St. Mary Bourne Parish Council

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Flood and Emergency Group (FEG) Update for Parishioners

This note is to update everyone on this year's activities by the FEG following on from last winter's high ground water levels. Now is the time we start to see rising ground water levels and can typically make the first estimates of what we might see over the winter.

Background on Ground Water (GW)

Our GW levels are driven by those higher up the valley, from Vernham Dean (VD) onwards. Two key measuring points are the well in the car park of the George in VD and the monitor in the outbuilding at Holdway cottages. The former is about 131m Above Sea Level Datum (AOD) while the latter is 79m AOD.
Currently GW at VD is 109.75m AOD and Holdway is 78.3m AOD, so 32.45m represents the height difference and thus pressure over approximately 6.5 miles. The height at VD changes - falling because of flow down from the springs in the valley and rising after rainfall.
A mixture of observation and received wisdom (old village statements) indicate that rainfall raises levels in VD about 4 weeks after rain, and raises GW in the village of St Mary Bourne about 2 weeks after that. Monitoring these levels and their changes gives us a fair indication of what will happen with GW issues going forward for a few weeks.

If we compare this year with last year, whilst we did have some very heavy days of rain early this autumn, this paused at the end of Oct, so we have had less overall rain this year so far. Although heavy rain started in Nov, what we have had has come earlier than last year.

The rise at VD and the springs in the valley through Stoke and St Mary Bourne (SMB) came a few weeks earlier this year as VD rose earlier. VD is now rising again while the outflow from the springs in SMB is still increasing. The river is still rising by a cm every few days even with no rain.
With VD now at 109.75m AOD and the resulting springs higher up the valley breaking through we have reached the level we normally need sewerage 'tankering' in previous years. Southern Water do have a ground water readiness plan in place; however, this has not yet been invoked.
It is the rising ground water that causes our sewer issues as the water floods the sewers. It is worth noting that the sewers have more than adequate capacity for normal use, including any real time rainfall. Typically, the sewers have not become an issue unless VD gets above 110m AOD and Holdway is above 78.25m and then both continue to rise past this level.

The in-line sewer monitors indicate that the sewers in the parish flood when the ground water is around 1m below the road level. The sewer is around 2m below the road. This indicates that many of the issues could be caused by leaky laterals and leaks in the sidewalls of the manholes ie from locations above the sewer. Southern Water have been undertaking extensive repairs throughout the parish.

We are unlikely to have any sewage flooding issues before the end of the year (approximately 4 weeks). The next GW events that can affect the parish depend on the rainfall in December and January. Heavy rain then could give us issues in early spring.

We are hoping the work Southern Water are doing should have a beneficial effect.

Southern Water (SW) work

Following on from last year's serious sewage issues resulting in a significant amount of tankering SW have been working on various tasks to address the issues over the longer term.

We hold weekly review meetings with them so that we have as much up to date information on progress and issues as possible. This information is made available on the parish council website.

These activities have had to be scheduled around the summer's reduced GW levels and are continuing still for some weeks, aided by the drop off in the rise of water levels at VD.

The major tasks have included camera surveys of the full length of the sewer which has identified several issues. Many of the issues have been fixed by the teams working alongside the survey team. Unfortunately, many of them have involved temporary road closures or diversions. Some of the more difficult issues have involved more than one survey visit as a greater understanding of the issue and the most effective way to fix it has been developed.

Problems identified have included manhole leaks/ faults in lateral connection/ damage to previous sewer lining/ leaking laterals. There are also constrictions at some key points, for example the double bend in the sewer at Holdway ford and one near the Bourne Valley Inn.
Additional work has been done at several locations including Applegate, to build additional overflow pipe work and mini pumping stations to ensure that nearby properties continue to have working sanitation services when the main sewer is flooded.

Going forward

SW are using new resin barriers in the ground to isolate some of their bigger jobs from the local groundwater. This is enabling jobs such as Applegate and addressing the bend at Holdway to progress despite the rising groundwater.
There is already additional groundwater running in the sewer, but the pumping station is currently coping with the volume (and SW are continuing investigations).

The rising water level is now getting very close to requiring tankering at the pumping station, although work to replace one of the worn pumps is underway.
Once tankering at the pumping station starts we will usually see a need for pumping at the war memorial a couple of weeks after that, the water level is already rising there.
However, the GW level at VD has stabilised owing to the relative lack of rain over the last 4 weeks and members of the FEG believe we are unlikely to see any major issues before Christmas despite the heavy rain during the Storm Bert weekend.

The key measure of Southern Waters success following, their comprehensive program of repairs, (£1.6M to date), will be if there are noticeable changes in the timing of sewer flooding related to GW levels this winter, should we have more winter rains.
As mentioned above we track the GW levels each year and last year the sewer became over flooded on 11 November, but the VD and Holdway levels were higher then than they are now.

Unfortunately, over the last 44 years of tracking this issue, a bad flood/sewage year is often followed by work on the sewer and then, if we have a year or two of lower or more spread-out rainfall, it does not create a big issue. This can mislead us into thinking the issue is fixed! Hence why the FEG are continuing to work closely with Southern Water and their contractors.