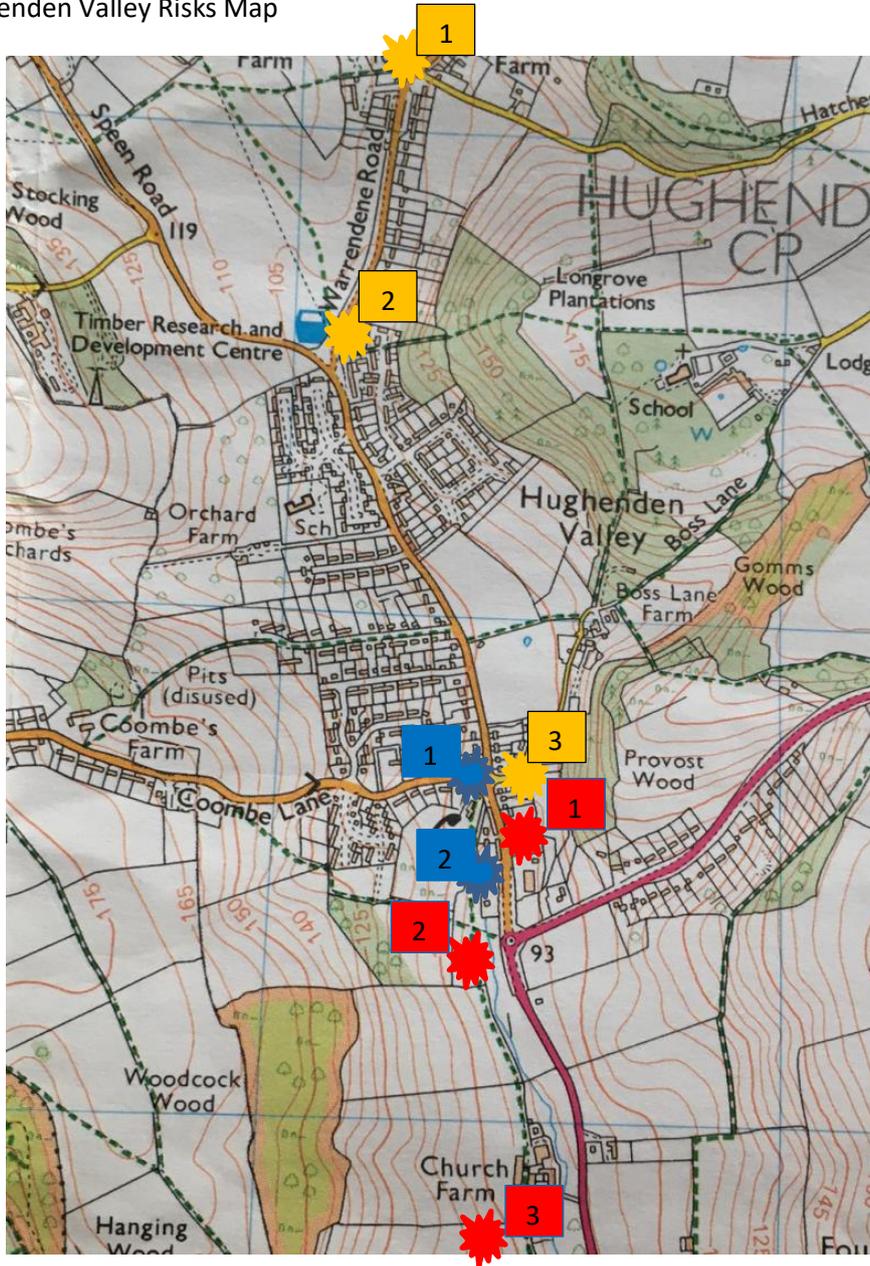


BRAVA
HUGHENDEN VALLEY DRAINAGE IMPROVEMENT GROUP
FLOOD RISK AREAS

1. Hughenden Valley Risks Map



- Key:
-  Hughenden Stream Overflow Risk
 -  Sewage Escape Risk
 -  Surface Water Overflow Risk

2. Introduction

- a. The geography of Hughenden Valley is that of a typical deep Chilterns valley. It comprises chalk hills, steep sided valleys and a winterbourne stream that runs north to south through the village.
- b. The stream normally runs every 5-7 years, remaining mostly dry for the rest of the time. Further down the valley, beyond Hughenden Park, it tends to run all the year round.
- c. There has always been a history of springs in the area, with the potential for occasional road flooding in the Harrow pub area and down at the southern end of the village a high water table. The winterbourne supported watercress beds, keeping of ducks and the watering of cattle.
- d. Real development of the village only started as late as the 1890's with considerable growth being added from the 1960's onwards. Today, the village approaches 700 houses and plans are in to add a further 65 houses just outside the boundaries of Hughenden Valley, which will share the valley's sewage system.

3. Course of the stream

- a. The winterbourne rises at the top of Warrendene Road at the junction with Hatches Lane. It runs in a ditch along Warrendene Road until level with the Harrow pub. At this point it enters a culvert and from here the stream is piped along Valley Road until it reaches Friars Gardens.
- b. It emerges there to run behind the houses fronting Valley Road until it reaches the fields of Boss Lane Farm. It runs parallel with Valley Road, makes a left turn before turning into Boss Lane in a culvert before emerging in an open ditch in the corner of Boss Lane. From here it is culverted to the side of a modern bungalow (within its grounds and beneath a garage) and then into an open ditch that runs along the back gardens of properties fronting along Valley Road.
- c. From there the stream is culverted under the industrial estate. Where the estate meets the boundary of the village surgery, the culvert turns right and the stream is piped under Valley Road. As it emerges on the east side of Valley Road, it is meant to enter a pipe that goes under part of the Affinity pumping station. In practice it veers left along the pumping station boundary then turns right into the open field and left again joining the proper line of the stream.

4. Sewage Infrastructure

- a. The sewage system essentially runs north to south through the village along Warrendene and then Valley Road. At the northern end of the village, sewers join from Bryants Bottom and also from Hampden Road. A further sewer joins from North Dean near the Harrow pub.

At the bottom end of the village at the foot of Cryers Hill two sewers join the main pipeage; one from Naphill and the other from Gt Kingshill.

- b. It is well documented that the sewage system dates from the 50's and 60's; it suffers from blockages, ingress of surface water and increased usage caused by population growth over the years.

At the lowest point in the Valley, along Valley Road (between Boss Lane and the Hughenden Surgery), the sewage system will allow escape of effluent when overloaded.

There are one or two anomalies about the sewage system.

1. The first is that the houses from the corner of Boss Lane along Valley Road as far as Herisson House are served by a sewer branch behind the houses that runs northward to the Boss Lane sewer, which itself joins up with the main sewer in Valley Road. This branch sewer is a dead end at Herisson House. This means that whereas the main sewer runs south, the Herisson House sewer flows north, then west on joining the Boss Lane sewer and then turning south on joining the main sewer. This is problematic for those residents and results in garden sewage escapes when the main sewer is under pressure.
 2. The second is that the TW sewer maps show a sewer running parallel to the main Valley Road sewer from properties Hedgerow along to Clarine, but within the field of Boss Lane Farm. This sewer, together with its numbered manholes, are unknown to the farm owner.
- c. During the winter of 2013/2014, overloading of the sewage system resulted in the need to install overpumping units. These were temporarily located in Boss Lane and Valley Road outside the surgery. The units pumped from the sewer into the Hughenden Stream. The Little Marlow (Hughenden Valley) Drainage Strategy document identified the need to find two more suitable locations for future need.

5. The Road System

- a. Warrendene Road at the north end of the village is predominantly flat and well served by road drains.
- b. As Valley Road heads south towards the junction with Coombe Lane, the hills on either side of the valley close in and become steeper. Coombe Lane itself is in the order of 1:6 and Cryers Hill perhaps 1:10.

The surface water drainage on Valley Road near the junction with Coombe Lane comes under considerable pressure because of water coming down the hill, but also from water coming off Trees Road and Trees Avenue. These are steep, unmade-up side roads further up the valley, which deposit large amounts of dirty water and detritus onto Valley Road, which then sweeps down towards the foot of Coombe Lane. Historic problems in this area and along towards the surgery include the road becoming awash during heavy rain and water running down off the road and into properties, along the pavements. The houses on the east side of Valley Road from the corner of Boss Lane along to the Surgery are all sited below the level of the road and hence vulnerable to surface water spilling from the road.

Much work has been recently by Bucks CC/TFB to improve the quality and quantity of road drains in this area. This includes new gully connections and chambering to improve flow in the culverted section in front of the village hall, which then empties into a ditch running towards the pumping station. This ditch has been recently cleared out.

The ditch along the length of Warrendene Road has also been recently cleared.

6. Hughenden Valley Risk Areas

Hughenden Valley suffered a combination of flooding events in 2000 and 2014, which comprised sewage escapes, surface water overflows and stream overflows. The wet winter of 2019/2020 resulted in a high water table and the winterbourne flowing well through the village. The sewage system appeared full and gave warning signs at the lowest point of the village of being close to escape.

The map identifies the areas HVDIG consider to be the most at risk based upon our experiences going back many years, but particularly since 2000.

It should be noted that when flooding occurs in the valley, it is shallow – just a few inches deep, but that is perhaps small comfort if a household has two inches of water inside the house. However, HVDIG consider that the flooding potential can be successfully managed with modest investment in key areas, but first and foremost, the village requires sustained regular maintenance to ensure continued performance of the drainage systems and the watercourse. It is understood that high amounts of investment will be required for the future to counter population growth etc.

a. Hughenden Stream Risk Areas

Risk No 1 is at the top of Warrendene Road at the junction with Hatches Lane. This is where the stream rises and can spill onto the road. The drainage ditch along the left of Warrendene only starts 100-200 metres further along from the junction.

Risk No 2 is at the bottom end of Warrendene Road close to the junction with Valley Road. At this point the ditch on the left hand side of Warrendene enters a culvert, crosses the road and then continues under the road down Valley Road. Where the culvert starts is notorious for flooding the road and threatening the pub opposite. The Harrow pub was flooded in 2014.

Risk No 3 is in the corner of Boss Lane on the bend where the field gate is situated. There are several issues concerning this area. These are:

- The short open ditch work leading to the corner has an entry point (i.e. the northern end) higher than the exit point (the southern end) thus impeding flow.

- The opposite corner is the location for TW overpumping; a pipe under the road feeds into this ditch and recent drive work across the ditch has reduced the capacity to overpump into the watercourse.
- The ditch ends by the field gate where it is culverted. The culvert then joins a single drainage pipe, believed to be only 8-10" in diameter. This pipe was installed by the builders when a bungalow was built in the 1990's adjacent to the field gate. This undersized pipework is considered to be the major cause of flooding of Boss Lane in 2000 and 2014.

b. Sewage Escape Risk

Risk No 1 is an elongated area stretching from Boss Lane south as far as the Hughenden Surgery and encompasses all 11 houses along this stretch plus the industrial estate and the Surgery. Predominantly, it is only the properties on the east side of Valley Road that are affected, but escapes have also occurred across the road in Spring Rising. As indicated earlier, this point is the lowest in the valley; in both 2000 and 2014 sewage escapes have occurred from household inspection pits as well as from the sewer manholes which run along the pavement.

In 2000 support was given by Thames Water in pumping escaping sewage from properties and into the watercourse in the back gardens. In 2014 property owners took it upon themselves to pump as many had bought their own pumps. TW also provided clean up support plus also tankering, followed by the overpumping facilities in Boss Lane and in Valley Road outside the Surgery.

Risk No 2 is an area in the field immediately to the south of the Affinity pumping station. It is understood to be the junction of the Hughenden main sewer with the one coming down from Naphill. It overflows from time to time due to blockages or overloading and allows sewage to escape directly into the Hughenden Stream.

Risk No 3 is an area outside the southern end of the village (just off the bottom of the map) and occurs at the Manor lodge house beside the main entrance to Hughenden Manor and the park. Pressure on the sewage system occurs at the lodge house, which if not dealt with quickly, results in escapes occurring at an inspection pit within the grounds of the park where the public & livestock have access.

c. Surface Water Escape Risk

Risk No 1 is on Valley Road at the foot of Coombe Lane and is also at a low point in the valley so that water also flows strongly to this area from further up Valley Road. Recent road drains, gully & chambering work plus road surfacing have vastly improved the road drainage of this area. The road is now performing well with one exception.

Dirty surface water is able to sweep down the valley from the Trees Road and Trees Avenue area. On reaching the junction with Coombe Lane it crosses to the east side and mounts the pavement bypassing the new road drains. The houses are lower

than the road and this means that surface water can still sweep along the pavement and enter drives. Most houses along this stretch have invested in defensive measures to try and prevent surface water entering their properties.

Risk No 2 relates to the ditch running along the west side of Valley Road, which has been cleaned out during the recent works. With the road drainage system working well, this ditch can fill remarkably quickly. At its southern end it empties into a culvert running under the pumping station property. The ditch empties slowly through this single pipe and hence the ditch carries the risk of overflowing on to Valley Road.

Historically, the ditch used to run along in front of the pumping station and then out into the open field joining the course of the stream. Introducing the culvert has restricted the flow.