MERG Response to the SMEC Report

Provided to the BOI and MERG by South East Water.

On behalf of the McCrae Evacuees Response Group (MERG), we wish to formally respond to selected findings in the SMEC report delivered by South East Water (SEW) to our group and the Board of Inquiry (BOI). We highlight several areas where we believe the report contains omissions, questionable conclusions, or potential errors, particularly regarding the role of water infrastructure in the landslip event.

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Executive Summary

This document outlines unsupported assumptions, contradictions, and key omissions in the SMEC report concerning the McCrae Landslip. The report's conclusion that SEW assets did not contribute to the landslip is not sufficiently substantiated and fails to consider multiple plausible mechanisms and data sources.

This review of the SMEC Report will highlight the following areas of concern:

1. Scope of the SMEC Report
2. Mechanisms or hypotheses to understand how SEW assets could have impacted the subject site
3. Oversight of Hydrological and Geotechnical considerations
4. Lack of access to key data required to provide an adequate assessment

1. Concerns Regarding the Scope of the SMEC Report

It appears SMEC were provided with a limited and selective dataset upon which to base their desktop review.

It is concerning that no additional investigations were conducted, and SMEC was not further engaged for a more thorough on-ground assessment.

We believe this limited review process raises doubts about whether the intent behind engaging the creation of this report was to support a predetermined narrative, absolving SEW of any potential involvement in the landslide.

2. Review of the Hypotheses Assessments

The SMEC report allows for three possible mechanisms to assess how SEW assets could have impacted the subject site. These mechanisms are initially outlined within the Executive Summary and later assessed within section 8 of the report.

This review highlights areas of concern within the assessment and conclusions for each of the mechanisms/hypotheses.

Additionally, these mechanisms seem to exclude the analysis of some possible methods that may link a SEW asset leak to the 14 January 2025 landslip:

1. **Recharging of natural springs** due to the Bayview Road water main burst, PSM representative Dane Pope acknowledged this is a plausible mechanism. This aligns with our concern that artificial overcharging from leaking infrastructure into pre-existing spring areas with established flow paths towards View Point Road may have contributed to slope saturation and instability.
2. Transport of water from the Bayview Road burst to the subject site via **multiple subsurface utilities** beyond SEW trench assets: water, sewer, gas, telecommunications, NBN, and stormwater services—all capable of altering subsurface water migration. These man-made features create interconnected preferential flow paths through which leaked water can travel significant distances. This reality must be acknowledged in any credible hydrological assessment.

Mechanism 1: Leak within the subject site

Based on the definition proposed within the SMEC report, this mechanism excludes the critical Bayview Road mains burst event from being analysed in relation to the View Point Road slope failure.

Pending any further documentation from SEW relating to recent bursts within100m subject site, this mechanism is ruled out.

Mechanism 2: Water travelled along SEW trench assets

This is the first mechanism proposed within the SMEC report that allows for the Bayview Road mains burst to be analysed in relation to the 14 January 2025 View Point Road slope failure.

Assessment of Hydrological behaviour:

The report acknowledges on page 1 that "there are possible routes for water to flow through the trenches of SEW assets to the subject site".

However, the report dismisses the feasibility that water from the trench could have affected the subject site, assuming it is unlikely for water "to leave the trench specifically at View Point Road, but not at other locations within the network". This rejection within the Executive Summary on page 1 seems to be contradicted by the detailed conclusions in section 8.2.5 (page 76) where SMEC considers it feasible, "that water within the embedment material continues along View Point Road, down the easement through the land of No. 14". (it is unclear if the reference to No. 14 in the SMEC Report is intending to reference the site of the landslip at No.12) We note that there is an ancient natural gully (page 20) in the subject site area, which is a logical pathway for water flowing down SEW trenches in View Point Road to be redirected into, and towards, the landslide area.

Trenches can act as preferential flow paths, the conclusion that water could not migrate from SEW trench lines to the subject site contradicts known hydrological behaviour observed in the surrounding area and no subsurface modelling was done to test this hypothesis.

This claim is further contradicted by the 2022 Coburn Ave burst event, where the SMEC report notes that 'sinkholes appeared in the private property of 23 Coburn Avenue…' (page 35), an area beyond the mains trench line and some distance from the burst main.

Reports of upwelling, seepage, ponding etc:

Additionally, the report's conclusions ignore potential lateral water migration and slope-wide saturation from resident observations of ponding and upwelling and the SEW post-repair walkover observations noted within the SMEC report (page 57).

Those SEW reports that describe upwelling and seepage behaviour six hours after the repair "a walkover survey along Charlesworth St noted water continuing flow up in the nature strip, and water was observed within the storm water drain. Twelve hours afterwards, the flow in the stormwater drain had 'slowed right down'." This observation clearly connects the slowing behaviour of this flow of water directly with the repair of the Bayview Road burst repair.

It should also be noted that water continuing to flow up and along a nature strip ~200-300m downhill from the burst site, six hours after repairs speaks to the volume of water that likely flowed through the areas in and around the subject site over the duration of the Bayview Road burst. That volume and duration of the leak is estimated within the FOI on page 132 as approximately 60ML over 60 days, at the tail end of this period the Bayview mains burst was discharging 2ML of water per day into the area.

In addition to the above, there were numerous reports of unusual water related events between Charlesworth and View Point Road:

1. Surface water in the back lawn area of 3 Prospect Hill Road
2. Sump pumps in both 1 and 5 Prospect Hill Road running longer than usual

3. The nature strip of 8 Prospect Hill Road becoming unusually waterlogged
4. The front yard of 4 View Point Road becoming unusually waterlogged

(**ML**) *A Megalitre, a unit of measurement which equates to one million litres, or 1000 tonnes of water. A significant volume with substantial potential to alter subsurface and slope hydrology, particularly in susceptible geological areas*.

In summary, the mechanism seems to have been deemed not feasible based on cherry-picked data points and observations that do not seem to consider the totality of evidence surrounding these events, some of which are noted in the same report. Numerous residents observed increased surface water from 24 November 2024 onward across multiple locations—Charlesworth Street, Waller Place, Coburn Avenue, Prospect Hill Road View Point Road, and later in December, Penny Lane. These visual observations directly contradict the assertion that no water transport or migration occurred from the Bayview Road leak into View Point Road.

Mechanism 3: Increased ground water from SEW leak

This is the second mechanism proposed within the SMEC report that allows for the Bayview Road mains burst to be analysed in relation to the View Point Road slope failure.

There are multiple areas of concern to examine within the report's assessment of this mechanism. Two of these concerns are detailed below:

Acknowledged watercourse beneath Bayview Road burst:

SMEC Report, Section 7.1.1 Geology (page 20) refers to an unnamed watercourse originating near the location of the Bayview Road leak and travelling toward the subject site, partially aligned with an existing stormwater drain and the old creek bed.

This provides a legitimate, documented subsurface path for water to travel over time. Since the exact start date of the leak remains unknown, we cannot discount the cumulative effect of long-term seepage influencing ground conditions.

A burst water main delivering continuous flow into an old creek bed or trench behaves fundamentally differently from periodic rain. The sustained, localized input leads to deep infiltration, soil saturation, and pressure buildup that can recharge old springs, activate groundwater pathways, and destabilize land—especially in areas with previous disturbance. In contrast, rainfall events, even heavy ones, are transient and allow for recovery, typically posing a much lower risk of subsurface saturation or long-term land instability.

Dismiss based on historical precedent:

The SMEC Report claims "There has been no historical precedent within the vicinity of the site, to suggest that a leak can affect the ground surface 30 m away, without defects being evident at distances closer to the source of water." This assessment of the mechanism relies on drawing parallels between the characteristics reported during the 2022 event detailed within section 7.3.2 (pages 33-41).

The report dismisses this mechanism in part due the characteristics of the Bayview Road burst not aligning with "historical precedent". This historical precedence, as defined within this report, is not satisfied as the Bayview Road burst lacks reports or observations of defects "being evident at distances closer to the source of the water". The test to meet this

criterion, while not adequately defined, is mentioned in places within the report to be "within 5m" (page 41).

The SMEC report uses the absence of observations or reports of defects near the Bayview Road burst site to dismiss the possibility of water traveling further from the burst site to the subject site. In doing so the report fails to consider contextual differences between the 2022 Coburn Ave burst event and the 2024 Bayview Road burst event that provide obvious explanation for the lack of similar reports within the vicinity of each burst.

These differences include the location of the 2024 Bayview Road burst site relative to residential areas or roads compared to the 2022 Coburn Ave burst site. Within the SMEC report the 2022 burst location is identified in Figure 22 and 23 (page 34, 35) directly underneath a residential road junction, with multiple residential properties in clear view.

Conversely, the immediate area of the 2024 Bayview Road burst is depicted in Figures 43 and 44 (page 54) within a heavily vegetated area of council or crown land, fenced off from public access. There are no roads, properties or other residential features within 5m of this 2024 burst site. Additionally, documented in the FOI release are communications dated 30 January 2025 (page 128). In these communications, a SEW representative notes the process of investigation they conducted in order to locate the Bayview Road burst, presumably this is the account of a SEW technician trained and experienced in identifying such leaks, they note that "**the burst is not something someone would have called in as it was away from any walking paths and in heavy unmaintained bushland**".

While this account could reasonably be inferred from a site-visit by an experienced person, it is unclear if this information within the FOI was made available to SMEC during the preparation of the report.

In summary, the assertion that it is not feasible for water to travel distances between the Bayview Road burst and subject site without reports of defects localised to the burst site seem unfounded and do not consider the specifics of the Bayview Road burst event.

It should also be noted that even with the above oversights, the SMEC report still concludes that it cannot "confirm or dismiss the mechanism".

3. Hydrological and Geotechnical Considerations

Artificial Overcharging and Ground Instability:

In geologically sensitive zones, burst pipes or artificial sources can elevate pore water pressure, reducing soil shear strength and increasing landslip risk—particularly near natural springs or aquifer-connected ground. The recharging of such features through leaked water is both geotechnically and hydrologically plausible.

How Water Escapes Trench Lines:

Water from a burst main commonly travels through trench backfill, then escapes into surrounding soil via:

- Lateral seepage (due to pressure gradients)
- Soil fractures, cracks, or permeable layers
- Long-term saturation of slopes or aquifer interfaces

Once outside the trench, water movement is influenced by:

- Hydraulic head
- Gravity-driven flow
- Soil permeability
- Slope geometry

This makes it possible—and even probable—for water to escape a trench at a 90° bend, continue downslope through the natural ground, and re-emerge at lower trench sections or natural outflow points.

4. Incomplete and Missing Data

By the reports own admission, the analysis and findings "are based on a data set which may not be complete and is considered smaller than what standard practice would indicate to be robust." This review agrees that the findings within the report lack appropriate consideration of or access to data in order to be considered robust.

Expanding on this admission and gaps identified in section 4.4 (page 10) of the report:

Data Gap: Late July to November 2024:

A significant data gap exists from late July through November 2024, during which residents reported increasing saturation and water pooling. These missing months may have included cumulative effects from undetected leaks.

Resident Complaints and Observations Dismissed Without Investigation:

Numerous residents reported increases in surface water flow from 24 November 2024 onward, especially at:

- Charlesworth Street
- Waller Place
- Coburn Avenue
- Prospect Hill Road
- View Point Road
- Penny Lane (in December)

Photos and firsthand accounts show water pooling on footpaths, lawns, and entering properties. These observations indicate ongoing ground saturation and surface water movement consistent with water migrating from trench lines and subsurface infrastructure.

In particular, we note the potential for water to travel downhill through 31A and 31B opposite Charlesworth Street in Coburn Ave, re-entering the sewer trench at the rear of these properties and continuing toward the VPR ancient riverbed corridor. This presents a credible pathway by which leaked water could contribute to instability along the slope and warrants further on-ground and hydrological investigation.

Lack of Telemetry or Flow Monitoring Data:

The report does not have access to reference SEW's telemetry systems, flow metering, or SCADA data. These are necessary to verify water losses or pressure changes.

Limited Site Access and Lack of Subsurface Investigation:

SMEC's site visit was drive-by only. No on-site boreholes or saturation testing were conducted. SMEC emphasizes this as a limiting factor.

Conclusion

The SMEC report, as it stands, is a preliminary, desktop-level review that lacks the depth, field data, and the comprehensive scope required for a thorough hydrological or geotechnical conclusion. Several key factors and plausible mechanisms of water migration have not been adequately addressed, and significant resident evidence and observations remain underrepresented.

Key Findings:

1. **Unsupported Assumptions and Omissions**: The report contains unsupported assumptions and key omissions, particularly regarding the role of SEW assets in the landslip event.
2. **Limited Review Process**: The constrained scope and review process raises doubts about the intent behind the report.
3. **Hydrological and Geotechnical Considerations**: The report fails to consider multiple plausible mechanisms and data sources, such as the recharging of natural springs and the transport of water through subsurface utilities and historical gulleys.
4. **Contradictions**: The report's conclusions are contradicted by known hydrological behaviour and resident observations of increased surface water and unusual water-related events.
5. **Lack of Comprehensive Data**: The report admits to being based on an incomplete dataset, lacking access to a baseline standard of data required to produce such a report.

Recommendations:

Assuming the objective was to produce a comprehensive, independent review to understand the full contribution of SEW assets to the McCrae landslip event:

1. **Include Field Data and On-Ground Assessments**: Include on-ground investigations, boreholes, and saturation testing to provide a robust and accurate evaluation of the situation.
2. **Consider Resident Evidence and Observations**: Resident reports and observations of water-related events should be thoroughly investigated and incorporated into the analysis.
3. **Utilize Complete and Accurate Data**: Ensure access to complete and accurate data, including telemetry systems, flow metering, and SCADA data, to verify water losses or pressure changes.

In summary, the current SMEC report is insufficient for drawing conclusions about the role of SEW assets in the McCrae landslip. This conclusion is acknowledged by SMEC within the report.

A more detailed and comprehensive investigation was required to address the gaps and contradictions identified in this review.