Submission to assist Cheshire West & Chester investigation of the significant flooding event 20th January 2021

Old Mill Place in Tattenhall has flooded many times since 1960s (local knowledge) and probably for centuries before. New developments in the 1990s beside the Mill Brook, a low point of the village, have been associated with an adverse impact of flooding. New developments at Newall Close and Breen Close changed the courses of Mill Brook and the ancient millstream which ran through Old Mill Place.

For the first time residential property was built at Old Mill Place, in 2000. In November 2000, a few weeks after completion and occupation, all 18 new properties, including the Old Mill itself, in Old Mill Place were flooded to a depth of approximately 1 meter (*Figure 1*). Subsequently, upstream works (by the Environment Agency, Bolesworth Estate, tenant farmers and Tattenhall Wildlife Group) and construction of a storm drain in the Mill Field were undertaken to mitigate flood risk.

In January 2021, all 18 properties in Old Mill Place were again flooded to a similar depth as in 2000 (*Figure 2*). Businesses have been significantly affected, damage to property has been extensive and 5 people were made homeless.

There have been many periods of heavy sustained rainfall over the last 20 years without serious flooding in Old Mill Place. However, during both November 2000 and January 2021 the ground was saturated, culminating in circa 50mm of rain within 24 hours and leading to the flooding. Common to both flood events was overflow of the Mill Pond dam and flood water completely covering Mill Field. Flooding of Mill Field appears to be causally related to flooding of Old Mill Place.

Upstream flood water control, carried out following the flood event in 2000, has, it seems, not been successful, but remains important for the future flood risk mitigation. Following the recent flood event, work has already commenced to extend the defences further upstream.

The possibility that there are problems of drainage from the Mill Field/Old Mill Place system is a significant concern, especially as there may be scope for additional controls to mitigate the flood risk. A working group of Tattenhall & District Parish Council has identified the following factors which may raise water to flood levels in the two areas:

Mill Field Flood

There are no properties in the Mill Field, but the War Memorial, grade 2 listed, was significantly damaged in 2000 and there is currently evidence for new water damage undermining the foundations. The monument is closed for safety reasons and repair costs fall to the Parish Council.

Inflow

At the height of the flood, large volumes of water were observed to enter the Mill Field from the following routes:

- Weir outfall from Mill Pond (the Mill Brook itself)
- Overflow of the Mill Pond dam
- Overflow of the banks of Mill Brook

In addition, surface drainage from Flacca developments via a culvert constructed in 1995 feeds water directly into Mill Brook just downstream of the Mill Pond dam. The development includes a large tarmac carpark, office buildings and retirement apartments. The extent of the catchment is not clear.

Outflow

Flood water in the Mill Field flows out through the following routes:

- Mill Brook under the High Street (the normal course of the brook) (*Figure 3, Figure 4*)
- A storm drain, constructed after the 2000 flood event, beside the War Memorial, running under the High Street and into Mill Brook downstream of the High Street bridge (*Figure 5*)
- Directly into Old Mill Place
- Indirectly into Old Mill Place via High Street in front of the Barbour Institute

The Mill Brook downstream of the High Street runs in a deep, open culvert then enters 2 pipes 1.2m diameter, approximately 20m long, under Newall Close (*Figure 6*). Thereafter, the brook runs in another deep open culvert before entering a closed drain and weir behind Breen Close (*Figure 7*). There are 3 points on the normal course of the Mill Brook which are potential throttles; High Street bridge; pipes under Newall Close; weir behind Breen Close.

Old Mill Place Flood

All properties in Old Mill Place were flooded as well as cellars in the Barbour Institute (non-habitable) and Brookdale, High Street (habitable).

Inflow

At the height of the floods in 2000 and 2021, water was observed to enter Old Mill Place through the following routes:

- Overtopping Mill Pond dam directly through the back gardens of properties in Old Mill Place
- Directly from Mill Field
- From the High Street

The High Street at the entrance to Old Mill Place is a low point for the road as well as for the drainage system, surface and foul water. Large volumes of water entered from both directions of the High Street. Water lifted all the drain inspection covers (not unusual at times of heavy rainfall), (*Figure 8*) adding to surface water and water from Mill Field.

Outflow

Water drainage from Old Mill Place was historically an open watercourse (the millstream) passing under the High Street (*Figure 9*). With the construction of Breen Close in the 1990s the stream was partially replaced by an enclosed drain whose outfall is into the Mill Brook. With the Old Mill Place construction, the ancient brick and stone-lined mill race from the mill pond was closed off (*Figure 10*). At the same time the millstream was replaced by a drain which now normally takes surface water from the properties, the car park and, on occasion, water from a borehole in the carpark.

Flood water, therefore, leaves through:

- Drain under carpark into -
- Culvert under High Street and Breen Close
- Outfall into Mill Brook behind Breen Close

Now that the drainage of Old Mill Place is effectively through a pipe(s), the level of water in the Mill Brook at its outfall is a potential problem. If the water level of the brook rises above the outfall behind Breen Close, then drainage could be significantly restricted or there may even be backflow.

Ground Water Old Mill Place

Before the development of Old Mill Place in 2000, the site had been home to a number of commercial enterprises including Calypso Drinks. Water for the works was drawn from a borehole at the east of the site, but in 2000 when Calypso vacated the site, the borehole was capped and a replacement drilled in the new carpark behind the Barbour Institute. Water continued to be drawn

from the borehole for drinks production as well as, during summer months, to maintain the Mill Brook water level for the operation of the Tattenhall Sewerage works downstream (*Figure 11, para. 3*). In recent months commercial abstraction has ceased and, possibly related, there has been persistent seepage from the borehole head through the adjacent electrical substation onto the Old Mill Place carpark. Also, possibly associated, owners of the Barbour Institute and Brookdale have reported substantial increase in pumping needed to keep their cellars dry (*Figure 12, Figure 13*). There appears to have been a change in drainage of the area associated with a reduction in water abstraction which may also be a factor in impaired drainage at times of flood.

Other sources of water on the High Street

Unique to the flood of January 2021, large amounts of water flowed into the High Street on the south-western side of Old Mill Place. Some of this water, from Bolesworth Road and Rocky Lane, flowed westwards along the High Street away from the village centre and into Rosemary Row, Covert Rise, Frog Lane and the retirement village (*Figure 14, Figure 15, Figure 16*). No properties were flooded in this part of the village, but sand-bagging was required. Large volumes flowed in the other direction, joining water flooding out of Tattenhall Centre, a former school, *(Figure 17*) towards the village centre. This water drained both into Old Mill Place and directly into Mill Brook immediately beyond the bridge. Flood water on this scale has not been witnessed previously suggesting that there is problem of water run-off from fields or the road drainage or a combination of both.

Questions

There are 4 potential throttles to water drainage from Mill Field, the High St. bridge, the field storm drain, the culvert under Newall Close and the weir behind Breen Close.

1. What is the capacity of the drainage system from Mill Field via Mill Brook?
2. Is that capacity sufficient for a 100 year event?

Drainage from Old Mill Place was historically an open millstream. Developments in the 1990s, Breen Close and Old Mill Place itself, changed the drainage to a closed culvert.

3. Is the capacity of the Old Mill Place culvert sufficient?
4. Is there a risk that the level of water in the Mill Brook, at the outlet of the culvert, could become high enough to impair drainage or cause backflow?

There are new factors identified since the event of 2000.

5. What is the cause of the flooding at the south-west part of the High Street?
6. What is the contribution of seepage onto the Old Mill Place carpark?

While the working group do not presume to be competent to answer any of the questions, they nevertheless have local knowledge, eye witness record and, for some, personal experience of the flooding events.

Appendix

Fury over deluge

10-11-2000

by CHRIS SMITH

FURIOUS residents are demanding to know why their new £5m apartment block, which was devastated by torrential rain, was built in an area prone to flooding.

Villagers living at Old Mill in Tattenhall had little time to prepare their defences against the rising flood waters on Monday.

A dozen of them had to be evacuated after the raging waters

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from nearby Mill Brook seeped into their flats, causing thousands of pounds worth of damage.

At its highest, the water was up to people's waists as they struggled to get to safety.

Now, five days later, the water has subsided, leaving 20 waterlogged houses and flats, but thankfully no injuries.

Residents who spent Monday night away from home returned to find scenes of devastation.

As they mop up the mess and start counting the cost of the natural disaster, they want to know why this happened, and how it could have been prevented.

They want to know why their houses were built on the old Calypso drinks factory in High Street, which has a history of flooding.

Their calls are backed by Chester city councillors for Tattenhall, Doug Haynes and Mike Jones. Mr Jones has also been looking through the development's plans to determine why it was affected so badly.

Resident Sam Green, who spent all Monday mopping up her new home, said: 'I love the house and as long as it doesn't happen again we will be OK. But they will have to make sure the nearby river is flood proof.'

Other villagers, who watched the fire service pump away flood water for much of Monday, said it had only been a matter of time before the area flooded again.

One of them, Donald Atwill, said: 'They were asking for trouble.

'There are pictures of this place flooded in the 1960s. It's happened before when it was a factory, but this time there are private houses affected.'

Staff at Gosmore Butchers in High Street, who were not affected, agreed with him.

'The site is below ground level and the houses should never have been built there,' one of the butchers said.

Barratt Homes bosses were at the scene early on Monday to assess the damage. Even the show house was under several feet of water.

A Barratt spokesman said they would do all they could for residents affected by the flood.

They added: 'We are very sorry that our purchasers should find themselves in this position and we will try our best to help them.

'Before they buy, all purchasers are provided with information about the site's previous use. This site was a former soft drinks factory and does not have a history of frequent flooding.

'The local authority approved the development programme. It had considered the site unsuitable for residential development planning permission would not have been granted.'

DEVASTATION: Cheshire firefighters battle to pump the floodwater out of Mill Place in Tattenhall. 7364H30 PICTURE by HAYDN IBALL.

Figure 1 - Old Mill Place 10-11-2000

Figure 2 Old Mill Place 20-01-2021

Figure 3 Mill Brook at the High St. bridge 11-11-2000

Figure 4 Mill Brook at the High St. bridge 28-01-2021

Figure 5 Storm drain Mill Field 28-01-2021

Figure 6 Mill Brook culvert Newall Close entry 28-01-2021

Figure 7 Mill Brook culvert Newall Close exit 28-01-2021


Figure 8 Manhole cover High St. opposite entrance to Old Mill Place 20-01-2021

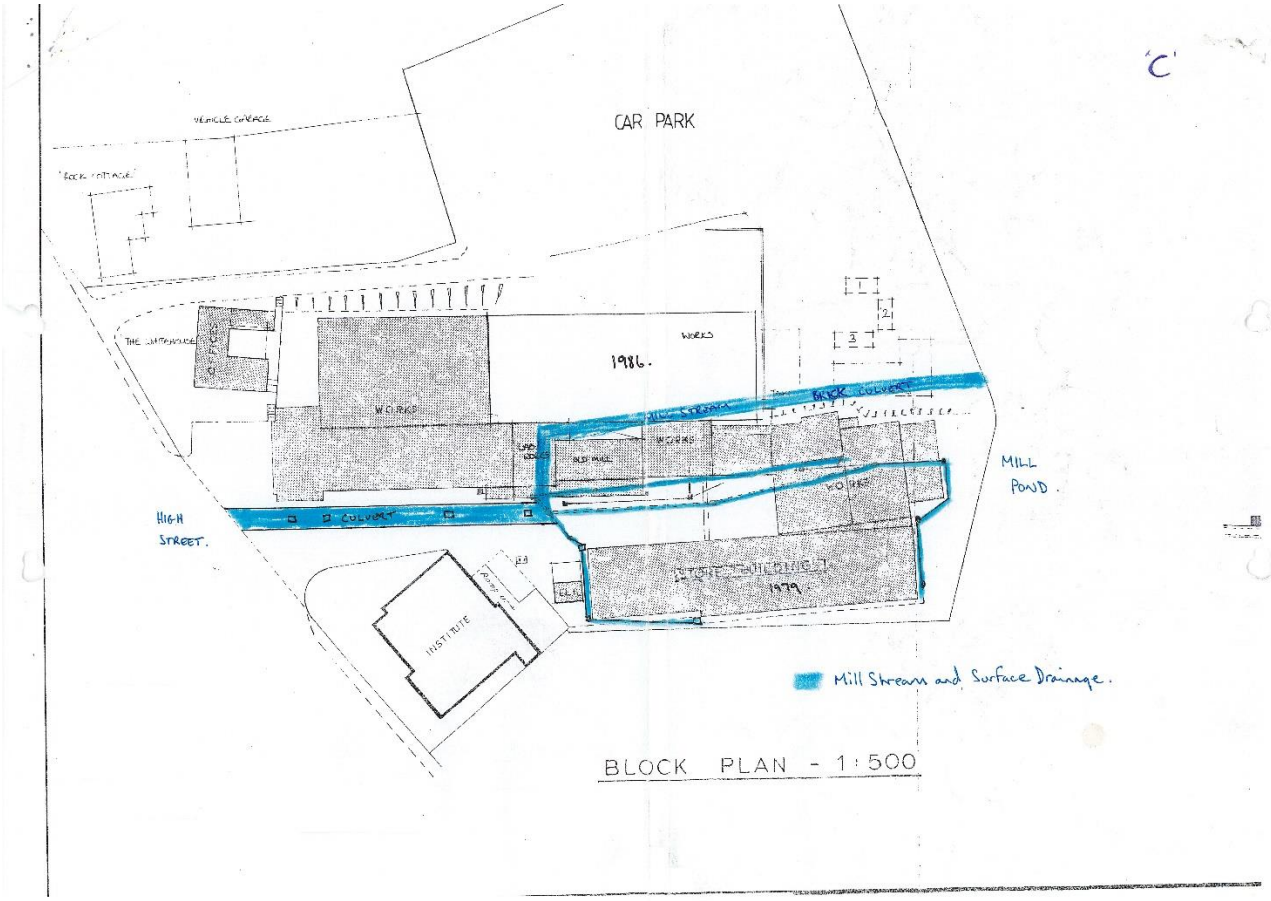

Figure 9 Drainage site of Calypso works provided by site manager 2001

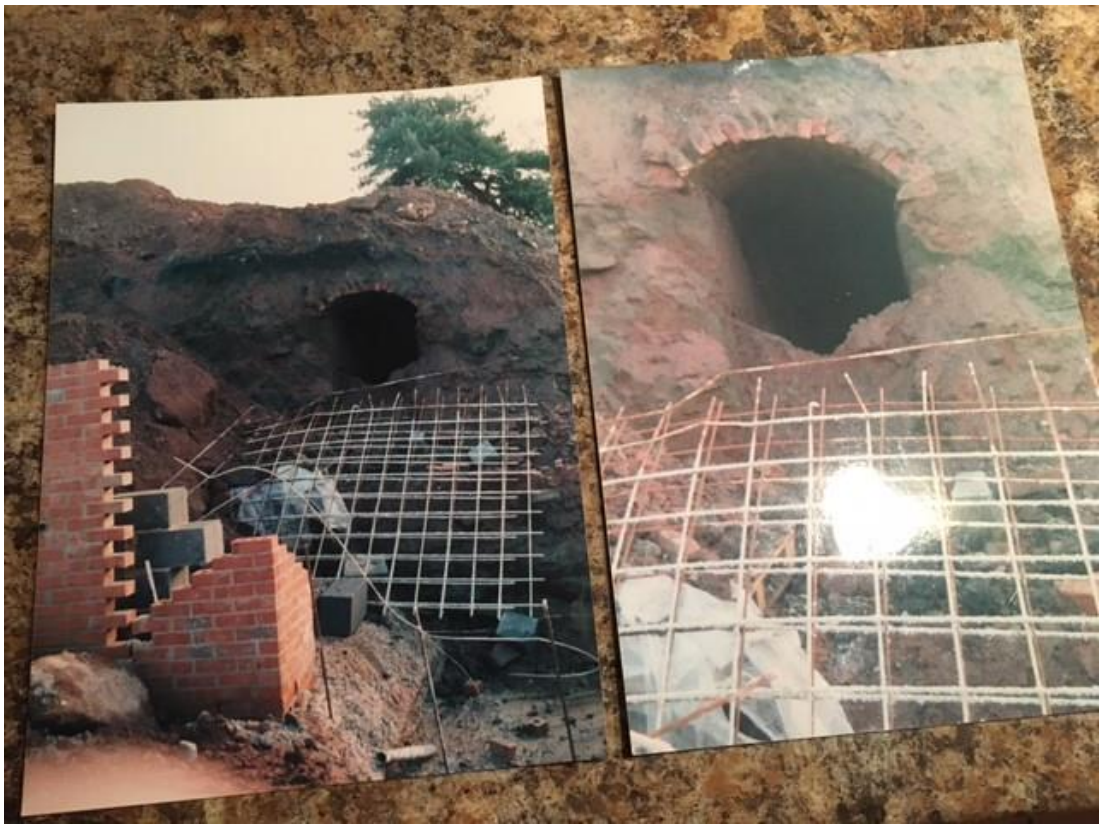

Figure 10 Closure of mill race during Old Mill Place construction. 1999

CALYPSO®
SOFT DRINKS
Spectrum Business Park,
Wrexham Industrial Estate,
Wrexham, LL13 9QA
T 01978 668400 F 01978 668440

10th January 2001.

Dear Mr Jones

I have just read your letter of 9th December 2000 regarding the flooding incident in Tattenhall on Monday 6th November 2000 and would like to make the following comments in my capacity as Factory Manager of the old Calypso site for the previous 11 years;

1. The Mill Race watercourse was not integral and extended as a culvert from the high street to about half way down the factory yard. This culvert still exists under the high street but then has been piped by Barratts half way down the yard. Beyond that point all the way to the Mill Pool was effectively dry and there was no outlet from the Mill Pond.
2. From the Veterinary to its junction with Mill Brook used to be an open stream until the developers you mentioned converted this to a piped system, which in my opinion is undersized.
3. The abstraction licence you refer to still exists with the Environment Agency, and it is a condition of that licence that we discharge water into the brook between April and October to the tune of 72 Megalitres per annum. The water is discharged from about half way down the yard through the two Developers systems into the Mill Brook.
4. In your report you have not mentioned the Bolesworth Development on the 'Flacca' adjacent to the playing fields. It is my understanding that the surface water from this entire development has been piped back into the Mill Pool, obviously adding to the catchment area and increasing the strain on the system.
5. I have observed over a number of years during heavy rainfall how the Mill Brook seems to be restricted by the slabs of stone situated in front of the culvert near the War Memorial. If this restriction were removed, it would allow the water to escape into the watercourse more easily.

I hope this helps in your investigation and if it would serve any purpose I would gladly meet you on site and talk you through the history I am aware of.

Yours sincerely

R Lancaster

R Lancaster.
Site and Technical Manager.

W www.calypso.co.uk E contactus@calypso.co.uk

Figure 11 Letter from Calypso 10-01-2001

Letter to Chair of Tattenhall Parish Council, Iain Keeping
Via Clerk to the Parish Council Ann Wright tattenhallpc.co.uk/contact-us/tattenhallpc@outlook.com

9 March 2021

Dear Iain,
I'm writing to you regarding the permanently flooded car park at Old Mill Place, which is something of considerable concern to the village, not only for the immediate residents of Old Mill Place, who were devasted by the recent floods, but wider residents of the area including, but not limited to I suspect, the Barbour Institute and our property Brookdale, which is across the road from the Barbour.
I'm sure you have a better handle on the detail than myself, but my understanding is that the cause of the permanently flooded car park is a very high water table which in turn is caused by a number of factors relating to bore holes and various release values in the area that are not currently being activated or opened. I may be wrong, but I believe that because Peckforton Spring Water are no longer drawing from their bore hole (either because of COVID or the business operation has closed down) and as a consequence ground water is building up underneath the carpark and surfacing onto it in significant quantities because of the closure of this apparent water release value (designed to reduce the water table I believe) which I believe is no longer allowed to be opened. I'm assuming that is because the water company, (presumably United Utilities but maybe Welsh Water) are not prepared to pay for the processing of this excess ground water, they have enforced this value closure, but I doubt they are aware of the immediate consequences and longer term implications. There may be other boreholes in the area which are further contributing to this excessive water issue, but I haven't got any more information myself.
This situation is clearly unsustainable as this excess water is likely to be causing considerable damage not only to the carpark area but is likely to be contributing to longer-term and more serious damage to nearby residential and communal properties. The likelihood of sinkholes developing which could have longer term structural implications for residents of Old Mill Place cannot be discounted and I'm sure this water issue is making it difficult for residents to sell their properties.
What is perhaps less understood is the impact this excessive water is having on nearby properties. I understand that currently the cellar of the Barbour Institute is now permanently flooded, and water is constantly flowing into the cellar because of the excess water, which is no doubt causing long-term damage to this important village asset. I also have a cellar in my property. My cellar is made up of two fully furnished rooms including a lounge /TV room and an office. My cellar has a sump pump installed so that it remains dry, but I'm concerned that this excess water and high water table is going to eventually cause my basement to flood.
Because of this excess water in the ground, my sump pump pit is constantly filling up with water, even in prolonged periods of dry weather. The flow of water into my sump pump pit is causing my sump pump to discharge a significant amount of water every two and a half minutes which is placing considerable strain on the machine. Only last month I had to replace my sump pump (costing hundreds of pounds) as the previous one burned out because of the additional strain it has been under for many months. Under normal conditions a few years ago my sump pump would trigger perhaps once a day at worst. Currently and for much of 2020, its running at nearly 600 flushes every 24-hour period! If this sump fails, my basement will flood. There may be other properties in the vicinity that are experiencing similar problems. There is a direct correlation to this excessively high and unnecessary water table and the rate at which water enters my sump pump.
I'm conscious that there are likely to be many parties involved, none of which are probably prepared to take responsibility for addressing this longstanding issue. Bolesworth, Peckforton Spring Water, United Utilities/Welsh Water, the Environment Agency, the Old Mill Place land-owners, are some of the names that immediately come to mind and perhaps also the company which originally (and may still own) the boreholes need to come together to resolve this issue. I believe Calypso which probably owned these bore holes originally sold their business operations to Peter and Richard Cooke, who may be the current owners; they may have a role to play but this purchase was over 15 years ago.
As chair of the Parish Council, I'm kindly asking for you to act as the coordinator to bring the relevant parties together and put pressure on them to resolve this issue once and for all. I fear that unless this is addressed quickly, the longer-term damage to an important and historic part of our village could be not only costly but endanger lives of the community, for example should a sinkhole open up or if water seepage into foundations causes residential properties on Old Mill Place to become unstable. Just imagine the lawsuits that would follow!
I believe the immediate priorities are:

1. Contact the water company to ask that (even as a temporary measure) that the water release value is opened to allow the water table to drop and prevent further damage to nearby properties and the car park.
2. Convene all parties to identify a long-term solution. Will the bore hole for example be activated again by Peckforton Water. If so this might a partial solution. If not, an arrangement needs to be made with the various parties to allow a release of this water permanently to prevent what could be very serious long-term damage.

I look forward to hearing back from you and I am happy to follow this letter up with a conversation or any other additional support that I can provide to help solve this issue. I can be contacted on email at cdlarkin1967@gmail.com

Yours sincerely,
Chris Larkin Brookdale, High Street Tattenhall CH3 9PX

Figure 12 Letter re seepage Brookdale

By email: Barbour Institute.
Re: Well head, behind Barbour Institute/ URGENT

Dear Parish Councillors JFI

In the past, the well head pump behind the Barbour Institute was constantly running, pumping away excess water reducing the height of the water table in that area. Since it has not been operating for some years the Institute cellars and a neighbouring property soon after its shut down have been permanently pumping out water on a 24/7 basis from their cellars. This was not the case before, and we have now worn out three pumps over that period. If there is some way the well head pump could be restarted this would I believe eliminate the underground flooding of our properties and also rid the car park of the flow of water both across it and from underneath.

Regardless of the fact that the well is cemented from total depth (TD)to surface it seems strange that there was a flow of water heard within the locked well head compartment. This has now changed, the water is now visibly exiting beneath the electric control panel attached to the base of the well head, and there is a steady flow into the car park.

The control panel door is insecure and is a potential danger to any person especially children in that vicinity should the flow of water connect to the electrics.

I mention this so that the relevant well owner or others could be informed before it possibly gets worse.

Regards Graham.

Figure 13 Letter re seepage Barbour Institute

Figure 14 High St. - Rocky La. junction 21-01-2021

Figure 15 Covert Rise 21-01-2021

Figure 16 Frog La. 21-01-2021

Figure 17 Tattenhall Centre 20-01-2021

Acknowledgements

Images provided residents Terri Hull, David Thomson, Jonny Kershaw.
Documents relating to 2000 event provided by Cllr Mike Jones.