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SUBJECT: Gisborne District Council Seymour Road Action Plan

1. Background

The Seymour Road wet weather wastewater overflow, initially considered as a primary overflow point, flows into the Owen Drain. It was considered as a primary overflow point due to the need to use this overflow in most heavy rainfall events that result in wastewater discharges. The volume of the overflow is relatively small, comprising a high flow bypass in the wastewater pipeline, with only the wastewater surcharge directed into Owen Drain. Figure 1 shows the location of the overflow.

The overflow point was created as a means of mitigating a localised wastewater issue - overflows out of gully traps and onto private property in Turenne Street and out of the manhole at the intersection of Seymour Road and Turenne Street – during wet weather (and therefore linked to inflow and infiltration. The intention was for the overflow to be used until such a time as the causes of rainwater inundation and wastewater network constraints were known and remedied.

Figure 1a Seymour Road wastewater overflow (yellow dot)

Figure 1b Seymour Road wastewater overflow (yellow dot)

These wastewater discharges present significant risks to the community (including schools and private property). Significant concerns were raised through the wastewater overflows consent process. The following applies:

- The overflow is into a small freshwater stream that flows through Ilminster School and Te Wharau School. These schools, through the Ministry of Education, have expressed significant concern over wastewater overflows into the stream.
- This stream area is used by the school and its ākonga (students), both during school hours and outside of those times. There is significant interaction with the waterbody. Some ākonga use a walkway along the stream to get to school.
- The stream also runs through a number of private residential properties before it reaches the Waimata River. These properties in part include the stream in their landscaping and recreational areas, forming part of garden areas. In other parts the stream is fenced off from the gardens. Some of these residents have objected to wastewater overflows into the stream.
- Some local residents actively work on improving stream and riparian ecological values. These residents also object to the wastewater overflows.

Council has over time been working through options to make this overflow point largely redundant (but being retained as a potential tertiary overflow point for extreme rainfall events) and its replacement with another overflow point to the Waimata River. Figure 2 shows the location of the new proposed overflow at the end of Owen Road.

Figure 2a Proposed Owen Road wastewater overflow (red dot)

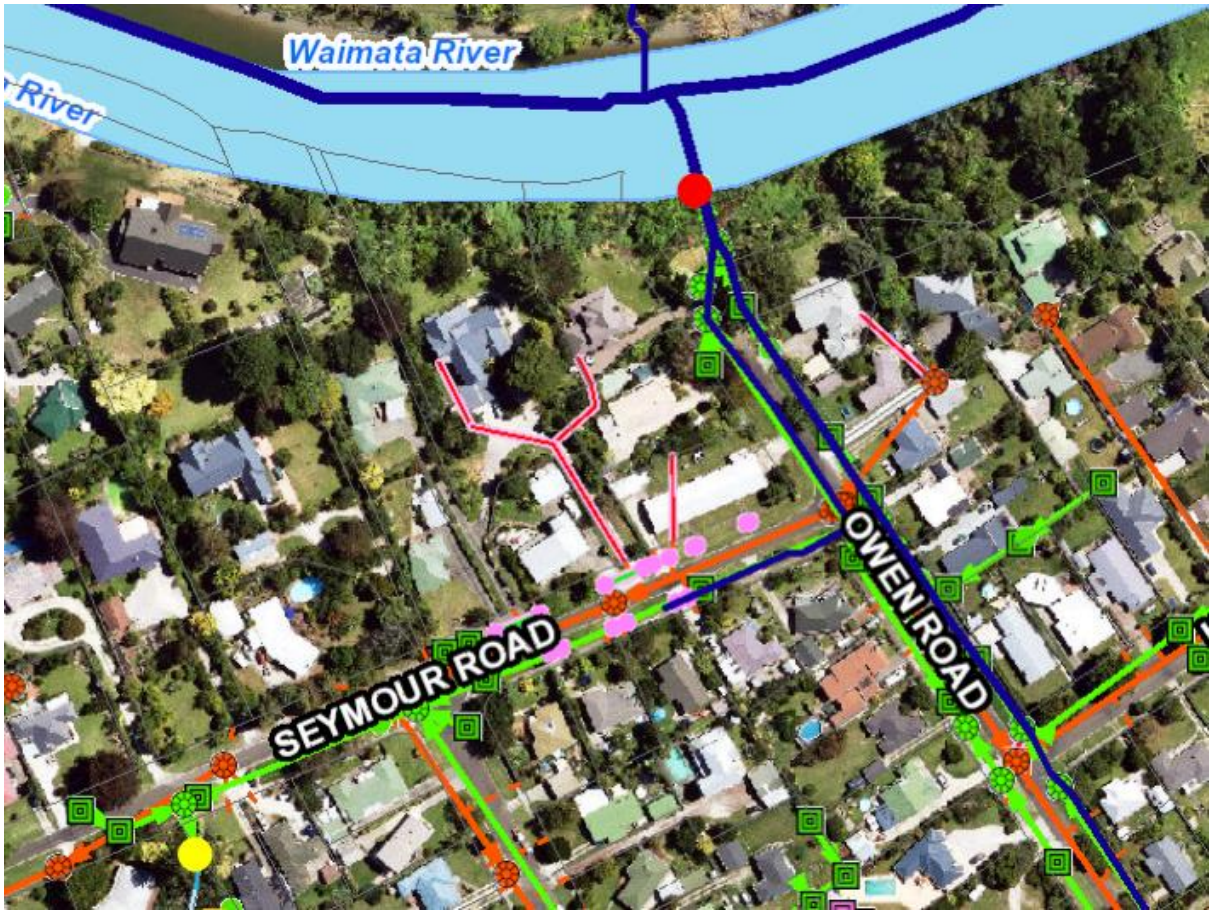

Figure 2b Proposed Owen Road wastewater overflow (red dot)

Discharges into the much larger Waimata River would pose a significantly lower risk due to dilution; the overflow would then also not be onto school or private property.

Council considers that it has significantly reduced the likelihood of wastewater overflows into Owen Drain and that programmed upgrades and alterations to the network will achieve the above.

This memo outlines what has already been done, future actions, and other mitigation measures that will to high confidence render the Seymour Road wastewater overflow redundant.

2. Addressing the issues

Recognising risks associated with this overflow point, Council has had a focus on this wastewater and stormwater catchment. This has resulted in the following actions undertaken:

Capital interventions

Stormwater:

- The stormwater network was extended onto private properties in Turenne Street in 2014, based on reported private property flooding and overtopping of gully traps which was causing the wastewater network to be inundated.
- A stormwater network performance and Rain in Grid model was completed for the Kaiti catchment in 2016, which included the Seymour Road catchment.
- The stormwater model, in conjunction with data from surveys, requests for service, and property inspections, was used to identify additional areas where public stormwater network extensions may help to reduce inflow and infiltration, to reduce the likelihood of wastewater network surcharge and resultant overflows. Four public network extensions were implemented between 2018 and the end of 2020.
- In scoping the above public network extensions, significant areas of the Seymour Road area were investigated in detail, as shown in Figure 3.

The above stormwater capital works are illustrated in Figure 4.

Figure 3 Detailed property inspections linked to public network extensions (area within yellow border)

Figure 4 Stormwater capital works in proximity to the Seymour Road wastewater network (yellow lines)

- Further stormwater modelling and options assessments for improving stormwater network performance (and reducing inflow and infiltration into the wastewater network) in the Graham Road area were undertaken in 2017, and revisited from June 2020. This resulted in the identification of additional upgrades that would serve to further improve the performance of the public stormwater network. Upgrade work is currently in the design stage, to be constructed in the 2021/22 financial year. This upgrade will include work to enable the new Waimata River overflow discharge point. The upgrade concept is shown in Figure 5. This work will serve to intercept flows prior to Grahame Road, reducing pressure on Graham Road infrastructure.

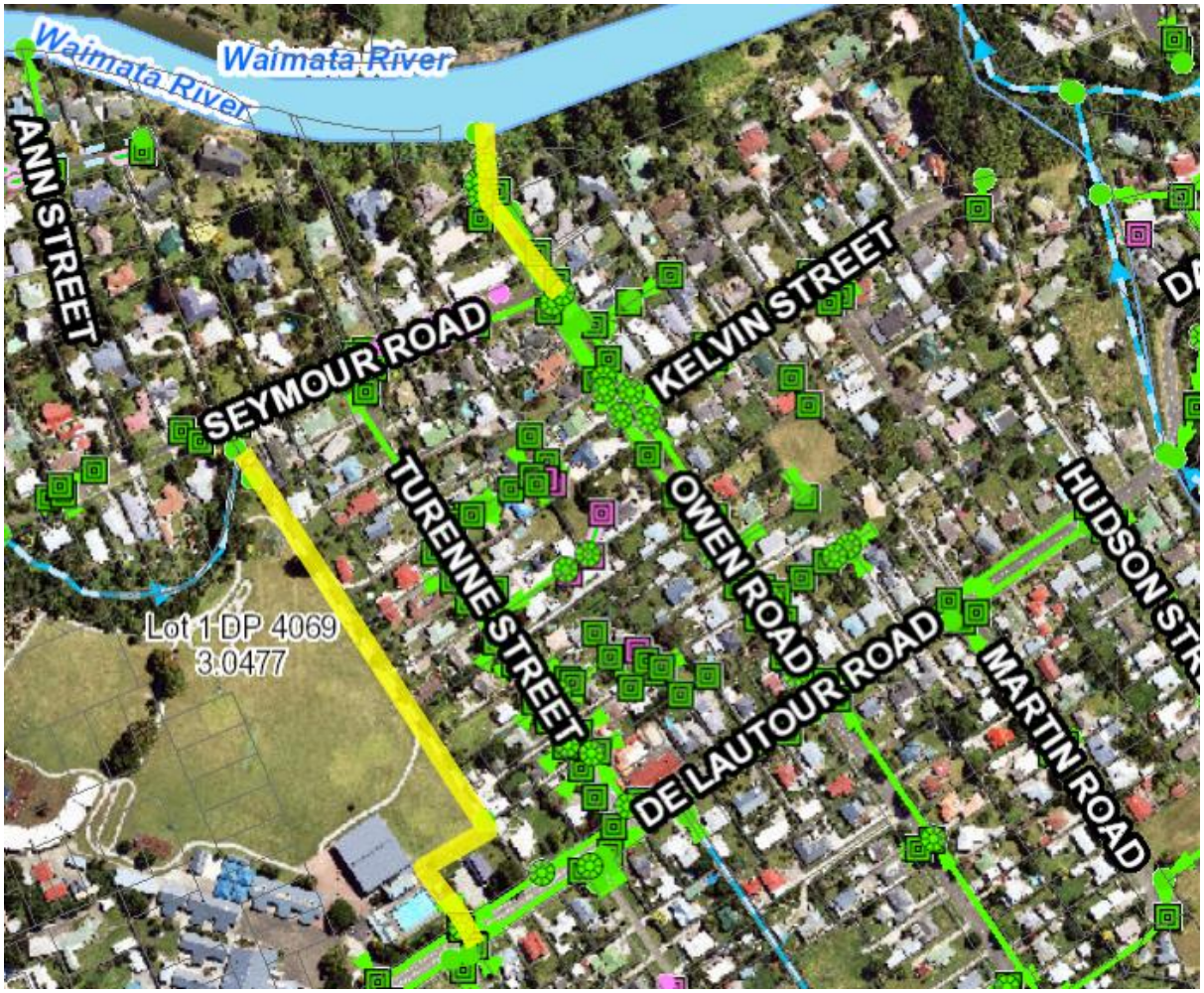

Figure 5 Stormwater capital works to improve performance at Graham Road (yellow lines)

Wastewater:

- The wastewater network was upgraded in parts of De Lautour Road and Graham Road in 2015. This is illustrated in Figure 6.
- A city-wide wastewater network model was completed in 2017, identifying network upgrade requirements relative to inflow and infiltration scenarios. This identified upgrade requirements in Harris Street and Rutene Road in the 85% fast response I&I removal scenario, which has no effect on wastewater overflows in Seymour Road. This also identified upgrade requirements at the Graham Road pump station in the 65% fast response I&I removal scenario. This has been actioned. The DrainWise team is working towards 85% fast response I&I removal.
- In an effort to better understand wastewater network performance, Council installed computerised flow and level monitoring in Turenne Street in 2020. This enabled

identification of a problem at the corner of Graham Road and De Lautour Road, which was causing surcharge in wet weather in the area between Seymour Street and Tyndall Road. A temporary fix was implemented in August 2020 to mitigate this issue in the short term, followed by more substantial works which commenced in October 2020 (permanent fix).

- Pump station upgrades have taken place across the network, to improve pump station capacity and storage and reduce back pressure.
- The risks of pump blockages or diminished capacity as a result of rags etc. have also been reduced through installation of cutter pumps.

Figure 6 Public wastewater network upgrade in De Lautour and Graham Road (yellow line)

- Council is currently assessing overflow levels of the Seymour and Owen Road wastewater manholes, overflow weirs, and pipelines, to inform design of the new Waimata River wastewater overflow point. In the event of surcharging in the Seymour Road wastewater network, the Waimata River overflow point will then be used to reduce pressure in the downstream Seymour Road wastewater network, which should mean opening of the Seymour Road overflow can be avoided. Figure 7 illustrates how the new discharge will operate (concept).

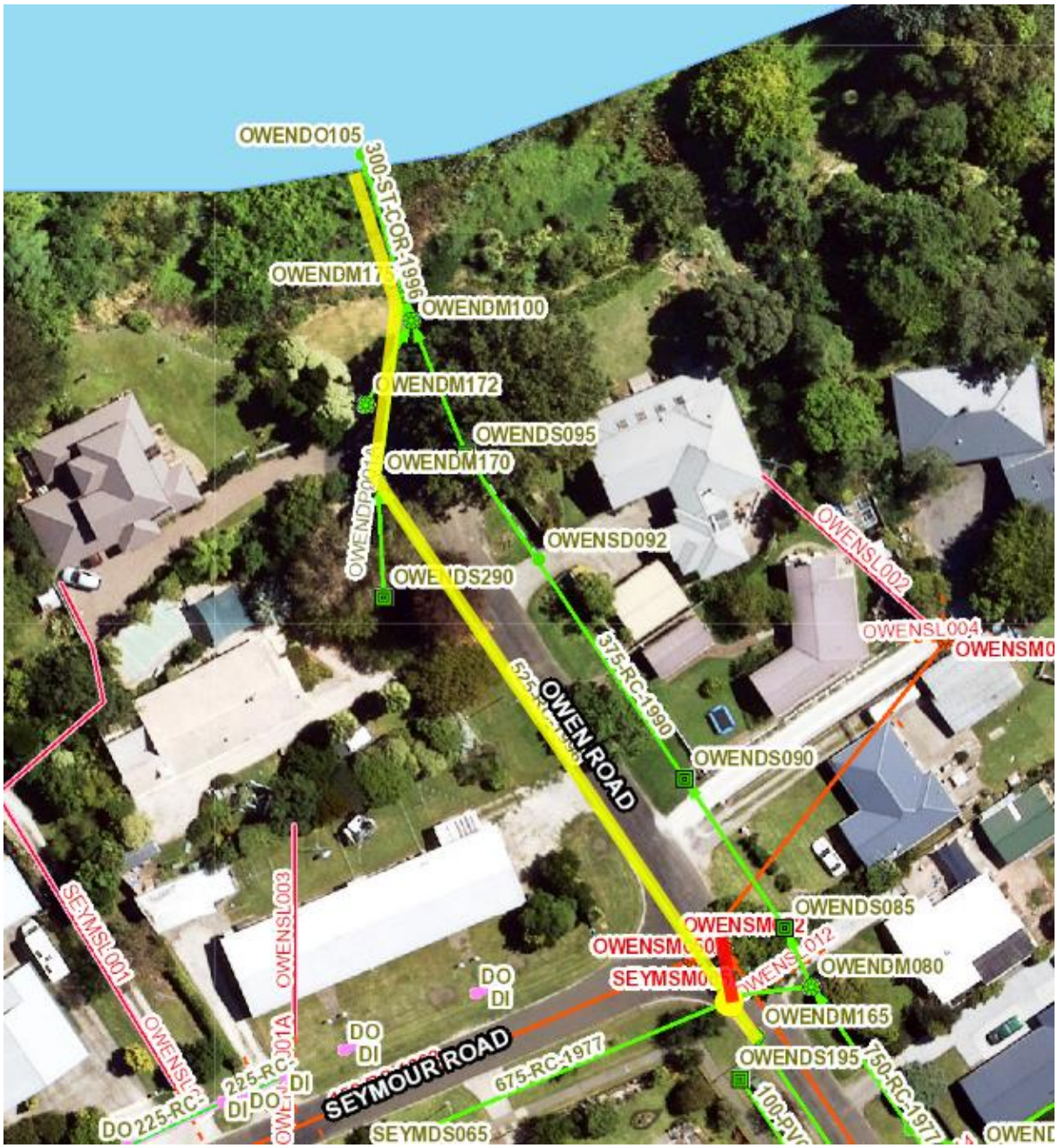

Figure 7 Waimata River overflow concept (yellow line = new SW discharge to the Waimata; red line = new overflow valve from wastewater system into stormwater network, to enable overflow into the Waimata River)

Operational interventions

The following operational activities were undertaken to identify sources of inflow and infiltration:

- The DrainWise team has in the second half of 2020 undertaken a Rapid Inflow Assessment (RIA). This work involves focussing on finding rapid response inflow (e.g. downpipes into gully traps, broken gully traps, or gully traps that are too low) and ensuring any issues are resolved. Council completes minor fixes and asks homeowners to fix bigger issues. A hierarchical approach was applied to the RIA to target the most at-risk areas first. Consequently, properties in the wastewater and stormwater catchments linked to the Seymour Road wastewater overflow point were prioritised and the Seymour / Turenne Road catchment has been completed – approximately 400 properties were inspected, with approximately 50% of these requiring gully trap fixes (that have also been implemented). Figure 8 shows the catchment that was targeted.

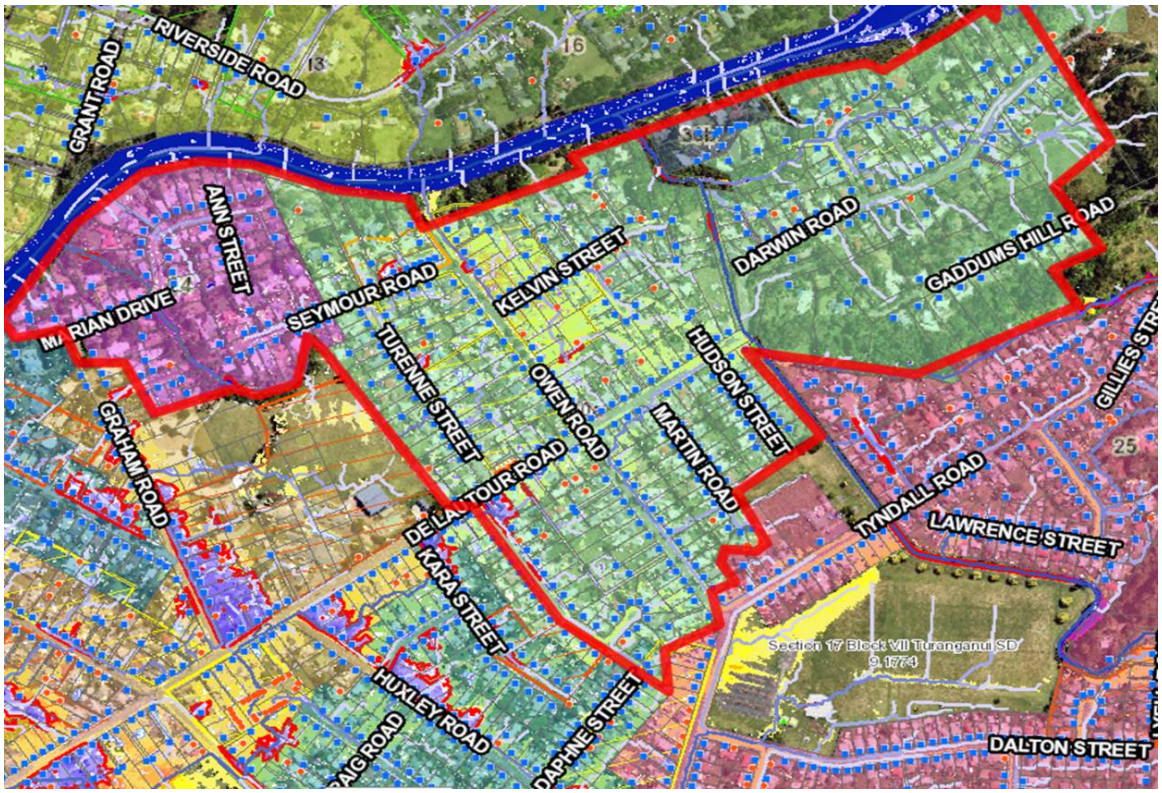

Figure 8 Seymour / Turenne priority area

- The computerised flow and level monitoring in Turenne Street is monitored in all rainfall events, to enable better understanding of the network in this location and inform operational activities during heavy rainfall events.
- A number of preventative measures are now undertaken prior to heavy rainfall events:

    - Check the Seymour Road wastewater network, including De Lautour, for any obvious issues in the network (levels in manholes).
    - Undertake any jet cleaning requirements that are identified.

- Non-return Valves (NRVs) in the area will be checked and their associated wet weather storage chambers will be pumped out prior to and after significant rainfall events.

- While Council anticipates that overflows into Owen Drain are unlikely in the future, the following will be undertaken should an overflow take place:

    - The duration of the overflow will be minimised as much as practicable.
    - Council will immediately notify the schools and work together with them to minimise health risks caused by the wastewater overflow.
    - Council will also notify all affected homeowners along Owen Drain.
    - Public health warnings will be placed at the locations in Figure 9. These will be taken down five days after closure of the overflow event or once E.coli levels are at background levels.
    - In order to test the latter, water quality samples will be compared between two locations (one upstream and two downstream of the overflow point; Figure 9). These will be taken five days after an overflow event, and daily thereafter if needed.
    - An overflow report will be produced, which will include detail on next steps to further reduce the likelihood of overflows at this location.
    - Council's maintenance contractor will inspect the stream after an overflow event, once water levels have subsided to safe levels. This will be for the purpose of removing any potential hazardous substances potentially originating from the wastewater overflow.
    - The above are in addition to the adopted Wet Weather Overflow Protocols that Council employs as a matter of course.

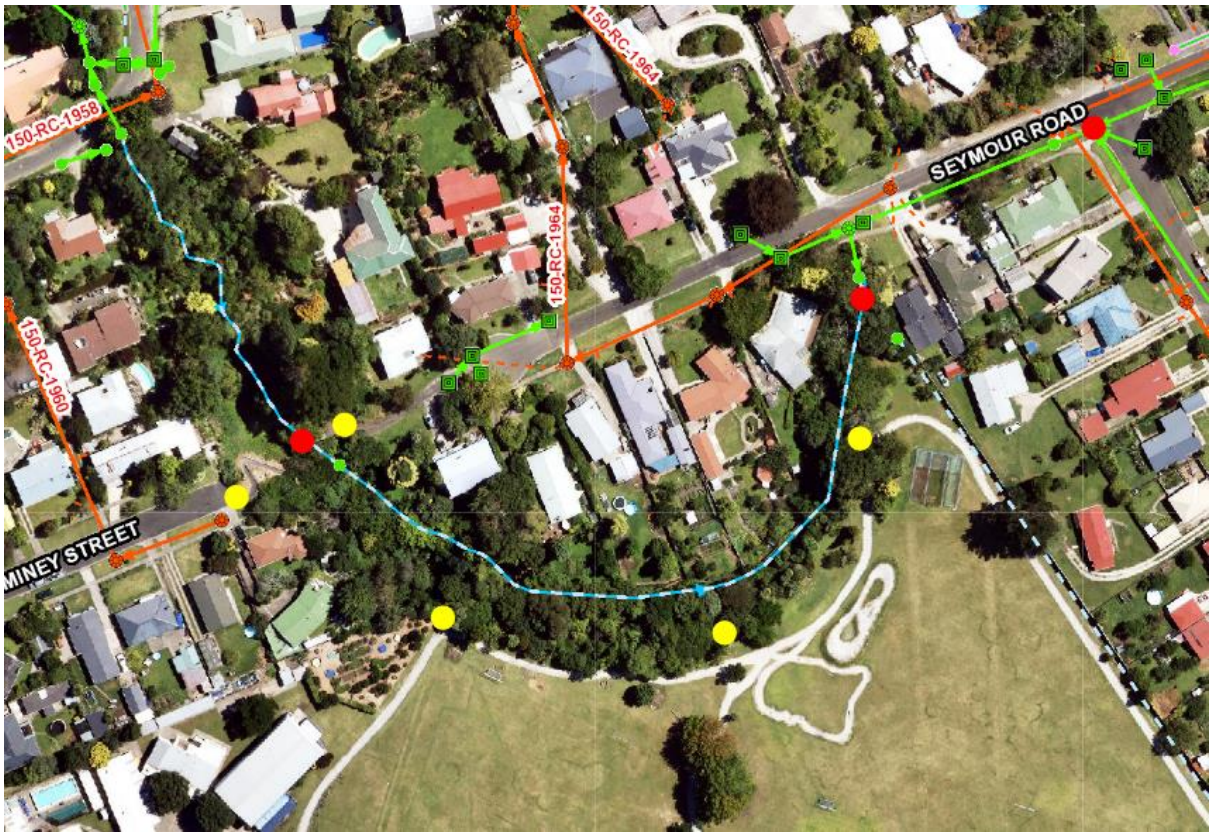

Figure 9 Location of public health warnings (yellow dots) and sampling points (red dots)

- The Turenne Street and De Lautour wastewater pipelines have been placed on an annual jet-cleaning programme, undertaken prior to winter.
- Pipe condition assessments for the 2020/21 financial year will focus on wastewater pipelines and pump stations that can influence overflows at Seymour Road. This will in turn inform Council's renewals and upgrades programme.
- A postal survey will be carried out in August 2021 (winter) across the Seymour Road wastewater catchment with property owners, to identify any issues on these properties (or in the public network) during heavy rainfall events. The survey will be accompanied with education and awareness material to focus the community on only flushing the three Ps (https://www.gdc.govt.nz/only-flush-the-3-ps) and checking their private stormwater and wastewater infrastructure.
- The area will be prioritised when the Infrastructure Improvements on Private Property Strategy (IIOPPS) is rolled out.

3. Changes in performance

The performance of the wastewater system will be monitored in rainfall events.

- Based on rainfall data since the last wastewater overflow event (17 July 2020), Council anticipates that overflows will be unlikely to occur in the Seymour Road location in the future. The wastewater network has performed adequately in relatively heavy rainfall events since that date.
- Council considers that stormwater and wastewater improvements to date, and specifically in the last year, have made a significant improvement in this area. Future work will further reduce the risks of wastewater overflows in this location.
- However, Council will continue to monitor the sewer levels 24/7 in this area.
- Local pump station data will also be analysed.
- If it looks like pressure is increasing in the Seymour Road wastewater system, Council will take a precautionary approach and engage the new overflow into the Waimata River, to reduce the chances of having a Seymour Road overflow.
- Council nevertheless considers it unlikely that the Waimata River overflow will need to be engaged.