

Friends of the Dart - Phase 3 Tributaries Review

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1. Introduction

This review summarises findings from Phase 3 tributary monitoring undertaken by Friends of the Dart to characterise *E. coli* patterns across key tributaries within the Dart catchment and to inform prioritisation of future investigation and intervention. The primary aim of Phase 3 is to distinguish between rainfall-driven contamination and persistent baseline pollution, identify tributaries and assets most likely to influence downstream water quality, and provide an

evidence base to support engagement with the Environment Agency (EA) and other partners.

Tributaries included in this review were selected based on proximity to designated bathing waters, wastewater infrastructure pressures, community concern, and to address key knowledge gaps. Results are interpreted in the context of hydrology, seasonality, land use, and wastewater asset performance, with the intention of identifying realistic and proportionate next steps for monitoring, investigation, and regulatory engagement.

2. Methods

Monthly *E. coli* monitoring was undertaken at tributary sites using Neogen Petrifilm™ *E. coli* Plates, with sampling conducted under both dry-weather and wet-weather conditions where feasible. Wet weather was defined as 2.5mm of rainfall or more in the preceding 48 hours to sampling.

Results were analysed to compare dry- and wet-weather concentrations, assess temporal variability, and identify patterns consistent with either diffuse, rainfall-driven pollution or persistent point-source inputs. Summary statistics were interpreted alongside contextual information including wastewater asset spill frequency and duration (where available), land use, seasonality, and Environment Agency microbial source tracking (MST) data.

Wastewater asset spill statistics referenced in this review were calculated from the “SWW 2025 EDM Start Stop – Storm Overflows” dataset. All underlying data, summary statistics, and site-level results are presented in the accompanying Supplementary Materials. In several locations, sample sizes were limited; where this was the case, interpretations are presented cautiously and explicitly acknowledge uncertainty.

3. Results & Discussion

3.1 Ashburn

Summary:

Monitoring indicates poor water quality characterised by high variability and rainfall-associated *E. coli* spikes. Low baseline (dry weather) concentrations suggest that faecal pollution is largely rainfall-driven, likely linked to CSO spills and catchment run-off. Both CSOs in the Ashburn catchment are frequent spillers, exceeding the threshold trigger

for EA investigation under the SOAF. The sampling site is approximately 1 mile downstream of the CSO outflows, with the CSOs located around 8 miles upstream of the Steamer Quay bathing site.

Recommendations:

The Ashburn tributary is not currently considered a priority site for targeted intervention. In the future, transect sampling following CSO events could be used to investigate how bacterial concentrations change as water moves toward Steamer Quay, though this is not an immediate focus. Raising an EIR with the EA is recommended to confirm whether the high-frequency spills have been adequately investigated.

3.2 Mardle

Summary:

Monitoring at the Mardle indicates poor water quality, with a higher baseline (dry weather) *E. coli* average than on the Ashburn river, suggestive of persistent low-level faecal pollution inputs, perhaps a pipe misconnection or leaking septic tank. *E. coli* concentrations roughly double following rainfall, suggesting this site is less likely to experience extreme rainfall-associated spikes compared to the Ashburn. Both CSOs warrant investigation under the SOAF thresholds.

Recommendations:

Future investigations could include upstream transect sampling to determine whether dry-weather *E. coli* concentrations consistently decrease at a specific location, which could indicate a point source of pollution. Downstream transect sampling could also be conducted in coordination with Ashburn monitoring following rainfall or CSO events to assess how elevated *E. coli* levels dilute along the river and whether these tributaries contribute to water quality impacts at Steamer Quay. Raising an EIR with EA is recommended to confirm whether Market Street and St Luke's Church CSOs have been investigated and whether mitigation measures are planned.

3.3 Old Road Tributaries (1-3)

Summary:

Monitoring at the Old Road tributaries suggests that baseline dry-weather *E. coli* concentrations are lower than those observed on other Dart tributaries, with high variability largely driven by rainfall-associated spikes. The dry-weather mean at Old Road 2 is skewed by one extremely high result (14,000 cfu/100 ml on 30/6/25), which may represent a specific pollution incident or an anomalous reading. Across all sites, *E. coli* concentrations increased

over the summer months, likely reflecting low flows in the tributaries and the resulting concentration effect on bacterial levels.

Recommendations:

Monitoring of the Old Road tributaries could continue throughout 2026 under both wet and dry conditions to test whether the elevated summer *E. coli* concentrations were influenced by low flows. Pollution-source identification investigations are limited by the predominantly agricultural catchment, likely falling outside of our expertise and resources. Another option is to conduct upstream and downstream sampling at the tributary confluences as well as at the tributary sites to quantify contributions to the main river, to test the hypothesis that the low volume tributaries have minimal impact on downstream *E. coli* concentrations. However, this is not considered urgent and would require landowner engagement and access permissions.

3.4 Old Mill Leat

Summary:

Monitoring indicates low baseline dry-weather *E. coli* concentrations with pronounced rainfall-associated spikes. Dry-weather levels are generally moderate, while wet-weather means show substantial increases, consistent with runoff from the predominantly agricultural catchments. Sample sizes at OML3–OML DS are small, limiting the ability to calculate further statistics, and the small number of wet- and dry-weather samples means any inference should be interpreted with caution.

Recommendations:

Given the agricultural setting and limited capacity to advise on land management, it is not advised to identify specific pollution sources or implement interventions. Depending on our monitoring focus in 2026, we could continue monitoring OML DS and Stav Bridge to continue tracking seasonal and rainfall-driven patterns. Alternatively, we could cease monitoring here but highlight this tributary as a candidate for targeted remedial measures, such as riparian planting or runoff mitigation, should resources allow in the future.

3.5 Staverton Village

Rationale for Exclusion:

Monitoring at Staverton Village indicates generally low *E. coli* concentrations, and high variability influenced by rainfall-associated spikes. Overall, the data do not indicate persistent or extreme contamination. As such, it is recommended that Staverton Village be excluded from the future monitoring program to focus resources on tributaries with consistently poorer water quality.

3.6 River Hems

Summary:

Monitoring indicates poor water quality, with elevated *E. coli* concentrations under both dry and wet conditions. Elevated dry- and wet-weather levels at Broadhempston STW US suggest additional faecal inputs upstream of this site. MST data from the EA reports a strong ruminant signal at Broadhempston STW DS, under both wet and dry weather. At the Ambrook sites, *E. coli* concentrations are elevated across both wet and dry conditions, with high dry-weather baselines indicating persistent pollution sources. All STW CSOs on the Ambrook warrant investigation by the EA due to their spill frequency, and it is argued here that the elevated spill duration recorded at Torbryan PS after only 4 spills also warrants a performance investigation. Assets sit roughly 5-8 miles upstream of the Steamer Quay bathing site, and are not currently linked to bathing water quality.

Recommendations (menu of options):

- **Expand upstream monitoring of the western tributary:** Add sample sites along each accessible arm of the upstream tributaries above the Broadhempston STW US point to identify areas with elevated *E. coli* concentrations. Data collected between now and the bathing season could support the EA's planned investigations into agricultural pollution sources at these upstream locations.
- **Upstream/downstream sampling of CSO/STW outflows on the Ambrook:** Conduct sampling above and below assets (Broadhempston, Ipplepen, Denbury, Torbryan) to assess their contribution to elevated *E. coli* levels. Demonstrating that these assets drive increased bacterial loads in the Ambrook, and that these loads persist downstream to impact Steamer Quay water quality, could provide robust evidence to link these assets to bathing site water quality under WINEP.
- **Walkovers and visual inspections:** Conduct walkovers with the EA under dry-weather conditions to identify potential point sources, such as pipe misconnections.
- **Engagement with EA on asset investigations:** Raise an EIR to determine whether high-spill assets (including Torbryan PS and other Ambrook CSOs) have been investigated and whether mitigation or maintenance actions are planned.

3.7 Malt Mill Lake

Summary:

Environment Agency monitoring shows elevated *E. coli* concentrations with poor classification at both sites, indicating a consistently high baseline rather than isolated

rainfall-driven spikes. Spill frequencies at both CSOs between 2024-2022 warrant further investigation. MST analysis indicating a strong human signal points towards a point-source input upstream of MML US, such as pipe misconnections, leaking private sewers or septic tank failures, rather than agricultural runoff. This makes MML a strong candidate for targeted investigation, as resolving a point source is likely to lead to measurable water quality improvements.

Recommendations:

Prioritise the MML for focused investigation, incorporating a monitoring site further upstream (near the Follaton boundary) to constrain the likely source area. Use this data to inform a dry-weather walkover with the EA to identify potential point sources, followed by reporting and remediation where issues are identified. Continued post-intervention monitoring is recommended to evidence any improvements in *E. coli* concentrations over time. Recommended to raise an EIR to the EA to determine whether both CSOs have been investigated and whether mitigation or maintenance actions are planned.

3.8 River Harbourne**Summary:**

Both sites show poor overall classifications. Dry weather *E. coli* concentrations are relatively low at both sites, however, baseline levels are higher at Harbourne than at Bow Creek. This may reflect the influence of final treated effluent or a low-volume point source of faecal pollution upstream of the Harbourne site. Markedly higher wet weather concentrations at Harbourne compared to Bow Creek is consistent with CSO spill impacts from Harbertonford STW (the worst performing Dart asset this year in terms of spill duration). Lower concentrations at Bow Creek may also reflect dilution from tidal flows within the estuary, particularly given the focus on high-tide sampling due to feasibility of accessing the water.

Recommendations:

Raise an EIR with the EA to clarify investigation status and performance issues at the above STWs. Option to add a sampling point upstream of the Harbertonford CSO and final treated effluent outfall characterise its effects on downstream water quality. Explore, in collaboration with the EA, whether these assets could be formally linked to Stoke Gabriel bathing water.

3.9 Yalberton Stream**Summary:**

Monitoring indicates extremely elevated *E. coli* concentrations at Tor Park likely linked to spills from Tor Park PS during the bathing season; a previous walkover also identified a

suspected pipe misconnection that is now under investigation by SWW. Concentrations decrease downstream along Yalberton Stream, suggesting dilution as bacterial loads move towards Mill Pool, though levels remain poor. Stoke Gabriel bathing water has been classified as poor this year, driven by several large bacterial spikes. Dry versus wet weather breakdowns are not available for these sites as the data are EA-derived; further interrogation against rainfall records was outside the scope of this report but could be undertaken in future. All associated CSOs warrant further investigation under the SOAF.

Recommendations:

Raise an EIR with the EA regarding the spill frequency of all assets and ongoing investigations. In line with EA plans for 2026, add a sampling site on the main River at the second pontoon upstream of the Stoke Gabriel bathing site to strengthen the evidence base for determining whether poor water quality at Steamer Quay is driving Stoke Gabriel deterioration. Introduce monitoring at Yalberton Stream and Mill Pool to characterise bacterial transport through the Mill Pool and its influence on the bathing site; this would also address a community health data gap, as Mill Pool is heavily used in summer. Continued wet and dry weather monitoring at Stoke Gabriel bathing site is recommended given its downgrade from sufficient to poor.

4. Conclusion

Phase 3 tributary monitoring demonstrates substantial spatial variability in *E. coli* concentrations across the Dart catchment, with clear distinctions between rainfall-driven contamination and locations exhibiting elevated dry-weather baselines indicative of persistent faecal inputs. Several tributaries (notably the River Hems, Malt Mill Lake, and Yalberton Stream) emerge as high-priority sites due to consistently poor water quality, strong indications of point-source pollution, or proximity to bathing waters experiencing classification deterioration.

In contrast, other tributaries show lower baseline concentrations and rainfall-associated spikes only, suggesting limited benefit from immediate targeted intervention. For these sites, deprioritisation within future programmes represents a proportionate use of resources.

Overall, the findings support a focused Phase 4 approach that prioritises tributaries and assets where investigations are most likely to yield measurable water quality improvements. The data provide a defensible basis for targeted upstream expansion, asset-focused sampling, walkovers, and formal engagement with the EA. Continued integration of citizen science monitoring with regulatory datasets will remain critical to strengthening the evidence base linking tributary pollution to downstream bathing water outcomes.