

WRPS WILBRAHAM RIVER QUALITY SURVEY 25th June 2025



Summary

The Wilbraham River Protection Society (WRPS) undertook a second river quality survey during June 2025 when the river and its tributaries were low in water. The aim was to compare the same 21 locations between the headwaters and below Quy Mill Hotel that were sampled in February 2025 for a range of recognised water quality parameters.

As expected the survey revealed higher concentrations of various pollutants that will be detailed below. None of the results would require reporting to the EA however the relatively high coliform counts would not be acceptable for “bathing water”. Of course you would not be able to swim in the minimal amount of water in most of the river system.

The survey also demonstrated that our technique improved with the low cost Hanna phosphate meter and obtained more reliable results. The following results again largely rely on a formal analysis by Dr Steve Boreham using more sophisticated methods detailed below. The WRPS committee will discuss which of the 21 locations should ideally be the subject of more long term monitoring.

Introduction

Much of the unique local biodiversity in Fulbourn and the Wilbrahams relies on a healthy water table and chalk stream. It should be noted that the river passes through or adjacent to 3 SSSIs and a County Wildlife Site and is surrounded in many locations by farmland. Over the last 3 decades the river system has intermittently dried out but at the time of sampling the whole river had been in water and flowing since mid-October 2023.

Methods

The sampling locations are illustrated in Figure 1 and identical to the first survey except for almost dry locations where puddles were sampled and at the springs which had all stopped flowing. (Almost dry locations were the Parish Ditch & Fulbourn Springs) Samples were taken by volunteers trying to avoid any disturbance of the sediment and placed into A & B 50 ml sample pots. (Site photos Appendix 1)

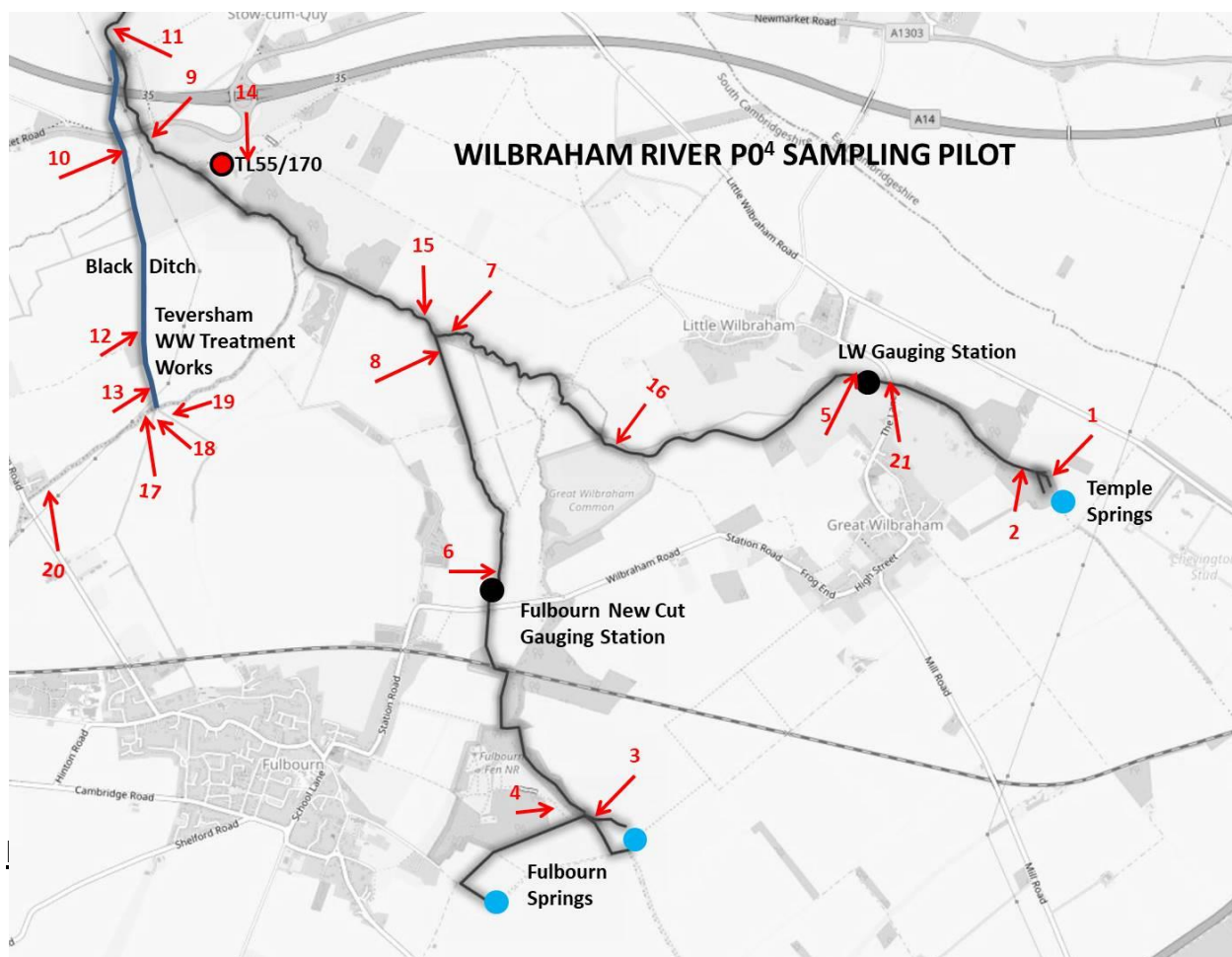
The A samples were analysed using a Hanna “low” phosphate meter. In addition using a loaned multi-parameter meter we analysed some samples in the field for pH, temp,

conductivity, turbidity and dissolved oxygen. The B samples were analysed by Dr Steve Boreham using a Hanna “Iris” spectrophotometer and Petrifilms. The parameters he measured were pH, Electrical Conductivity (EC), Turbidity, Phosphate, Ammonia-N, Nitrate, and Escherichia coli counts.

River and Climate Status

The sampling took place on Wednesday 25th June from 10:00 to 19:00. At Lode the river flow was 0.041m³/sec – 10 times less than at the time of the previous survey, The level at the Lanes gauging weir was 12.86mAoD, Fulbourn gauging weir 9.97mAoD and at the footbridge by the A1303 6.98mAoD where the riverbed was dry. Overall river levels were very low – see later appendix photos. During the month of June 14mm of rainfall was recorded close to Wilbraham Fen and there was no rain during the 24 hours prior to the survey. This was the driest spring in the UK for 132 years. Augmentation was running fully at The Temple and Fulbourn. The springs at the Temple and Fulbourn had both stopped.

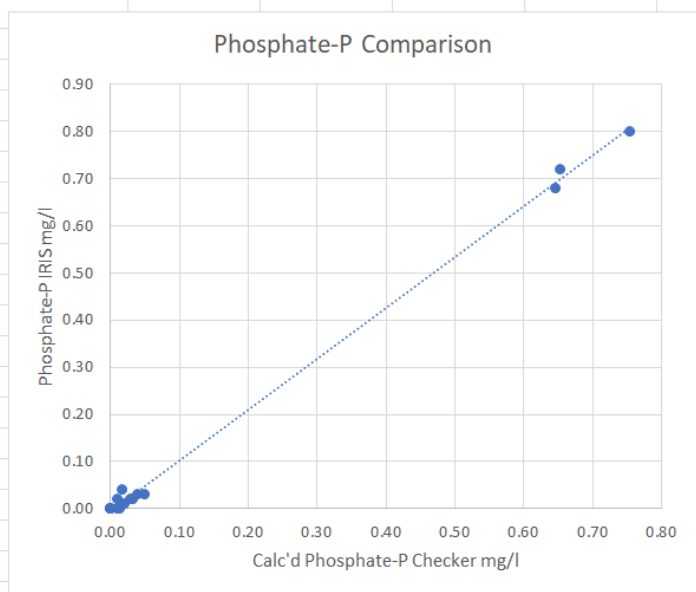
Figure 1 Sampling Locations



A comparison of the A&B sample phosphate results is shown in Table 1. Good correlation was obtained between the WRPS LR Hanna Meter and the Lab Iris system.

Table 1

Sample nos.	Phosphate mg/l Checker LR	calc'd Phosphate-P mg/l	Phosphate-P IRIS mg/l
1	0.00	0.00	0.00
2	0.00	0.00	0.00
3	0.00	0.00	0.00
4	0.00	0.00	0.00
5	0.10	0.03	0.02
6	0.06	0.02	0.01
7	0.03	0.01	0.00
8	0.12	0.04	0.03
9	0.05	0.02	0.04
10	2.31	0.75	0.80
11	1.98	0.65	0.68
12	2.00	0.65	0.72
13	0.05	0.02	0.01
14			0.01
15	0.00	0.00	0.00
16	0.15	0.05	0.03
17	0.09	0.03	0.02
18	0.04	0.01	0.00
19			0.00
20	0.03	0.01	0.02
21			0.00



The results of the Lab analysis are shown in table 2 below

The key findings were the presence of coliforms at multiple locations. Increased phosphate levels were found downstream of Teversham Sewage Treatment Works in the Black Ditch (12,10) and downstream of Quy Mill Hotel (11). Increased ammonia levels were again found in the Parish Ditch (14) and downstream of Quy Mill Hotel (11) as well as near the A1303 bridge (9) and in the stagnant puddle at Fulbourn Springs. Increased turbidity was found in several locations. No nitrate was found in the samples either side of Teversham STW, the Parish Ditch and downstream of the LWR/Fulbourn New Cut confluence.

Table 2

	Sample nos.	Grid Reference (approx)	Km upstream of Quay Mill	Location	Lab Measurements											
					pH	EC	Turbidity FTU	Phosphate-P IRIS mg/l	Ammonia-N LR IRIS mg/l	Nitrate as N mg/l IRIS	Nitrate calc'd mg/l	E. coli & coliform count per ml (Petrifilm)				
1	TL 55762 57814	6.25		Temple Springs (source)	7.89	797	0.5	0.00	0.07	12.5	55.4	3				
2	TL 55603 57841	6.15		Temple augmentation outflow	7.26	775	6.8	0.00	0.11	12.0	53.2	0				
3	TL 53416 55951	5.30		Fulbourn Springs	7.80	908	94.4	0.00	0.65	3.7	16.4	3				
4	TL 53295 55980	5.00		Fulbourn augmentation outflow	7.45	797	0.8	0.00	0.05	11.1	49.2	3				
5	TL 54835 58278	5.15		D/S of Lanes gauging weir	8.11	786	6.4	0.02	0.09	10.1	44.7	56				
6	TL 52876 57093	4.00		D/S of Coles Bridge weir	8.05	847	6.1	0.01	0.11	8.9	39.4	47				
7	TL 52635 58428	2.75		LWR U/S of Fulbourn New Cut confl	8.23	739	4.3	0.00	0.07	8.2	36.3	68				
8	TL 52580 58345	2.75		Fulbourn New Cut U/S LWR confl	8.13	858	19.8	0.03	0.09	5.6	24.8	41				
9	TL 51036 59451	0.73		A1303 bridge channel	8.22	791	3.1	0.04	0.79	0.6	2.7	14				
10	TL 50874 59375	0.75		Black Ditch by A1303 layby	8.16	961	31.7	0.80	0.09	14.4	63.8	96				
11	TL 50767 59990	0.00		D/S Quay Mill Hotel	8.48	930	16.3	0.68	0.11	18.0	79.7	35				
12	TL 51021 58446	1.60		D/S bridge by Teversham STW	8.15	921	3.7	0.72	0.07	0.0	0.0	83				
13	TL 51066 58144	1.90		U/S of Teversham STW	8.11	843	5.8	0.01	0.04	0.0	0.0	17				
14	TL 51277 59303	0.95		Parish Ditch U/S Black Ditch	7.71	852	161.0	0.01	0.83	0.0	0.0	6				
15	TL 52495 58499	2.60		D/S LWR / Fulbourn New Cut confl	8.21	769	42.8	0.00	0.12	0.0	0.0	43				
16	TL 53463 57893	3.75		Footbridge GW common land	8.07	797	19.45	0.03	0.19	9.3	41.2	84				
17	TL 51031 57975	2.10		SW Ditch Entry to Bulls Eye	8.15	927	11.68	0.02	0.03	10.3	45.6	42				
18	TL 51096 57921	2.10		South Ditch Entry to Bulls Eye	7.98	828	6.2	0.00	0.04	11.6	51.4	54				
19	TL 51171 57959	2.10		East Ditch Entry to Bulls eye	8.05	903	9.3	0.00	0.22	5.1	22.6	52				
20	TL 50459 57530	2.80		Caudle Ditch, Teversham Road	7.93	952	24.4	0.02	0.24	11.3	50.1	130				
21	TL 54909 58269	5.25		U/S Lanes gauging weir	8.11	786	12.3	0.00	0.14	9.8	43.4	135				

Discussion

As expected the concentration of most of the parameters tested had increased from the first survey. Particularly notable was the increase in coliforms (although we do not have eDNA testing to establish the proportion of human coliforms) which may be attributed to leaking sewage systems. The augmentation water was relatively “clean” with normal pH, no phosphate but measureable nitrate as before. Increased turbidity is difficult to assess as the samples were more difficult to collect in low water levels and some sediment may have been included, however the high levels in the Parish Ditch may reflect road run-off as noted in the previous survey. Interestingly several samples had low or zero nitrate values – and given the high values in the augmentation water this is suggestive that, despite the dry conditions, rainwater run-off could be the main source of water at these sampling points or processing from reed overgrowth.

Comparison of the 1st and 2nd Surveys

This is best appreciated by studying the maps 1&2 below provided by Dr Boreham which allow comparison of the various positive findings by location. They demonstrate clearly the increase in pollutant concentrations since the first survey.

Conclusion

This second WRPS quality survey has provided further information on the state of the river and provides a comparison with official WFD measurements. Overall this survey undertaken with relatively low river levels revealed worse water quality on the parameters measured - mainly related to coliforms, phosphate, ammonia and likely road runoff contamination.

Acknowledgements

We would like to thank all the volunteers for their time and effort carrying out the survey. In particular the WRPS is indebted to Dr Steve Boreham for his time, advice, effort and detailed analysis, mapping and interpretation of our B samples.

Prepared by Prof David Lomas 7th July 2025 with assistance from Clarence von Marle

References: click for links

- [Hydrology Data Explorer Lode Flow](#)
- [Hydrology Data Explorer Cherry Tree Stud Borehole](#)
- [UK Bathing Water Quality - Coliforms](#)
- [UK Drinking Water Standards](#)
- [UK Environmental Standards 1](#)
- [UK Environmental Standards 2](#)
- [UK River Phosphorus Standards](#)

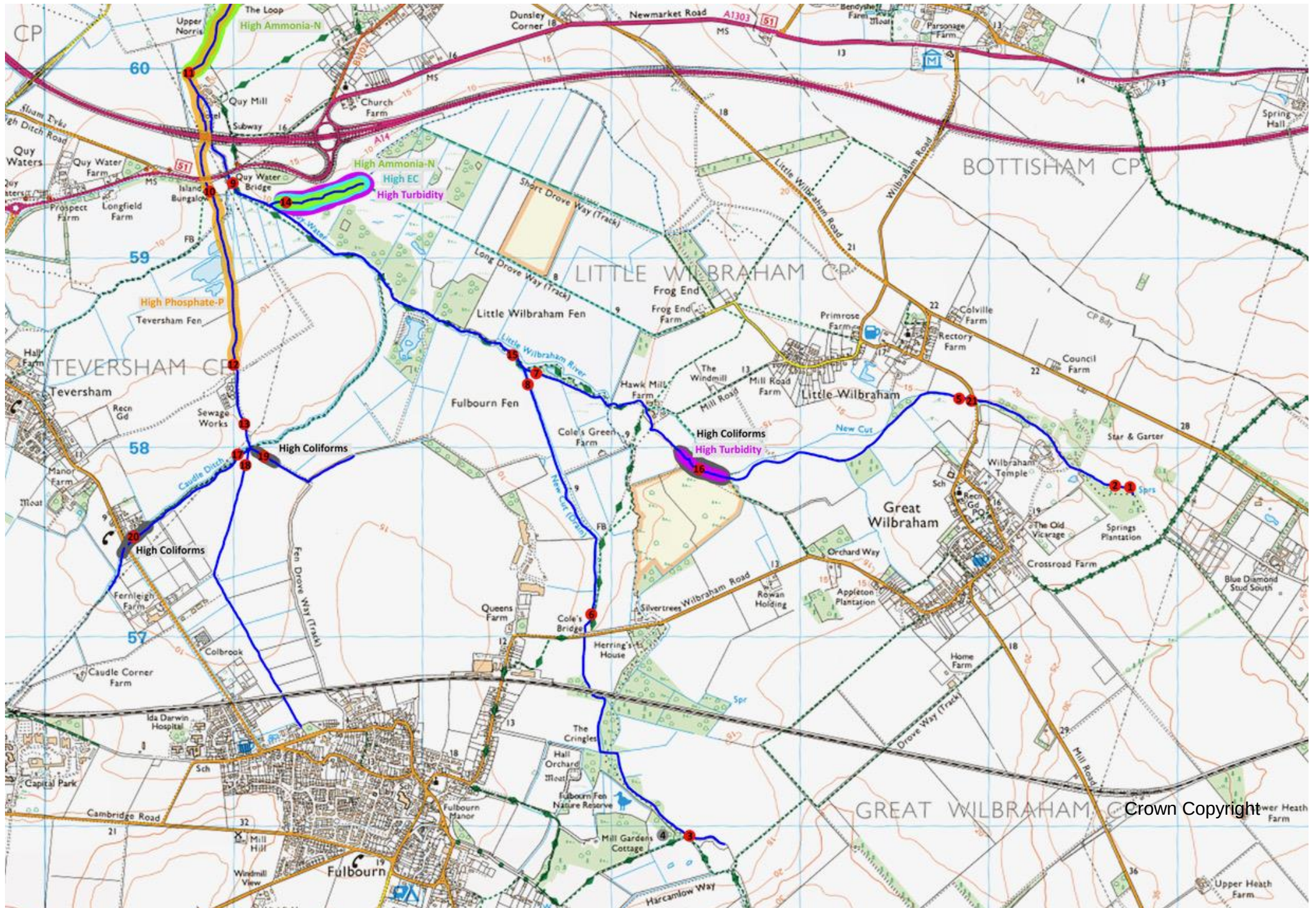
OS Mapping subject to Crown Copyright

Appendix 1 Site Pictures

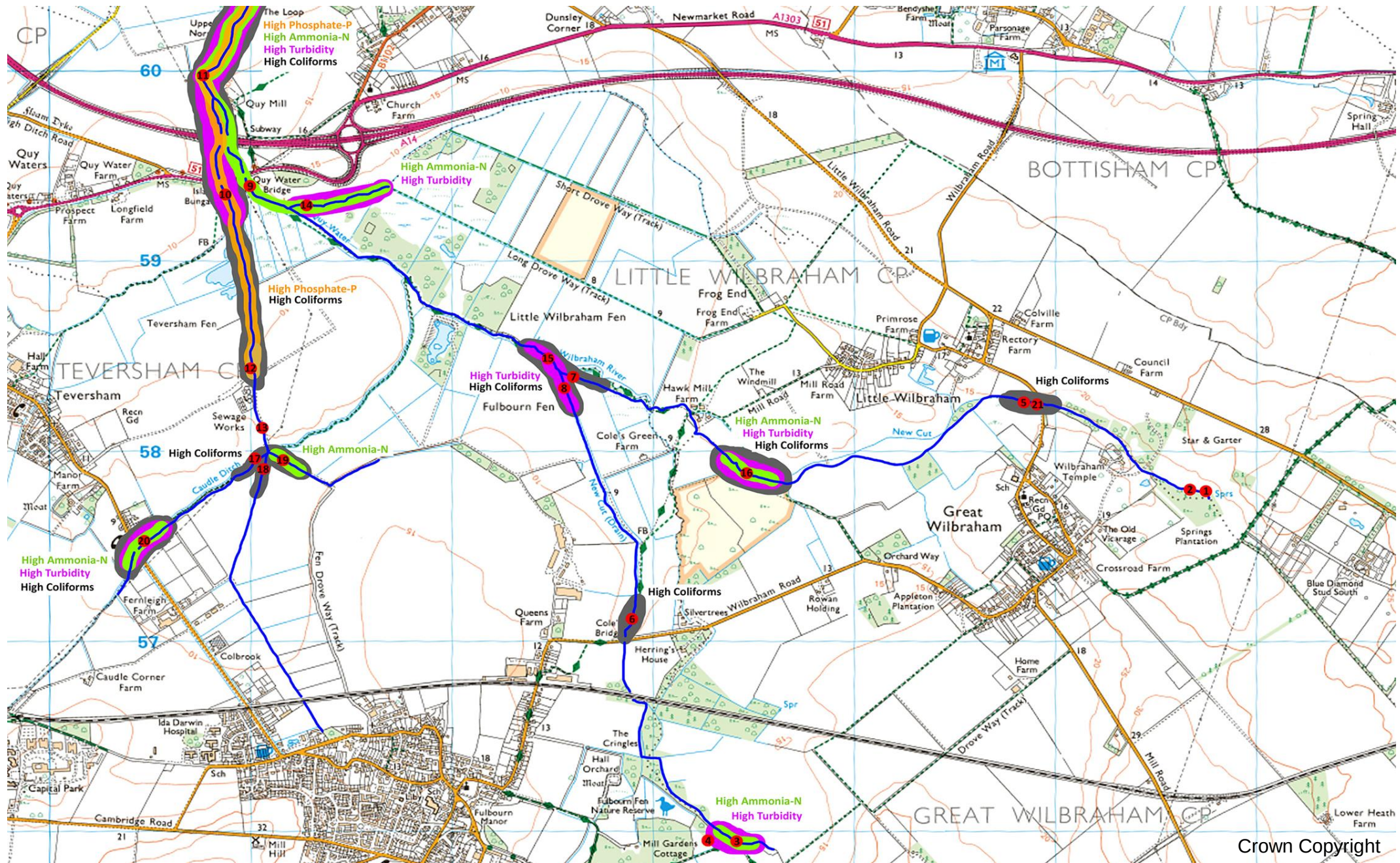


**Sampling Location Photos
WRPS Survey 25 June 2025**

Map 1 - Wilbraham River Results 23 FEBRUARY



Map 2 - Wilbraham River Results 25th JUNE 2025



WRPS Report on Wilbraham River Quality Survey 25th June 2025