BOARD OF INQUIRY INTO THE MCCRAE LANDSLIDE

Statement of John Nicholas Bolch

I, John Nicholas Bolch of **Irrelevant & Sensitive** , licensed plumber, say as follows:

1. I am one of the residents of the property located at 605 Point Nepean Road, McCrae in the State of Victoria (the **Property**). I resided at the Property with my wife, Vicki Andrea Bolch.

2. I make this statement to provide the Board of Inquiry with my recollections of:

   2.1 the two landslides that occurred on 5 and 14 January 2025 respectively at 3 Penny Lane, McCrae (**Morans' Property**), an immediately neighbouring property located to the west of the Property; and

   2.2 the investigations I carried out independently and with Kevin Hutchings into the possible cause of the landslides from about 15 January 2025 to date. As I explain below, Kevin and I were appointed by several residents in McCrae to undertake this investigatory work, with a particular focus on locating the source of unusual water observed in McCrae in the months prior to the landslides.

3. In this statement:

   3.1 I refer to the landslide that occurred on 5 January 2025 as the "**5 January 2025 Landslide**", the landslide that occurred on 14 January 2025 as the "**McCrae Landslide**", and the two landslides collectively as the "**Landslides**"; and

   3.2 where I refer to streets, roads, avenues or any other locations, they are situated in the suburb of McCrae in Victoria unless otherwise stated.

QUALIFICATIONS AND PROFESSIONAL EXPERIENCE

4. I am a licensed and registered commercial plumber with around 50 years' experience, and currently operate my own business, Commercial Plumbing Maintenance.

5. I have been involved in various projects with entities such as Melbourne Water, South East Water (**SEW**), Greater Western Water, Yarra Valley Water, Westernport Water, and APA Gas Network. The work I have undertaken includes:

   5.1 installing water mains and large interconnection meters in new housing estates;

5.2 undertaking water connection to individual properties via a water tapping on the water authority's mains lines;

5.3 installing underground water main supply infrastructure, being the systems used to transport water within new commercial developments or residential properties, between buildings and water assets;

5.4 installing sewer lines in new and existing developments, commercial or residential housing estates, with specified fall ratios (usually 1 in 60, or a 1-meter fall over 60 meters of length) such that the downward force of gravity can ensure waste flows downhill without mechanical intervention; and

5.5 installing the external stormwater drainage system and connecting same to street stormwater pits in the Frankston City Council and other municipalities.

6. During my career, I have developed extensive knowledge of water and drainage systems throughout the southeastern Melbourne metropolitan region. Relevantly, I have experience in repairing burst water mains. A typical water main is an inground pipe that carries water to properties. From my experience, I know that water mains are normally made from materials like Unplasticized Polyvinyl Chloride (**UPVC**) and other types of PVC materials, Cast Iron Concrete Lined (CICL), polyethylene (PE), amongst other materials.

THE PROPERTY

7. The Property was purchased in January 2024, and we took possession around Easter of that year. We undertook some minor renovations and moved into the Property just prior to Christmas in 2024.

8. The Property is situated on the slope located between Point Nepean Road and View Point Road (**The Slope**). The western boundary of the Property is shared with two properties: (i) the Morans' Property; and (ii) the property located at 607-609 Point Nepean Road, which was occupied by Denise and Paul Willigenburg prior to the McCrae Landslide.

THE LANDSLIDES

The period leading up to the 5 January 2025 Landslide

9. From 21 December 2024 to 3 January 2025, Vicki and I were staying at the Property, with family and many friends visiting in those weeks. During that period, I did not observe anything on or around the Property to suggest that there was a risk of a landslide occurring in the area. There was otherwise no reason that prompted me to look for signs of, or investigate, the presence of

water on The Slope or locations, such as View Point Road, higher up on the hill behind the Property.

The 5 January 2025 Landslide

10. When the 5 January 2025 Landslide occurred, Vicki and I were not at the Property. We were on a camping trip with family along Capel Sound Foreshores, at a campsite about a 10-minute drive from the Property.

11. On 7 January 2025, Vicki and I returned to the Property to have lunch with friends. It was on that day that I first learned of the 5 January 2025 Landslide from one of our neighbours, Paul Willigenburg. On my arrival, Paul came to the Property and we had a short conversation in the front yard near the boundary fence. He told me that the 5 January 2025 Landslide had occurred on The Slope, just above the Morans' house. During that short conversation, Paul told me that he had been in touch with the Mornington Peninsula Shire Council (**MPSC**) on 16 December 2024 about a water flow from Penny Lane into the open drainage system on Point Nepean Road, outside of his property.

12. Following my conversation with Paul, I went to the balcony of the Property to see the damage to the Morans' Property but was unable to see very much due to vegetation. I did, however, observe a void on The Slope above the Morans' Property.

13. There were no visible signs of any damage or impact to the Property, which is why I only learned of the 5 January 2025 Landslide after speaking to Paul.

14. In the period between 5 January 2025 and 14 January 2025, Vicki and I did not receive any communications from the MPSC. We were otherwise not told by anyone that it was unsafe to remain at the Property or that there was a risk of a further landslide.

The period between the 5 January 2025 Landslide and McCrae Landslide — 6 January 2025 and 14 January 2025

15. On 9 January 2025, I spoke to Nick and Kellie Moran about the 5 January 2025 Landslide. They informed me that their insurance company instructed them not to reside at their house (i.e. the Morans' Property). We also discussed remediation works, and I offered them access via the Property to allow cranes and other equipment to enter the Morans' Property, if required.

16. On or around 11 January 2025, I noticed workers at the Morans' Property, who were pulling up decking at the front of the house. I thought that they were attempting to redirect water that was flowing through the Morans' Property. I saw the workers placing sandbags and installing pipes

beneath the decking structure, to direct the water down the front external staircase and towards the drains on Penny Lane.

17. On 12 January 2025, I entered Penny Lane and observed a constant stream of water flowing along the west side of the Morans' Property, down Penny Lane, and towards the spoon drain on Point Nepean Road. A spoon drain is an open, semi-circular channel that forms part of an open stormwater system, designed to direct water from a high elevation to a low elevation. The water flowing down the Morans' driveway was bordered by a fine silty sand, which appeared to have been brought down The Slope by the water. As I approached the Morans' Property, I noticed a considerable amount of water flowing from under the Morans' house and over the lower retaining wall in front of their house. I took a short video of the flowing water.

    Annexed to this statement and marked "**JB-1**" is the video I took on 12 January 2025.

18. The constant flow and volume of water was surprising and significant, especially since we had experienced a particularly dry summer. I did not understand where that water came from. I thought that the excess water was likely related to the 5 January 2025 Landslide, and I wanted to work out where it came from.

19. Consequently, later that day, Vicki and I went for a drive around the local area to locate the source of the water. While driving up Coburn Avenue (southwest of Penny Lane), I noticed water running down the kerbs along both sides of Charlesworth Street and pointed this out to Vicki as it was unusual. I also noticed that the road surface at the T-intersection where Coburn Avenue and Charlesworth Street meet (**Coburn Intersection**) was wet and spongy. By spongy, I mean that the road surface was breaking up at the intersection from water saturation. I also pointed out these observations to my wife. While we thought that the excess water was unusual, we did not conduct any further investigations on that day as we did not really have any need to do so.

The McCrae Landslide — 14 January 2025

20. On 14 January 2025, at the time the McCrae Landslide occurred, no one was present at the Property. I was at work on site at the Summerset Retirement Village in Cranbourne. While I was in a meeting, I received a missed call and voicemail message from a friend, Mark Rhodes, at approximately 8:55 am. I returned to my car minutes later and listened to Mark's voicemail. He asked if the Property was involved in the McCrae Landslide and whether we were okay. Shortly after, at 9:13am, I called Vicki — who was still at the Capel Sound campsite — and informed her of the McCrae Landslide. We agreed to meet at the Property.

21. At approximately 10:15am, I arrived at Point Nepean Road, which was closed at the Dromana end. After explaining to police that I was attempting to gain access to the Property, I was allowed

to park my vehicle closer to the Property. I met Vicki and my stepdaughter, Sasha, outside of the Property, on the beach track running along Point Nepean Rd. My immediate concern upon arriving was for the safety of my family and neighbours. I was in a state of shock.

22. Vicki and Sasha had been inside the Property prior to my arrival and took photos and videos of the Morans' Property from Point Nepean Road and the balcony of the Property. One of the videos shows water flowing down the escarpment on the Morans' Property after the McCrae Landslide.

Annexed to this statement and marked "**JB-2**" are some of the photos taken on 14 January 2025.

Annexed to this statement and marked "**JB-3**" is a video of 3 Penny Lane taken on 14 January 2025.

Annexed to this statement and marked "**JB-4**" is a video of the water flowing down the escarpment on the Morans' Property taken on 14 January 2025.

23. Vicki and Sasha were told by Victoria State Emergency Service (**VicSES**) representatives to vacate the Property shortly before I arrived. A crowd developed over the morning, and the VicSES were telling us to keep moving away, towards the beach, as they were concerned about the potential for further landslides.

24. My family and I have not been allowed to occupy the Property since 14 January 2025. We have only been allowed to access the Property by the MPSC on two occasions: first, on 14 February 2025, to secure a sliding door that had been left partially opened after the Property was ransacked sometime prior to that date; and second, on 28 February 2025, to retrieve personal items and check what had been stolen.

INVESTIGATIONS INTO WATER AS A CONTRIBUTORY FACTOR TO THE LANDSLIDES

25. During the period between 15 January 2025 to date, I have worked independently, and at times together with Kevin, to investigate the possible cause of the Landslides. We have particularly focussed on determining whether water may have been a contributory factor to causing the Landslides.

26. As I explain in greater detail below, I have conducted separately, and together with Kevin, various activities as part of the investigations including:

26.1 speaking to local residents in McCrae about their observations in the period leading up to and following the Landslides;

26.2 conducting desktop research and physical investigations of the surrounding environment in that area of land enclosed to the east of Coburn Avenue, west of Wonga Grove, south of Point Nepean Road and north of The Boulevard (**McCrae Landslide Area**); and

26.3 briefing and engaging experts and other industry professionals, including a licensed plumber and a consulting engineer, to advise on, amongst other things, water flow rates and volumes from a burst water main.

The investigations following the McCrae Landslide

The day after the McCrae Landslide — repair of potholes on Charlesworth Street

27. On 15 January 2025, I decided to take a drive around Charlesworth Street, Waller Place, Coburn Avenue and Prospect Hill Road to look for the possible source of the unusual water I had observed on and around the Morans' Property.

28. At around 12:00pm, I went to Charlesworth Street to inspect the area. I observed a pothole in the wet spongy area at the Coburn Intersection. Bollards had been put up around the pothole. The pothole was approximately 60cm in diameter and filled with muddy water. The asphalt on Coburn Avenue surrounding the pothole was visibly cracked from water damage. I know from my experience that when water gets beneath the asphalt, it can saturate the subgrade material, which is the foundational layer supporting the asphalt. This water saturation weakens the subgrade, reducing its ability to support the weight of traffic. Consequently, the asphalt layer may sink or develop depressions, compromising the road's structural integrity, which ultimately leads to potholes.

29. I also noticed that the nature strips around the intersection were sodden and that water was leaking from them into the kerbs.

30. My immediate thought was that things were not as they should be. Water does not just start bubbling up through the surface of roads in the absence of a source of supply. Due to the lack of rain over the summer, at that time, I did not think that the excess water was the result of a drainage issue.

Annexed to this statement and marked "**JB-5**" are the photographs I took on 15 January 2025 of the Coburn Intersection.

31. At the same time, I also observed that contractors, who appeared to be working for the MPSC or SEW, had opened the road surface at the intersection of Waller Place and Charlesworth Street (**Waller Intersection**), exposing the sewer trench line. A sewer trench line is the excavated area which accommodates a sewer pipe. Within a sewer trench, the sewer pipe is embedded and

surrounded by embedding material to protect the pipe from damage, such as sand, screenings, small aggregate, and fine stone dust. Materials used in and around sewer pipes in the sewer trenches are permeable and do not easily compact, which protects the pipe from being crushed but also allows water to flow easily through the trenches. The upper level of a sewer trench is also backfilled with materials such as crushed rock to allow for compaction and therefore provide support for surfaces such as roads or hardstand areas.

32. I noticed that the workers were pumping excess water from the trench line into a nearby stormwater pit. The workers then started to fill that cavity with what appeared to be screenings.

Annexed to this statement and marked "**JB-6**" are the photographs I took on 15 January 2025 of the works undertaken at the Waller Intersection.

Annexed to this statement and marked "**JB-7**" and "**JB-8**" are the two videos I took on 15 January 2025 panning between the Waller Intersection to the Coburn Intersection.

33. I spoke to the workers present who confirmed that they were going to place a relief pipe into the trench to link it to the stormwater drainage, so that the excess water in the trench could be diverted to the stormwater drainage system.

34. Having seen the wet and sludgy state of the sewer lines, and the direct pathway along the sewer manholes from Charlesworth Street to Coburn Avenue, I started to think that the sewer trench was acting as a pathway for the water to travel along. The fact that water was coming up above the roadway also indicated to me that the ground was significantly saturated with water.

35. I then made my way towards the west entry of Prospect Hill Road, where I noticed that the nature strips and house drains near the intersection of View Point Road were leaking water into the poorly maintained kerbs. House drains connect to the internal stormwater system of homes and enable water runoff from a home's roof to enter the street stormwater system at what is known as a "legal point of discharge".

36. I then walked to 5 Prospect Hill Road, where I noticed water flowing into the kerb from the house drains along Prospect Hill Road. While I cannot recall precisely when, the owner of that property told me that the sump pump for the underground garage of his property had been pumping more water than was usual from the beginning of December 2024 and for some time after the Landslides.

Annexed to this statement and marked "**JB-9**" is the photograph I took on 15 January 2025 of the kerbs located along Prospect Hill Road.

Annexed to this statement and marked "**JB-10**", "**JB-11**" and "**JB-12**" are the videos I took on 15 January 2025 of the kerbs located along Prospect Hill Road.

15 and 22 January 2025 – meetings at Dromana Community Hall

37. On 15 January 2025, Vicki and I, as well as other affected residents, attended a community session that took place at the Dromana Community Hall. This session was organised by the MPSC to provide information to residents in the immediate aftermath of the McCrae Landslide. I do not recall the specifics of what was discussed, but my understanding was that the SES and Council were telling us that measures were being taken to manage the safety of the community.

38. On 22 January 2025, Vicki and I, amongst others, attended another community session at the Dromana Community Hall organised by the MPSC. During that session, a representative of SEW, Tim Lloyd, confirmed that SEW:

    38.1 had undertaken extensive investigations in the area; and

    38.2 were quite happy with the condition of the network, describing it as "above average". I understood this to mean there was no real issue with their infrastructure in and around the McCrae Landslide Area.

39. Following the conclusion of the meeting, but while still present at the Dromana Community Hall, I asked Mr Lloyd whether any measures were going to be taken to remove the water from the landslide site. I specifically asked whether spears were going to be inserted to draw the water out from the ground. I explained to Mr Lloyd my professional background and he appeared to take what I had said on notice, although did not indicate whether he agreed with what I had said.

40. Following the second community meeting, Vicki and I went to the Pilgrim Café in Dromana. A man who I recognised from the second community session approached Vicki and me and introduced himself as Kevin Hutchings. He informed me that he was formerly the Managing Director of SEW. It was at this time that Kevin and I briefly discussed the possible cause of the Landslides. We both thought that it could be related to a water event. We informally agreed that we would work together to attempt to establish the cause of the Landslides.

24 January 2025 – return to the Coburn and Waller Intersections

41. On 24 January 2025, I returned to Charlesworth Street and observed the following:

    41.1 at the Waller Intersection, there were several workers present in hi vis clothing. They had heavy vehicle equipment but I could not see what they were doing. Annexed to this

statement and marked "**JB-13**" is a photograph I took on 24 January 2025 of the workers at the Waller Intersection; and

41.2 at the Coburn Intersection, I observed that more traffic bollards had been put in place to prevent people from driving over that intersection. Annexed to this statement and marked "**JB-14**" are the photographs I took on 24 January 2025 of the Coburn Intersection.

28 and 31 January 2025 – the McCrae Evacuees Residents Group meetings

42. The McCrae Evacuees Residents Group (**MERG**) was formed to provide a forum for affected residents to express their concerns and share information. MERG had its first group meeting on 28 January 2025 at the McCrae Yacht Club (**MYC**).

43. On 31 January 2025, the MERG met again at the MYC. At this meeting, Kevin and I took up the task to look into the possible cause of the Landslides, with the hypothesis being that it was related to some water event, given the amount of damage to road surfaces and running water in the kerbs and nature strips in the McCrae Landslide Area.

10 February 2025 – understanding the location of local water infrastructure

44. Starting on 10 February 2025 (and continuing throughout the investigation), I started to review maps and plans obtained via Before you Dig Australia (**BYDA**). This was done to understand what assets were in the McCrae Landslide Area to assist with the investigation. The significance of these maps is explained later in this statement, particularly at paragraph 61 below.

Mid-February 2025

45. On or around 14 February 2025, Kevin and I were looking at the stormwater pits on Waller Place. This location is proximate to the Mornington Peninsula Freeway, under which water, stormwater and sewer pipes run.

46. Kevin and I spoke to the owner of 5 Waller Place whose name is Brett Cooper. Brett came out to the front of his property to talk to us as he could see we were looking around the area. Brett informed us that his property is subject to an easement to enable authorities to access utility assets like stormwater pipe work and pits, sewer pipes and water mains.

47. During our conversation with Brett, he told us that:

47.1 prior to Christmas day, 24 December 2024, he had noticed an unusual, roaring noise coming from the stormwater system running alongside and immediately behind his property, on the northern side of the Mornington Peninsula Freeway. Brett explained that

he could hear the noise coming from the large stormwater pit at the rear of his property, as well as the grated pits at the front of his property;

47.2 he thought the noise was being caused by a considerable amount of water flowing through the stormwater system that runs alongside his home, perpendicular to Waller Place and the Mornington Peninsula Freeway;

47.3 he was concerned because he had not really heard that sort of volume of noise coming out of the stormwater system before, so he started investigating the source of the water. After inspecting the area around his property, Brett had formed the view that the water in the stormwater pits near his home likely originated from the other side of the freeway (i.e. the southern side), which is uphill;

47.4 on 24 December 2024, he spoke to SEW workers who were undertaking leak detection work around his home. He told them they were looking in the wrong place. He suggested that the site of the water leak was likely to be on the other side of the Mornington Peninsula Freeway; and

47.5 on 25 December 2024, he walked around to the grassed area to the northwest of the intersection of Bayview and Outlook Roads (immediately northwest to The Boulevard Reserve) (**Suspected Burst Site**) to locate the origin of the water that he could hear in the stormwater pits near his property. When he arrived at the Suspected Burst Site, he could clearly hear running water and noted that the ground was completely saturated. It was so wet that he was sinking down into the ground.

48. Brett also told us that SEW had undertaken repair works on a burst water main at the Suspected Burst Site on New Year's Eve. He told us that the noise from the stormwater assets had reduced and became near silent not long after the repairs were undertaken.

49. On 14 February 2025, at approximately 2:50pm, and after we spoke to Brett, Kevin and I went to inspect the area to which Brett was referring. I will refer to the area as the "**Burst Site**" from this point forward.

50. The Burst Site is an area that consists of two zones, separated by a cyclone or chain link fence:

50.1 the first zone, in front of the chain link fence, appeared to have been recently dug up. I thought that it was likely repair works had been undertaken on water assets in that area as I could see new top soil and seedlings; and

50.2 the second zone, behind the chain link fence, is densely covered by brambles, bushes and trees.

51. On inspecting the Burst Site, it was apparent to me that there had been a large amount of water in the area. While the ground was not spongy at that time, there were clear signs of significant erosion including fallen trees and lots of displaced sand indicating water had washed over the surface. The fallen trees still had fresh foliage, which suggested to me that they had fallen over recently. They did not appear to have been laying there on their side for years. I thought that the ground conditions must have become very wet in that area in the weeks or month prior, such that the trees lost their grip and eventually fell over.

52. I observed the presence of two water valves, as well as an inground ball hydrant (also known as a washout point). The water valves are used to isolate water that flows through the mains, usually so that maintenance and repairs can be undertaken on pipes without having water flow through the pipes. A washout point is a type of hydrant that is used to drain water from a water main to which it is connected for cleaning or flushing purposes, and for use by the fire brigade. I will return to this washout point later in my statement at paragraph 71.

Annexed to this statement and marked "**JB-15**" are the photographs I took on 14 February 2025 of those water assets.

53. I then crossed the road and viewed the culvert located at The Boulevard Reserve as it is upstream from the Burst Site. The culvert was overgrown and dry. This confirmed two things:

53.1 that water had not recently been flowing through the culvert downhill; and

53.2 that the water Brett had observed in the stormwater assets over December 2024 likely came from the Burst Site.

Annexed to this statement and marked "**JB-16**" is the photograph I took on 14 February 2025 of the culvert at The Boulevard Reserve.

20 and 21 February 2025 – return to the Burst Site

54. On 20 February 2025, I returned to the Burst Site for two reasons:

54.1 to take further photographs of the area; and

54.2 to locate the first stormwater pit downstream from the culvert located at The Boulevard Reserve (**First Stormwater Pit**). I knew about its existence from plans I had obtained from BYDA, which show the MPSC's stormwater drainage plans that run from The

Boulevard and under the freeway, travelling in a downhill northerly direction. I wanted to find that stormwater pit to consider its condition to see if there were any blockages and to satisfy myself that the plans supplied by BYDA were correct.

Brett was also present during this visit.

55. We were unable to locate the First Stormwater Pit. Whilst we at the Burst Site, I observed that the ground beyond the chain link fence, in particular downstream towards the Mornington Peninsula Freeway, showed clear signs of having been washed away by water and, again, there was a considerable amount of displaced sand.

Annexed to this statement and marked "**JB-17**" are the photographs I took on 20 February 2025 of the area near the Burst Site.

Annexed to this statement and marked "**JB-18**", "**JB-19**", and "**JB-20**" are the videos I took on 20 February 2025 of the area near the Burst Site.

56. On 21 February 2025, I returned to the Burst Site to take further photos and attempt to locate the First Stormwater Pit. I was able to locate the First Stormwater Pit along the northern side of Bayview Road buried under long grass and small shrubs. I noted that the pit was very deep, approximately 3.5 meters. I opened the concrete lid to look inside and saw that it was in good condition — there were no blockages. I also saw an intersecting pipe not shown on the plans entering from the east of the pit at about 1.5m below ground that showed a continual and steady water flow, but not of any great volume. This indicated to me that there was a source of water supplying that pipe causing water to flow into the First Stormwater Pit constantly.

57. I ventured further. I was able to locate the next two stormwater pits north of the First Stormwater Pit, located closer towards the Mornington Peninsula Freeway. The first of the two stormwater pits was in the heavily vegetated area beyond the chain link fence. The second was alongside the Mornington Peninsula Freeway, just behind the barrier railing on the south side of the freeway. Both stormwater pits seemed to be clear of any rubbish or anything that could cause a blockage. Further, the areas surrounding those grated pits appeared to be quite dry. This indicated to me that there had not been a substantial amount of surface water entering these pits.

27 February 2025 – return to the Burst Site and Coburn Intersection

58. On 27 February 2025, I returned to the Burst Site with Kevin to gather further information as part of our investigation. Brett also joined us. I do not recall seeing any obvious changes to the Burst Site during that visit.

59. Later that day, I returned to the Coburn Intersection. I observed that the bollards were still in place, and that the potholes had not been repaired. I also noticed that one of the bollards had sunk into the road surface. Water had just about stopped flowing from the surrounding nature strips and the area looked to be drying out. I thought at the time that the repairs at the Burst Site must have ceased the supply of water, thereby lowering the levels of saturation on the hillside.

Annexed to this statement and marked "**JB-21**" are the photographs I took on 27 February 2025 of the Coburn Intersection.

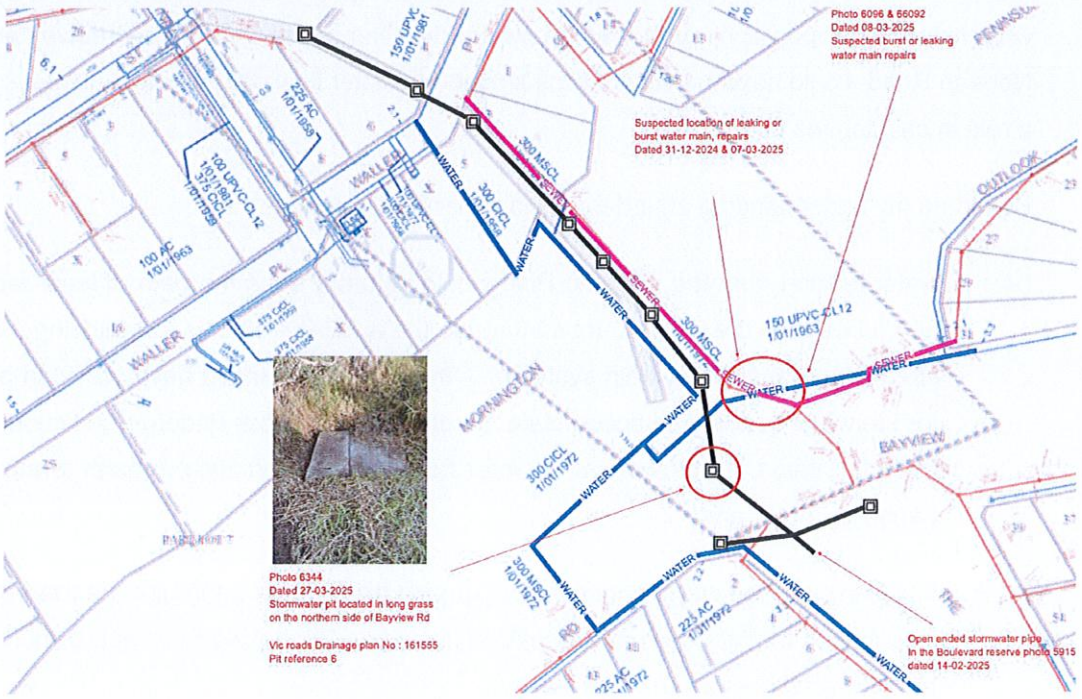
28 February 2025 – return to the Property

60. As explained above, on the morning of 28 February 2025, we were allowed to return to the Property for about an hour. While present at the Property, I was able to observe the back of the Morans' Property. I saw that there was a build-up of silt and dirt which appeared to be diverting the flow of water out of the escarpment away from Penny Lane and down the fence line towards the Property.

Annexed to this statement and marked "**JB-22**" are the photographs I took on 28 February 2025 of the Morans' Property.

Early March – drawing the information together

61. Having collected all this information, I have caused to be prepared an annotated map (extracted below), which is an overlay of two SEW maps I obtained from BYDA:



62. There are a few things to note about that annotated map:

62.1 the bolded lines, which I have caused to be added, shows the network of water mains, sewer and stormwater assets under the Mornington Peninsula Freeway and the surrounding area. The water mains pipework is shown by the blue lines. The sewer pipework is shown by the pink lines. The stormwater pipework is shown by the black lines, which is based on my understanding of stormwater drainage plans I obtained from VicRoads and accessed via the MPSC GIS;

62.2 according to SEW's map, the water mains pipe that runs through the larger red circle is a 150mm UPVC pipe (the **Affected Pipe**). The nominated date for the Affected Pipe is 1 January 1963, which I understand approximates when the Affected Pipe was installed; and

62.3 the larger red circle indicates my best estimate of the approximate location of the leak or burst on the Affected Pipe.

Annexed to this statement and marked "**JB-23**" is a copy of the annotated map.

63. The location of the water infrastructure assets under the Mornington Peninsula Freeway is noteworthy. I understand, from conversations with Brett, that the area under the freeway and through which the pipework runs was originally an open creek bed. That creek bed was filled in and dual 750mm stormwater pipes were installed during the construction of the Mornington Peninsula Freeway. This has caused me to think that the modifications to infrastructure, coupled with the natural topography of the land between the Mornington Peninsula Freeway and Point Nepean Road, could have significantly influenced the water flow patterns, and ultimately played a role in causing the Landslides.

64. Based on my understanding of underground water flow, I believe that:

64.1 water leaking from the Affected Pipe would naturally seek the path of least resistance, which likely led the water to travel through the existing trenches surrounding the sewer, stormwater, and water main systems — those trenches could have provided pathways for the water to flow and accumulate. In other words, these underground channels may have facilitated the movement of water from the Affected Pipe through to the McCrae Landslide Area; and

64.2 it is likely that the water saturated the ground and surfaced through the road at various locations in the McCrae Landslide Area, including Charlesworth Street, Coburn Avenue and Waller Place (as described above).

7 March 2025 – return to the Burst Site

65. On 7 March 2025, I attended the Burst Site with Kevin and various MPSC representatives and Mr Dane Pope of PSM (geotechnical firm engaged by the MPSC). Kevin and I wanted to explain to the MPSC our theory that there was water leaking from a pipe at the Burst Site that had likely travelled down the hillside towards the escarpment. We were keen to share with the MPSC all the information we had gathered since the McCrae Landslide. I do not recall the specifics of the feedback we received, but there was no indication from the MPSC representatives that specific action was going to be taken in response to the information we had shared.

66. During the site visit, I observed that the soil at the Burst Site was moist again, after Mr Pope commented that the ground was wet. There was a slight pooling of water in an area that was aligned to the Affected Pipe, and close to where I suspected it had burst. This indicated to me that the Affected Pipe could still have been leaking.

67. At 5:32pm on 7 March 2025, I received a text message from Derek Rotter of the MPSC, which stated that SEW were attending the Burst Site and fixing a leak.

68. During the evening, Vicki and I, on our way to dinner, returned to the Burst Site and observed SEW contractors and various vehicles present. At about 7:00pm, I spoke to a SEW supervisor who confirmed that there was a minor leak to assets about 5 metres away from the initial burst (**Repair Site**). I also spoke to a Service Stream contractor, who confirmed that SEW had attended the Burst Site on 31 December 2024. Later that evening and after dinner, Vicki and I went back to the Repair Site at about 8:49pm and saw that the contractors were still present.

Annexed to this statement and marked "**JB-24**" is a screenshot of Mr Rotter's message to me and the photographs I took on 7 March 2025 of the contractors at the Repair Site.

8 March 2025 – return to the Burst Site and Repair Site

69. On 8 March 2025, I went back to the Burst Site and Repair Site. The contractors were no longer present. I noticed that the chain link fence between the Burst Site and the Mornington Peninsula Freeway had been further dismantled, with an orange temporary barrier fencing having been erected. The Repair Site (the ground in the immediate vicinity of the temporary fencing) appeared to have been dug up and refilled very recently. Parts of the ground appeared to be partially moist.

Annexed to this statement and marked "**JB-25**" are the photographs I took on 8 March 2025 of the Repair Site.

27 March 2025 – undertaking testing at the Burst Site

70. After accumulating all this information, I became very interested in the water mains in the Burst Site and Repair Site. I wanted to understand to a better extent the pressures and flows of water at that location to calculate the volume that had potentially been leaking out of the Affected Pipe into the McCrae Landslide Area in the lead up to the Landslides (and potentially beyond).

71. On 27 March 2025, I attended the Burst Site to undertake such testing. Given my work as a commercial plumber, I own an Ambit Instruments' PF-1D Hydrant Tester (the **Testing Equipment**), which I hooked up to the inground ball hydrant, about 15 metres downstream from the Suspected Burst Point. That hydrant in turn is connected to the water mains and, specifically, the Affected Pipe (150mm UPVC pipe).

72. While water mains are designed to handle high-pressure conditions, they can split and fail. When a water main splits, it creates an orifice through which water can leak into the surrounding environment. I did not know at that time (and still do not know) the size of the orifice through which water was leaking from the Affected Pipe. For the sake of the testing, I set up the Testing Equipment with a 25 mm orifice.

73. Once the Testing Equipment was fitted, I was able to take the following readings in relation to the Affected Pipe:

    73.1 the static water pressure was 750 kPA, being the pressure that is exerted by the water on the closed valve of the Testing Equipment. That is a significant amount of pressure, especially when you consider the age of the Affected Pipe, the fall of the land and the head pressure from further upstream in the network; and

    73.2 water was flowing through the water main at a rate of 16.79 litres a second at 590 kPa from a fully open 25 mm orifice. This equates to a flow rate of just over 1,000 litres per minute, which further equates to 60,000 litres per hour and 1,440,000 litres per day.

    Annexed to this statement and marked "**JB-26**" are the photographs I took on 27 March 2025 of the Testing Equipment.

74. Using that data, I have calculated the potential leak volume for two different periods as follows:

    74.1 **38 days of leakage**, on the assumption that the leak persisted between 24 November 2024 and 31 December 2024 (I explain these dates below) — a leak over this period would have released **54,720,000 litres of water** (1,440,000 x 38 days). To contextualise this figure, an Olympic-sized swimming pool holds approximately

2.5 million litres of water. Therefore, 54,720,000 litres of water is equivalent to about the volume of water held in 22 Olympic-sized swimming pools.

I have used these dates based on information that Kevin has told me. Namely, that: (i) on 24 November 2024, a resident reported water leaking through the road on Charlesworth Street; and (ii) on 31 December 2024, SEW attended the Burst Site to conduct repairs.

74.2 **60 days of leakage**, on the assumption that the leak commenced about 3 weeks prior to 24 November 2024 — a leak over this period would have released **84,400,000 litres of water** (1,440,000 x 60 days), which is equivalent to about 34 Olympic-sized swimming pools' worth of water.

75. I found these figures to be alarming. As I explain below at paragraphs 80 to 85, I sought to have these figures independently verified by a licensed plumber and a consulting engineer.

76. Following the completion of the testing, I inspected the kerb and stormwater pits along Bayview Road, immediately in front of The Boulevard. I observed the kerb and channel, as well as the stormwater pits, to be full of gravel, which indicated to me that the stormwater assets were being inadequately or poorly maintained.

Annexed to this statement and marked "**JB-27**" are the photographs I took on 27 March 2025 of the Burst Site, and the kerb, channel, and stormwater pits along Bayview Road.

Annexed to this statement and marked "**JB-28**" is a video I took on 27 March 2025 of the kerbs and stormwater pit along Bayview Road.

2 April 2025 – stormwater system works

77. On 2 April 2025, I observed Fulton Hogan, who I now know to be contractors of the MPSC, working on the stormwater pits at the intersection of Coburn Avenue and Prospect Hill Road on the western entry point of that intersection. I could not see what kind of works were being undertaken.

11 April 2025 – return to Prospect Hill Road

78. On 11 April 2025, I returned to 5 Prospect Hill Road. I observed that the water flow along the kerbs in front of that property had reduced (as compared to when I previously viewed them on 15 January 2025), with the kerb and channel only showing water stains on the concrete.

Annexed to this statement and marked "**JB-29**" are the photographs I took on 11 April 2025 showing the kerbs and channel along Prospect Hill Road.

79. I do not recall precisely when but within the last 30 days or so, the owner of 5 Prospect Hill Road told me that the sump pump activity (explained at paragraph 36 above) has returned to its pre-December 2024 functioning. I understood this to mean that the abnormal underground flow of water under Prospect Hill Road had ceased.

12 April 2025 – further testing at the Burst Site

80. As noted earlier in this witness statement, I wanted to obtain testing results from an independent third party to verify the testing results I obtained in respect of the Affected Pipe. To that end, on 2 April 2025, I contacted Ronny Allard of Fair Fire Services — a licensed plumber specialising in, amongst other things, water flow testing — via text to organise for him to attend the Burst Site. I asked him to undertake testing of the water flow and pressure of the Affected Pipe, in accordance with industry standards.

81. On 12 April 2025, I met Mr Allard at the Burst Site. Mr Allard hooked up his own testing equipment to the same washout point I had used on 27 March 2025. I observed Mr Allard undertake testing with single and dual hydrant flow capabilities. A single hydrant flow test assesses the water flow capacity through one outlet, whereas a dual hydrant flow test assesses the water flow capacity through two outlets.

82. Mr Allard's testing confirmed that the static pressure on the Affected Pipe is 750 kPa. As to water flows, with a nozzle size of 25mm, Mr Allard's testing yielded the following results:

    82.1 single hydrant flow rate of 15.52 litres per second at 500 kPa; and

    82.2 a dual hydrant flow rate of 23.23 litres per second at 280 kPa.

83. Mr Allard concluded that due to the discrepancy in the readings between the static pressure (750 kPA) and the dual flow pressure (280 kPA), there "*may be an obstruction or issue affecting the flow. Based on my experience, a static pressure of 750kPA should typically yield a flow pressure greater than 400 kPA*". He identified two possible causes of the issue: (i) a partly shut valve in the area, restricting flow; (ii) leak in the street water mains, hindering flow.

    Annexed to this statement and marked "**JB-30**" is Mr Allard's report dated 12 April 2025.

23 April 2025 – computation of leakage by consulting engineer

84. On 9 April 2025, I contacted Andrew Christofi, a consulting engineer and Director of A. Christofi & Associates and Fire Hydrant Design. I engaged him to undertake a computation of the water flows and estimates of leakage volume at the Burst Site on the assumption that a 150mm UPVC water main had been leaking for 60 days. I wanted him to undertake this computation by

reference to industry standard figures. I supplied Mr Christofi with a SEW document entitled "Pressure and flow information – single tapping fire flow" — which I obtained online after paying a fee — in respect of the Affected Pipe, which shows flow rates at various meterage points.

Annexed to this statement and marked "**JB-31**" is a copy of the SEW document entitled "Pressure and flow information – single tapping fire flow".

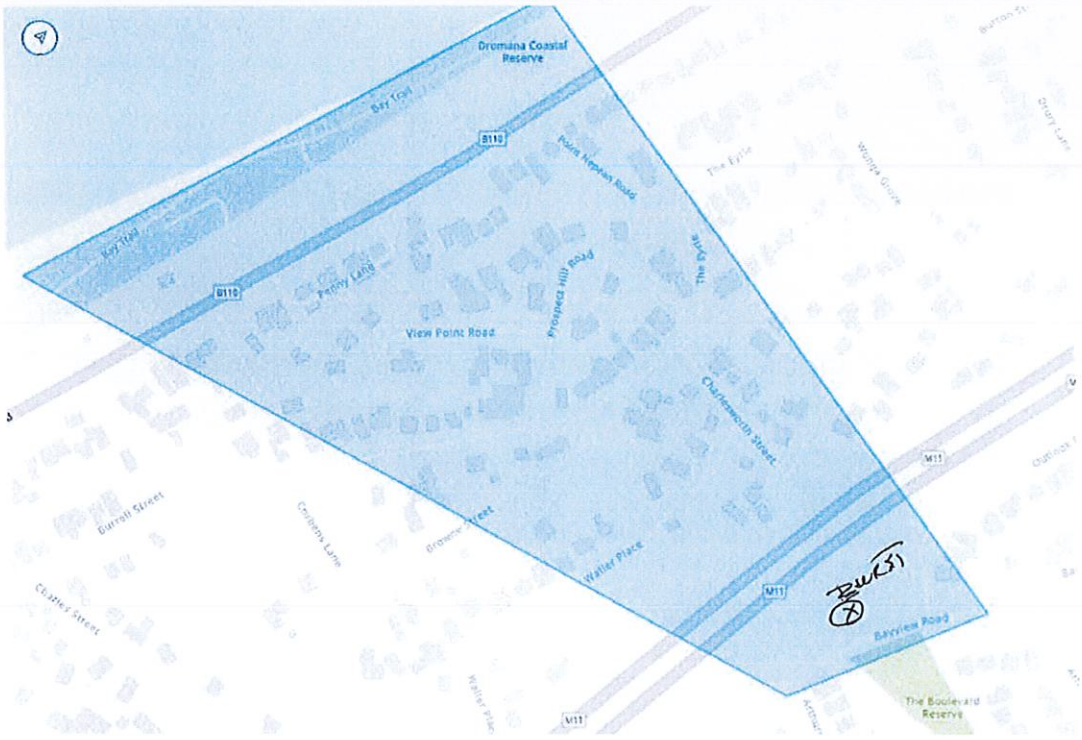
85. On 23 April 2025, I received an email from Mr Christofi, enclosing a computation of simulated flow rates to estimate the water flow from the Affected Pipe (**Christofi Report**). The Christofi Report suggests that **81,776,000 litres of water** could have leaked from the Affected Pipe over a **60-day period** (about 33 Olympic-sized swimming pools).

Annexed to this statement and marked "**JB-32**" is a copy of the Christofi Report.

THE BURST WATER MAIN THEORY

86. Based on the investigations conducted between mid-January and early March 2025, in my opinion, water saturation of the McCrae Landslide Area has been a significant contributing factor to the Landslides. The excessive water accumulation, potentially exacerbated by ongoing water leakage and inadequate stormwater drainage management, likely played a central role in destabilising the surrounding land and precipitating the Landslides.

87. Set out below is a map I prepared which shows the potential area of water saturation caused by the burst of the Affected Pipe shaded in blue (based on the topography of the McCrae Landslide Area):



CURRENT STATUS OF OUR INVESTIGATIONS

88. Between early February 2025 and March 2025, I wrote to both the MPSC and SEW requesting further information in connection with the maintenance and condition of water infrastructure in the McCrae Landslide Area. Specifically, I have requested:

88.1 from the MPSC, stormwater drainage maintenance and service records for the past 3 years in respect of the network running from The Boulevard Reserve to Point Nepean Road — via the Mornington Peninsula Freeway, Waller Place and Charlesworth Street; and

88.2 from SEW, information in relation to the following matters (without being exhaustive): (i) all leaks and bursts in SEW's network in McCrae in the past 12 months; (ii) whether SEW investigated the water exiting the Coburn Intersection; (iii) whether SEW has tested the water main and sewer pipes under the Mornington Peninsula Freeway for leaks; and (iv) whether SEW has tested its network south of the Mornington Peninsula Freeway for leaks.

89. To date, I have not received any meaningful responses from the MPSC or SEW.

90. In the absence of information from SEW and the MPSC, Kevin and I are limited in our ability to further progress our investigations.

91. Through the investigatory work I have undertaken to date, I have not identified, nor have I been advised of, any alternative source that could reasonably explain the unnatural water flows observed at various locations within the McCrae Landslide Area in the months leading up to the McCrae Landslide.

Dated:

Irrelevant & Sensitive 14-05-25

John Nicholas Bolch