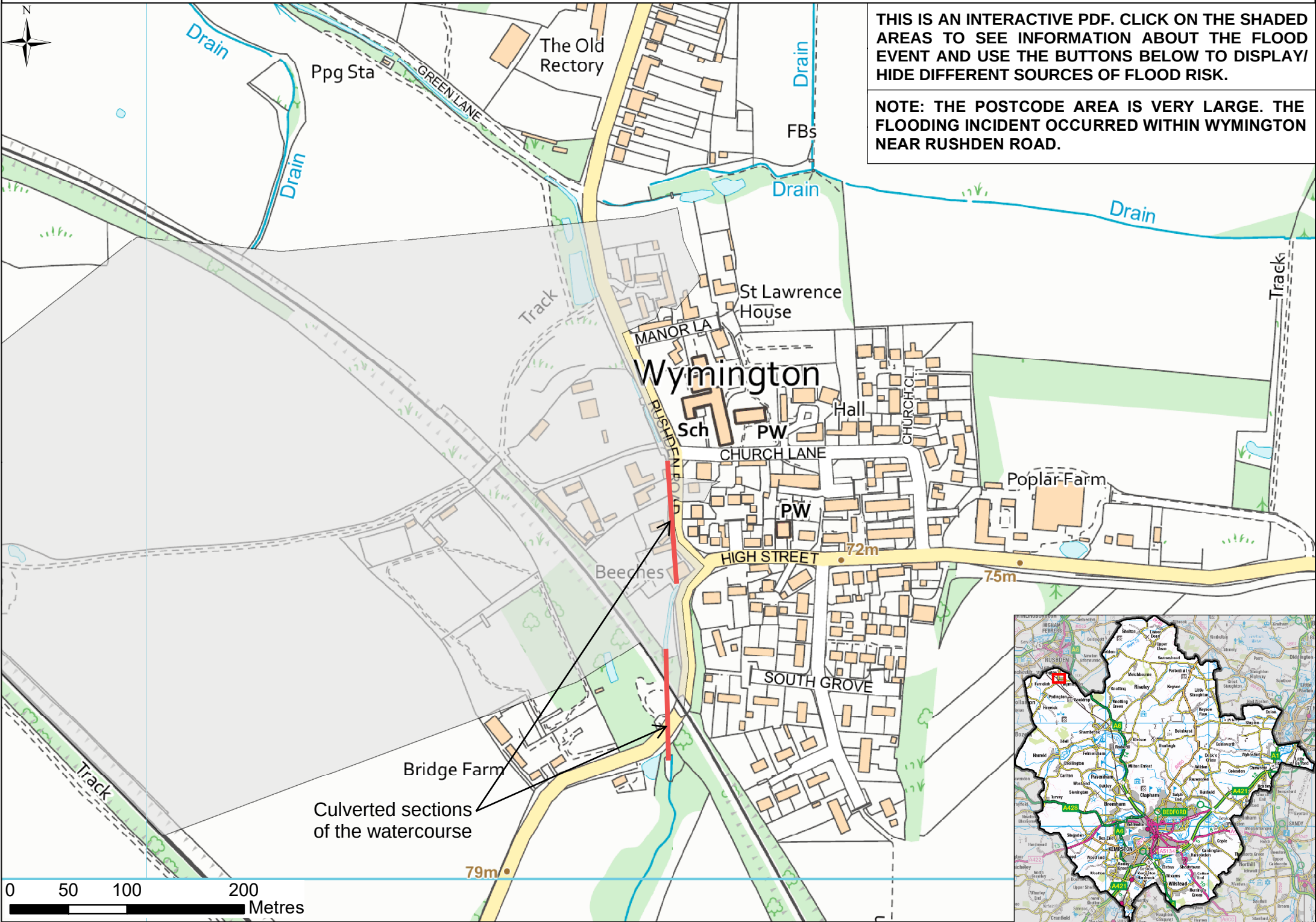


The village of Wymington suffered flooding in December 2020. Under the Flood and Water Management Act 2010, Bedford Borough Council as the Lead Local Flood Authority (LLFA) has the duty to investigate the flood event. The scope of this flood investigation is to identify the source, cause and impact of flooding from available information, identify actions completed by relevant Risk Management Authorities (RMAs) in response to the flood event, and consider actions to better understand and manage the risk of flooding in the affected area.



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Legend

- Postcode Boundary

EA Flood Warning Areas

Flood Warning Areas

Areas benefitting from flood defences
- Flood Map for Planning

Flood Zone 3

Flood Zone 2

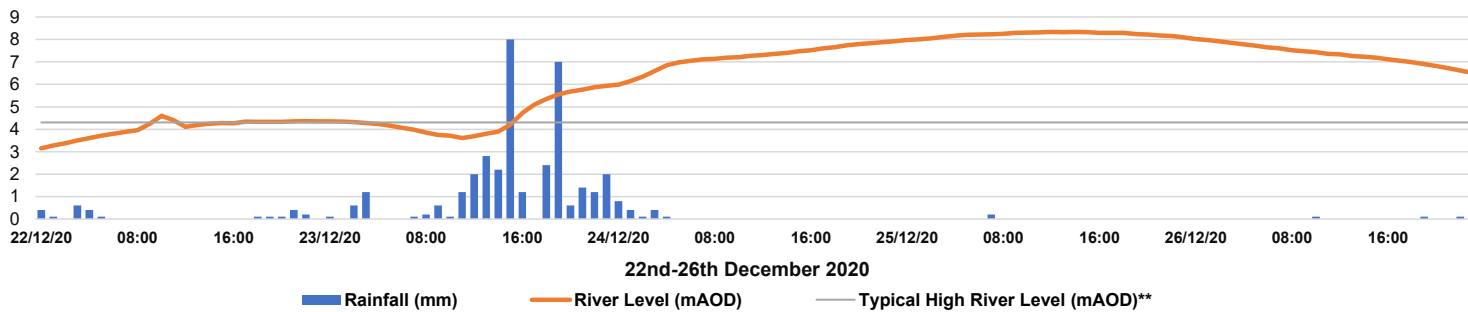
Risk of Flooding from Surface Water

- High risk of flooding (3.3% AEP)
- Medium risk of flooding (1% AEP)
- Low risk of flooding (0.1% AEP)

CLICK ON THESE BUTTONS

- FLOOD MAP FOR PLANNING
- RISK OF FLOODING FROM SURFACE WATER
- FLOOD WARNING AREAS
- BACKGROUND MAP

Rainfall and River Data *



Rainfall and River Gauges

Nearest Rain Gauge	Thurleigh
Distance to Gauge	10.57 km
Nearest River Gauge	Wellingborough
Distance to Gauge	7.18 km

*Rainfall and River data was obtained from the Environment Agency (May 2021)

**River levels below this level 90% of the time.

Rainfall and River Data Interpretation

The graph identifies that the main rainfall event at the nearest rainfall gauge to Wymington occurred between 08:00 on December 23rd and 04:00 on December 24th. The total rainfall volume is recorded as 34.7mm with a peak rainfall intensity of 8mm/hour. This single event saw more than half of the 55mm of rainfall which is expected for the whole month of December on average.

The nearest river gauge is located on the River Nene in Wellingborough, and the river levels at that gauge are shown on the graph to provide context. The graph shows that the river level started to peak at 04:00 on December 24th immediately following the rainfall event. The graph also shows that the river level is recorded to have briefly risen above the ‘typical high river level’ on December 22nd, and significantly risen above this level from 15:00 on December 23rd. River levels stayed above the ‘typical high river level’ until beyond December 26th. The ‘typical high river level’ at the nearest gauge station is identified as 44.3m Above Ordnance Datum (AOD) and river levels above this are only expected to be recorded 5% of the time.

SOURCE OF FLOODING: Watercourse

FLOOD EVENT & CAUSE

One commercial property located at the Rushden Road/Wymington Lane/Podington Road junction reported internal flooding from the front door and toilet drainage on December 23rd. Flooding was reported across the ground floor up to a depth of approximately 300mm causing damage to carpets and furnishings, despite having used sandbags. Podington Road was reported to be impassable due to the floodwater.

Two watercourses merge at the northern end of Wymington, at the Rushden Road/Green Lane junction. The watercourses convey flows from a catchment area of approximately 340ha¹ and it is thought that the flow in the watercourses is closely related and responsive to rainfall. After the confluence, the watercourse continues westwards for approximately 2km before joining a Main River (tributary to the River Nene). The affected property is located along the alignment of the watercourse which flows south to north through Wymington. The watercourse is culverted beneath the railway line at the south of Wymington and then flows in an open channel parallel to Podington Road towards the property. The watercourse flows into a culvert again just south of the affected property. The property is located in Environment Agency modelled Flood Zone 3², which means that the chance of river flooding is greater than 1% in any given year.

December 2020 was a very wet month with an average rainfall of 108mm across East Anglia, which is 95% higher than the December average³. The three months leading up to December also saw higher than average rainfall such that by December 23rd the ground was already saturated. This, combined with the rainfall recorded during the dates in question, meant that surface water was less able to infiltrate into the ground and more likely to run off into the watercourse and form overland flow routes. It is thought that the heavy rainfall and saturated ground conditions overwhelmed the capacity of the watercourse, causing it to back up and overtop at the point where it is culverted beneath the property. In addition, the elevated water levels in the tributary of the River Nene would have prevented the Wymington watercourse from discharging freely, pushing water upstream. It is thought that the sheer volume of water overwhelmed the capacity of the watercourse and culvert. Any highway drainage or culvert maintenance issues would have exacerbated the flooding experienced.

FLOOD WARNINGS & INITIAL RESPONSE

- **23/12/2020:** Lead Local Flood Authority (LLFA) officers monitored/assessed locations based on the conditions and forecast predicted.
- **23/12/2020 14:41:** Fire service rescued three people from stranded cars.
- **23/12/2020:** LLFA, Bedford Highways, and Bedfordshire Local Emergency Volunteers Executive Committee⁴ (BLEVEC) assist on the ground.
- **24/12/2020 daytime:** LLFA officers visited those who flooded on December 23rd to gain information on the damage caused by the flooding and offer assistance.
- **25/12/2020 14:30:** Flooding experienced in the wider area declared a major incident by Bedford Borough Council.
- **28/12/2020:** LLFA, Bedford Flood Response Team, and volunteers from the Council visited properties to carry out impact assessment to help with recovery and clean up.

ACTIONS

Timescale	Action	Responsible Party
Complete	Investigate highway drainage in vicinity of the affected property and clear any blockages. This was completed in May 2021.	Bedford Highways
Short term (1-6 months)	Liaise with landowners to set a suitable inspection and maintenance regime for the watercourse.	Lead Local Flood Authority / Riparian Owners
Medium term (6-12 months)	Investigate the condition of the culvert just upstream of the affected property to set a suitable inspection and maintenance regime. Undertake an assessment of the culvert's capacity.	Lead Local Flood Authority
Long term (2-4 years)	Investigate the potential for Natural Flood Management (NFM) in the form of a flood storage area in the fields to the west of the railway line to decrease the amount of water entering the village in a flood event.	Lead Local Flood Authority / Riparian Owner

ORIGINATED: Nora Balboni, CEng C.WEM MCIWEM, Senior Engineer, 21/07/2021

CHECKED/VERIFIED: Matt Tandy C.WEM MCIWEM MInstLM, Principal Engineer, 23/07/2021



¹ Flood Estimation Handbook (FEH) web service, <https://fehweb.ceh.ac.uk/>, [accessed June 2021].

² Environment Agency Flood Map for Planning, <https://flood-map-for-planning.service.gov.uk/>, [accessed June 2021].

³ Environment Agency, December 2020 Flooding Great Ouse Catchment Summary.

⁴ BLEVEC is the voluntary sector of the Bedfordshire Local Resilience Forum, consisting of the Bedfordshire Community Emergency Response Team (CERT) and other organisations such as Midshires Search and Rescue, the British Red Cross, Beds and Cambs 4x4 Recovery, and the Royal Voluntary Service.