Lympstone flood resilience

Our Location

Lympstone at high tide

What is the flood risk in Lympstone ?

The panels of this presentation will explain the detail, but as a starting point we might say that the Village is well protected, and has resources to address many everyday risks from rainfall and tide, but is much less so against an adverse combination of the two. The impact of current climate effects of more frequent extreme weather such as very localised intense rainfall and rising sea levels, and growing residential development combine to indicate an increased risk of a major event.

A report in 2011 recorded that up to 170 properties in Lympstone were at risk of flooding, this represents a major event, the likelihood of which is increasing with time.

What happened in the September 1960 floods ?

Surprisingly, the flood on Thursday, the 29th of September in Lympstone was not caused by the Brook being blocked by the tide. The tide was partly out and there was a prolonged spell of heavy rain culminating in a cloudburst on Woodbury Common, the force of the water in the Brook scoured debris from banks and surrounding land. Many properties were flooded on their ground floors, and it took several weeks to clear mud and silt from the houses. It was to be a further three years before the walled channel was constructed, affording much better flood protection for the lower village

What is the history of flooding in Lympstone ?

The Village has a long history of flood events from a combination of surface water, fluvial and tidal influences. Major floods in 1960 led to the development of the first flood defence scheme in 1963. This reduced the risk of widespread flooding considerably, yet localised flooding has still occurred periodically, for example in 1989, 2012 and 2014.

The flood defences built in the 1960s included floodwalls, raised banks, trash barriers and large drains.

In 2005 the Estuary defences were strengthened with tidal floodgates, walls and banks, and in 2015 parts of these defences were rebuilt and the breakwater strengthened. These have been largely successful in protecting Lympstone from flooding for over 50 years.

Why does our Lower Village situation constitute a flood risk ?

The Wotton Brook catchment is very steep sided and inclined to high rainfall run off with an area of about 4.2 Km^2.
The Brook flows down through Lympstone, joined by two tributaries discharging into the Exe Estuary, one of these, Harefield Stream, which joins by Pretty Corner is particularly sensitive.

The predominant soil type is a clayey loam, which has naturally low water permeability.

The subsoil is also only slowly permeable with low potential to accept winter rain. This soil type has a high risk of soil compaction, erosion and surface water runoff.

The Lower Village, tides and tidal locking

If the waters in Wotton Brook from the catchment could always freely discharge into the Estuary the flood risk would be very low with the walled channel directing the flows and the floodplain holding excess. However, the waters cannot exit freely against a high tide and surface waters in a number of areas cannot drain into a full walled channel.

What is the Village response to these challenges ?

The Lympstone Flood Resilience Group (LFRG) is a voluntary working group of the Lympstone Parish Council, that engages positively with our local community and relevant Flood Risk Management Authorities. Since our formation in 2017 our objective has been to develop a more responsive, coordinated and strategic approach to flood risk management in the Village. We have received funds, grants and resilience resources from Lympstone Parish Council, The Environment Agency, our Devon County Councilors, The Parishes Together Fund (DCC and EDDC) and the Devon Community Resilience Forum.

Our team of four is: Alan Burton, Helen Dimond, John Brewer and Phil Corcos
Our volunteer teams of Flood Wardens monitor the brook and high tides in the Estuary operate the floodgates, and clear road drains. We provide first response cover in flood incidents.

Lympstone Flood Resilience Timeline

- Flood History
- 1960 Lympstone Flood
- 1989, 2012 and 2014 Further property flooding occured

- 1963 Walled channel constructed

- 2006 Estuary Flood Gates installed. Estuary Flood Warden team formed
- First Emergency Plan
- 2010 Lympstone Flood Exhibitionn

- 2015 Estuary defences strengthened
- Neighbourhood Plan identifies flooding as major issue
- 2016 Flood Awareness Meeting

- 2017 LFRG formed
- SWW storage tank installed in car park
- Culvert at Pretty Corner relined
- First Response Sandbag store

- 2018 Tool and Equipment Store provided
- Chapel Road pump installed
- Flood Plain Wall at Underhill rebuilt

- 2018 EA/LFRG initiate Flood Risk Management Project
- Inland Flood Warden Team established
- Lympstone Flood Exhibition

- 2020 Land Use and Soil Survey completed
- New trash screen and camera installed

- 2021 Mobile Pump purchased
- Longbrook Lane brook flow gauge installed
- Weather Station installed

- 2022 Catchment hydraulic model completed (EA/JBA)

- 2024/5 Wotton Brook flood channel wall extended

- 2030 and beyond

Our Resources

LFRG Flood Wardens Tool Store, Underhill Car Park, Lympstone

KEY	
0	Description
1	Headlight debris basket and bags
2	Small buckets and garlic sump screens
3	Large buckets (x 3 each 40 litre)
4	Gully cover lifters
5	Two sets of drain rods + attachments
6	Sledge hammer
7	Small and large crowbars
8	Small shovels
9	4 x spades
10	4 x hiker at WWW signs
11	4 x Five gallon water carriers
12	4 x Large traffic cones
13	1 x pair leaf grabbers
14	Spring line rake
15	Long handled brooms
16	Rake
17	Large digger/spade
18	2 x long wooden bar
19	Brush and dustpan
20	Toolbox containing assorted hand tools; hammer, screwdrivers, pliers, lump hammer, bolster

How are we prepared ?

Our Flood Warden teams are fully trained and undertake practical, hands-on safety and skills training provided in partnership with the Environment Agency. Personal Protective Equipment is provided to all Wardens. High visibility waterproof jackets and trousers are worn during any flood incident or Warden activity, and 2 way radio communication is used when necessary.

The Inland flood risk may be caused by an overtopping watercourse (Wotton Brook or Harefield Stream) caused by heavy and sustained rainfall, by a blocked watercourse, or tidal locking. In addition, surface water flooding may be caused by blocked, inadequate or overwhelmed road drains or poorly performing flap valves in tide locked conditions in the Lower Village after heavy rainfall. The Estuary flood risk is from waters topping over the defences in rough Estuary conditions, or failures in the defences such as the storm damaged gate at Quay Lane in 2014.

The Flood Wardens

There are two teams of fully trained Flood Wardens. The Inland Team focused on Wotton Brook and surface water issues in the Village such as blocked drains, and the Estuary Team who operate the floodgates and monitor the defences. The teams work in unison when responding to a serious flooding risk.

The **Inland Team** led by Phil Corcos

Steve Archer, Dave Barker, John Brewer, Geoff Cordwell, Miles Freeman, Pete Hardy, Robert Harrison, and Jenny Moon.

The **Estuary Team** who also operate the floodgates is led by Alan Burton

John Bennett, John Brassington, Greg Crum, Helen Dimond, Clem Davies, Miles Freeman, Trevor Masters, Helen Mowny, Simon Pryor, Mai Welton and John Welton.

WELCOME

These three big display boards tell different aspects of Lympstone's Flood Risk and are produced by the Lympstone Flood Resilience Group.
Below is a map of our catchment, any rainfall in that area will route down Wotton Brook through the Village to the Exe.

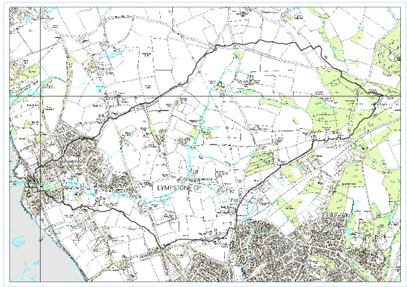
This board describes our Flood Group and Flood Wardens our preparedness and response capabilities, and covers in general terms the flood risk with some historical perspective

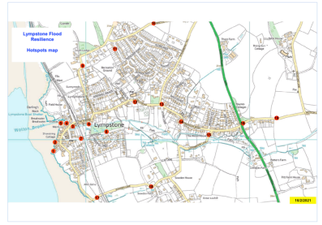
The next board describes the comprehensive computer modelling work which has formed the core of our strategic work to identify further flood resilience improvement

The third board looks in more detail at the specific risks to the Village and how we are likely to be faced with major events that would cause widespread flood threat.

Our partners have further displays. Find out there about the recent East Devon major floods, how to protect your own property, the fantastic work of the Woodland Trust, and have a say with the West Country Rivers Trust in how further resilience investment should be prioritised.

The Wotton Brook Catchment area





How do the teams operate ?

Both teams regularly inspect all flood assets and maintain response equipment including sand, sandbags and tools. We prepare for the inland flood risk by monitoring the Brook conditions, the road drains, and the undergrowth close to any flood hotspots or ditches. Scheduled activities include walking the footpaths beside Wotton Brook, monitoring the condition of the Brook and reporting any major issues causing risk of flooding to the Environment Agency on their incident hotline: 0800 807060, we also monitor the flood hotspots and report any road drains that require clearing, and maintain a drain clearing programme for the autumn, winter and spring. Thanks to some on the ground investigation, and technical sketches, we have built up a good understanding of how clusters of drains, and their inlets, outlets and pump collection points (sumps), work together.

Where are the hotspots ?

We have identified locations that will have a high probability of surface water flooding in the event of major rainfall, blocked drains, or poor drainage infrastructure. These flood hotspots are shown on the map on this board. In the event of a flooding risk the Warden Team will be particularly focused on these hotspots, the drains in these areas also receive regular attention for routine clearing and maintenance.

Did you know that..

Many of the flood hotspots are caused by blocked road drains. In the Village each year we check and clear more than one hundred and fifty road drain covers. Last year we removed over a hundred buckets of silt and debris from the drain sumps

How do the Flood Wardens respond to threats ?

The Estuary Team promptly operate the floodgates to protect against the higher tide series each year. On average we close then reopen the gates around fourteen times a year with a typical closed duration of three days. The opening and closure is informed by the EA, very often entirely driven by their detailed data and analysis of conditions, but in more complex situations a dialogue is initiated by us with the EA, to predict the risk to the Village more specifically.

The Flood Warden teams respond to a potential flood situation according to routine operational procedures and logs of actions are maintained. We respond to advisory information from the Flood Forecasting Centre, Meteorological suppliers, and Environment Agency flood warnings. Prior to, or at the time of a flood incident, Flood Wardens will be contacted by the Lead Warden, who clearly states the level of alert. The detailed response plan has specific actions which reflect the expected severity of the event such as categorized by the Flood Alert, Flood Warning and Severe Flood Warning system of alerts.

Flood Wardens will aim to assist and protect residents as a priority, and safeguard property where possible. In a major event, they will assist the Emergency Services Coordinator, where for example we may need to be prepared to help with evacuation of residents to shelter at the Village Hall.

Did you know that...

The LFRG have a pump capable of pumping 290 gallons per minute, kindly funded by DCC

Drainage survey carried out by OnSpot