Board of Inquiry into the McCrae landslide

Before: The Chairperson,
Ms Renée Enbom KC

County Court of Victoria,
250 William Street, Melbourne, Victoria

Thursday, 8 May 2025 at 10.15am

(Day 2)

Mr M. Costello KC with Mr A. Di Stefano and Ms A. Kittikhoun appeared as Counsel Assisting.

Ms K. Evans KC with Ms E. Peppler and Mr C. McDermott appeared on behalf of the State of Victoria.

Ms K. Foley SC with Ms E. Bateman, Mr C. Viney and Dr W. Phillips appeared on behalf of the Mornington Peninsula Shire Council.

Ms D. Siemensma appeared on behalf of South East Water Corporation.

CHAIRPERSON: Good morning, everyone. Mr Costello, which witness are you calling first this morning?

MR COSTELLO: Good morning, Chair. Calling Mr Dane Pope.

CHAIRPERSON: Is Mr Pope in the room?

MR COSTELLO: He is.

<DANE RICHARD POPE, affirmed

<EXAMINED BY MR COSTELLO

CHAIRPERSON: Mr Pope, thank you for coming along today. Counsel assisting will ask you some questions, and when he finishes others may wish to ask you some questions as well.
A. Sure. No worries.

MR COSTELLO: Thank you, Chair. Thank you, Mr Pope. Mr Pope, could you just state your full name for the record, please?
A. Dane Richard Pope.

Q. And your professional role?
A. I'm a principal geotechnical engineer at PSM. I'm the ops manager for the state office as well, for Victoria.

Q. Thank you. And your business address?
A. 60 Moorabool Street in Geelong.

Q. Thank you. Have you given evidence before, Mr Pope?
A. Yes.

Q. Okay. This is something that you do from time to time as part of your professional role?
A. Once. So once in the Supreme Court of Victoria, yes.

Q. "From time to time" is probably overstating it?
A. Yes.

Q. All right. There should be some water there if you need it.
A. Sure.

Q. And, with a bit of luck, the screen that's immediately in front of you will have a green board of inquiry screen at the moment?

A. Yes.

Q. Okay. That's good. I'll show you some documents from time to time. You'll be familiar the vast bulk of them. Before we get into specifics, Mr Pope, could you just tell the chair your professional qualifications?
A. So I'm a civil engineer by trade. So the first degree was a civil engineering degree. Some time later went back and did my masters in engineering science, which is the - specialise in geotechnical engineering at UNSW. Pretty much worked in the geotechnical field my entire career, which is about - roughly 19 years to date.

Q. Outside of the McCrae events that this board of inquiry is concerned with, have you been involved in work in connection with landslides before?
A. Yes, since I'd say roughly 2010 landslide work has been a constant in my career. It's not all of my work. So from time to time it will be 100 per cent of our books. But I'd say it's a mix at the moment of - at least 100 per cent, but normally we're on the mix of industrial, landslide - and the landslide work will be for property developers, asset owners, also DTP. Yes, it's a mix. Yes.

Q. All right. Could you give the chair an explanation of some of the landslide work you've done before, the type of the work, whether it's, for example, investigating the cause of landslides or if it is before that, trying to prevent landslides?
A. Sure. So I guess a pillar of my experience is a period from I'd say 2011 to 2015 when I worked in open-cut coal mining, and at that time there was a few coal mines that were pushing designs pretty hard, and so in that period of time I was actively using monitoring systems to help the miners basically recover as much as they could safely. And so in that setting I saw a lot of slope failures, and big slope failures. Mining's a different setting to the civil world where you can be a bit more aggressive and you need to be a bit more aggressive in what you do. And, with that skill set, roughly 2015 moved to Geelong and changed - switched out of coal mining into essentially residential geotechnics. And so for four years I did a lot of residential based geotechnical work, and a lot of that was landslide risk.

Unfortunate for the people involved but fortunate for me as a professional, I worked on the Wye River/Sep Creek

rebuild after the bushfires, and in that time I would have looked at between, say, 20 to 25 properties for insurers or property owners with a view to either getting their claims or rebuilding. So that would have run through - still doing those 2018 and 19, and then in 2019 I came back to PSM.

I would say we don't do a lot of individual residential landslide risk assessments for a single property owner, and it's purely - we're always interested in it but it's quite competitive. So we tend to or I tend to do more roadside hazard assessment work for the State Government, so for DTP, and in that setting it's a different risk framework to AGS, which I understand you were introduced to yesterday, but essentially it's just risk management regarding landslide hazards but to road users. So we've been - the team and I have been assessing risks in that space, and designing and issuing construction drawings to remediate landslides since roughly 2020. It's been - I want to say between a third to half of my work has been in that space.

We - from time to time, I'd like to say, I have done a few individual landslide risk assessments in Frankston. So that responds to the EMO in Cliff Road for the Frankston City Council. Occasionally we do things for property developers in Geelong regarding landslide risk, and at present we seem to be doing a bit more in the space for, like, literally helping senior planners at councils. So City of Greater Geelong, we do work for them when they have a developer put a proposal forward and we'll critically review it in terms of landslide risks and those sorts of things.

Q. Putting aside the 2022 and 2025 events in McCrae, have you done any landslide-related work on the Mornington Peninsula?
A. I think it's literally - so before 22 I did one peer review, and it was - it's in my CV, but it's in calcareous dune deposits. I can't remember the exact EMO that it triggered. But I essentially had to review another consultant's landslide risk assessment for a development in Mornington. It's like four hours work sort of thing. It's a small job.

Q. I see.
A. We got briefed between 23 and now on a smaller

retaining wall issue for council. But this - like, McCrae would have been the first job I've done for Mornington.

Q. Okay. Just in terms of the scale not so much of the landslide but of the work involved in investigating the 2025 landslide, is that a larger job than the more regular jobs you were describing in connection with roadways for the State Government?
A. Typically the scope is bigger than the typical jobs that we have on the books, but Deviation Road and Fyansford I've put in my CV, that was a similar scale for DTP. So that's the motorway that - or the highway that comes into Geelong through Newtown. We essentially had to do a very similar scope, just for a different asset owner. So essentially from the Fyansford Tavern to the top of the hill at Geelong College we had to assess above and below the road, so the fill batters and then the cut sites above the road and - similar scope, yes. It didn't have the monitoring that we put in for this job, but, yes, similar scope.

Q. All right. And before you were engaged in connection with the McCrae landslides had you done risk-to-life assessments before?
A. Yes.

Q. Okay. And I went through a number of types of reports with Mr Paul that geotechnical engineers are called upon to produce in connection with landslides, and the risk-to-life report's a fairly common type of analysis that your profession undertakes; is that correct?
A. Yes.

Q. Okay. Did you first become involved with the events at McCrae by being asked to do a risk assessment? Is that the first piece of work you did?
A. In - yes, yes. So October 23 was the initial phone call with Harwood Andrews, and at that time it was clear to me that the priority was the risk-to-life assessment for the 22 slip, and then there were other reports that they said would be needed but would follow, yes.

Q. So you mentioned Harwood Andrews. That's a law firm?
A. Yes, correct.

Q. And they were representing when they contacted you the Mornington shire council?

A. Yes.

Q. And they contacted you in connection with the risk assessment report; is that correct?
A. The three reports it was, yes, correct.

Q. All right. Let's stick with the risk assessment for now. You said that that was October 2023?
A. Correct.

Q. So what were the circumstances that had led Harwood Andrews to engage you for a risk assessment report in October 2023 for events that happened in November 2022?
A. So, as I understand it, the council had essentially had Stantec provide an opinion on risk to life, and that would be Davin Slade, and --

Q. Do you recall when that opinion had been provided, in rough terms?
A. Not the date, no. It was shortly after the landslide, I believe. Should've been in '22.

Q. Yes.
A. And the property owners had engaged their own geotechnical engineer to do a series of reports. There was a landslide risk analysis, and there were some opinion - letters with opinions in them and things. So essentially, to cut to the chase, they had two geotech engineers with different opinions and they wanted my independent opinion of risk to life, essentially.

Q. Thank you. Let me just make some of that clear. So Stantec had been engaged reasonably shortly after the 2022 landslides by the council, and they had done a risk-to-life report?
A. Yes, correct.

Q. You've mentioned the property owners. By that you mean the property owners of 10-12 View Point Road?
A. Yes, correct.

Q. They had engaged their own civil engineer, and was that the firm CivilTest?
A. Yes, correct.

Q. Thank you. And your recollection is that there was a divergence of opinion between Stantec and CivilTest?

A. I think both geotechs saw risk to life as unacceptable down the hill. It was more there was a difference of opinion on cause, yes, yes.

Q. I see.
A. It's not fresh in my memory as to whether they disagreed regarding risk to being in the dwelling on 10-12. There might have - I'm not sure. I can't recall. But essentially to the people in the line of fire in the landslide there wasn't a big disagreement on risk.

Q. I see.
A. Yes.

Q. Perhaps I'll show you your 2023 risk-to-life report, which is MSC.5000.0001.1206. You'll be well familiar with this?
A. Yes.

Q. You'll see there that it's dated 3 November and, as I'm sure you remember, this is a report signed by you?
A. Correct.

Q. No doubt you had some assistance in preparing it?
A. In this one I was - the phone call was on the 18th, I believe, of December --

Q. Of October?
A. -- that I took from Harwood Andrews. It was an - because this was supporting emergency orders, I'm pretty sure, save for a conversation I had with Garry Moystin, who is our technical director, the draft - and I'll just read through it. I'm pretty sure I did all this and then Andrew Wilson helped with the revision of it.

Q. I see. Did you say that you thought you had received the phone call on 18 October?
A. Correct, yes.

Q. You've got a copy of your reports in the witness box with you, do you?
A. Yes, yes.

Q. Okay.
A. Yes, I certainly had a meeting with Garry Moystin. I work quite closely with Garry on a lot of jobs. So I certainly discussed it with him.

Q. Okay.
A. But the draft was predominantly my work. The revision in June, Andrew's site visit comments will come into that.

Q. Yes.
A. Yes.

Q. For the purpose of preparing this report you didn't need to attend at the site?
A. It was - there was a time constraint. So section 1, my dot point 1, desktop methods only was the only way we could get it done in the time.

Q. Within time?
A. Yes.

Q. And because it was desktop methods only you had access to a variety of information that you could call upon to the extent it would be useful, including publicly available information about weather, for example?
A. Yes.

Q. And would you typically look at LiDAR maps for something like this, or is that unnecessary?
A. This was responding to a particular hazard, like, one defined hazard. So, yes, we ended up looking at LiDAR and, as I can step you through, I should have looked at it to save the reliance on survey that is in this document. Yes, we do. So there's a coastal LiDAR that's readily available, and that's what we ended up pulling into our reports to - in the revision of this, and then in cause and rectification we pulled in those seven coastal LiDAR files, yes.

Q. Yes. Thank you. We'll come back to LiDAR in a minute. Just in terms of preparing a report like this by desktop methods only, putting aside the reports of the other engineers, what are the other types of data that you would normally look to for a desktop risk-to-life report?
A. So the facts that each geotech has presented, so their borehole logs, and specifically for this hazard more importantly was actually how the landslide was mapped. So their facts regarding the thickness, the size, the location, observations of seepage and those sort of things. So for this particular landslide the mapping from Davin was quite key in terms of reliance in getting it done in that

timeframe, yes.

Q. Thank you. And here you had even more information than you might ordinarily have had because you had documents from CivilTest?
A. Correct.

Q. And you mentioned some of those at the bottom of that page and over the page, and you also had documents from Stantec?
A. Correct, yes.

Q. And was it important for you to scrutinise those documents to make sure that you were comfortable with the work that had been done by those firms?
A. As I needed the - like, to the extent that I needed the data to form my opinion, yes.

Q. Yes. Thank you. If we could go to the second page of that document, please. There is there a before and after landslide section comparison at the top, and you weren't here, Mr Pope, but I referred to that diagram in my opening statement. You can read the report if you need to, but I think it's right that you didn't think that that diagram was entirely accurate. Do you have a recollection of that?
A. Yes, but I'm not sure if I put it in this letter. We've certainly worked that out with time.

Q. I think it comes in later?
A. Yes. So essentially what happened here and - so the CivilTest drone surveys is the data with the veg that - so they've all got greens and the trees and the like. It's from their drone survey, and the blue is from the surveyor. Now, without - essentially the CivilTest data, the section's cut really thick, which means you see vegetation - or relatively thick - you see veg beyond the section line and before it. So what that has done is created an artefact of vegetation at the top of the slope that actually looks like the escarpment gets steeper as you get to the crest.

Q. Yes.
A. But essentially - and then so you see the surveyor's blue lines, which near the crest are obviously going to be quite accurate because you've got flat ground up there that they can walk around and survey. So their blue lines are suggesting, well, hang on, that's a pretty significant

difference in terms of assessing hazards, and you'll see initially I took the hedge as being part of the escarpment. So if that's unstable that's a far bigger volume than if there is a slip that comes from the blue line.

So essentially - what we also found is that the blue survey wasn't particularly accurate through the middle of the slope and it was accurate at the toe. So when you go through the surveys critically you can see they haven't actually gone down - and they probably weren't allowed to go down and survey in amongst the landslide. So that's when we went back to the LiDAR data that's available to try and work out what was going on with the differences in survey.

Q. I see. So let me just get the chronology right. Insofar as you can recall, were the conclusions that you ultimately drew about this diagram conclusions that you reached in the course of preparing this report or did you come to those conclusions later?
A. It would have been not long after this, but I'm pretty sure it was in the - by the time - so Andrew went to site - and I correct a date that's consistently a typo in my report. He went to site on 23 November, not 23 October. And so by the time he had mapped it, going out and ground truthing it was essentially what gave us more confidence that the LiDAR was the better survey to be using.

Q. All right.
A. Yes.

Q. Now --
A. I think we issued them in - prior to Christmas. So it wasn't long after this.

Q. Thank you. At this point in time did you say that you were not only commissioned to prepare this report but also to prepare other reports?
A. Yes. So the phone call had the - we discussed the three reports, and so - the exact dates are on my briefing documents, but essentially the formal brief came some time in November.

Q. If we go back to the first page of that document, you'll see there that the scope of the life risk assessment is restricted in three relevant ways. The first is that it is desktop, which we've mentioned. The second is it's

connected with three properties?
A. Yes.

Q. 10-12 View Point Road, we've already mentioned that, and the fact that the owners of that property had engaged CivilTest and you had been provided with those documents?
A. Yes.

Q. The other two were 2 Penny Lane and unit 3/613 Point Nepean Road?
A. Yes.

Q. Do you see that you've given each of those a descriptor of P1, P2 and P3? Was it Harwood Andrews that set those parameters, or was that based on an assessment that you had made and communicated to them that they were the relevant properties to consider?
A. Indirectly from Harwood Andrews in that it was responding to the emergency orders, so what properties that they applied to at the time, yes. I certainly wasn't asked to look at all properties or anything like - yes.

Q. No. And you weren't asked to look at 3 Penny Lane?
A. Correct.

Q. And you didn't suggest that 3 Penny Lane ought be looked at?
A. I responded to what was potentially going to be the dispute. So I didn't take it outside the bounds of the dispute, yes, correct.

Q. So this is a report commissioned in circumstances of a disagreement between - or at least some level of disagreement between competing firms, and where one of those firms has been engaged by a property owner at the top of the hill, and that is in part what's driven the fact that there are only three properties mentioned here?
A. Yes.

Q. And, insofar as the angle of the flow of the 2022 landslide is concerned, was 2 Penny Lane the property most directly in line with that flow?
A. You have the flanks - and hopefully Darren went through this yesterday, but the sides of the landslide were mapped as being unstable. So it essentially was both properties that there was --

Q. Both 2 Penny Lane and --
A. 2 Penny Lane and unit 3. There was dilated soils either side of the 22 landslide that presented hazards for each property.

Q. Yes.
A. And, just by nature of where the debris land to, it did run into both properties, so.

Q. This isn't a perfect picture of it but, just to be a little clearer about this, perhaps if we move forward to page 1222, using the Bates numbering. This is in your report. It's the first photographs in your annexure. So if perhaps the top one - they're relevantly the same, but if the top one could just be blown up just to identify who's who here. The property that's most clearly identified in that shot at the base of the right-hand side is 10-12 View Point Road?
A. Bottom, yes, correct, bottom of frame, yes.

Q. Yes?
A. Yes.

Q. And then are you able as you sit there now to describe where 2 Penny Lane is?
A. So if you see the text that is Penny Lane in the top left --

Q. Yes.
A. -- if you go immediately north-west, so towards the top left - not that far, sorry - that's unit 3/613 --

Q. Yes.
A. -- and to the right is number 2, yes.

Q. The house directly in front of --
A. The text.

Q. -- what is said Penny Lane there is number 2?
A. Yes, correct. Yes.

Q. And the house next door to that is unit 3?
A. Yes.

Q. And then further across to the right the house that you can see sitting within the square there that the yellow line curves around, that's 3 Penny Lane?

A. Correct, yes.

Q. All right. So you were considering risk to life of the properties down and to the left, and weren't asked to consider the risk to life of the property on the right?
A. Correct.

Q. Just as a matter of professional practice, and appreciating that you're under time constraints in doing something like this, is it usual that the client would set the parameters for the risk-to-life assessment like that, or is determining what properties need to be assessed for risk to life ordinarily a part of the job of the engineer?
A. If it was - so, say if 10-12 was just going to get built tomorrow, then that's purely on the practitioner. If it's a dispute you operate within the bounds of the dispute. I don't go looking for trouble elsewhere, basically, yes.

Q. All right. Thank you. So you completed this desktop analysis. You said you were called on 18 October. The date of this report is 3 November. That's a quick turnaround for this type of report?
A. Yes.

Q. Okay.
A. I certainly don't want to advertise that I do them all quickly all the time.

Q. In any event, you were able to come to firm conclusions; is that fair to say?
A. Yes, yes.

Q. And those were conclusions that were reached by using the methodology set out in the AGS guidelines?
A. Yes.

Q. Okay. I spoke yesterday with Mr Paul a little about how these risk-to-life assessments work --
A. Yes.

Q. -- but I'd like to raise the topic with you a little more, given their significance in the landslide context. At the end of the day this is a probability assessment?
A. Correct, yes.

Q. And it's a probability assessment based on the risk to

life but not to all life, to the person most at risk; is that right?
A. Yes, correct.

Q. And so the person most at risk is identified as a conservative assumption because if they're at risk then necessarily everybody else has a lower degree of risk; is that fair?
A. It's literally just there - there's conservatism in place as in that person being exposed to multiple hazards. So it's not sort - well, yeah, so that - I mean - could you rephrase that question for me?

Q. Yes, of course. Let me tackle it a different way, maybe through a few questions rather than just one?
A. Yes.

Q. Let me do it this way first. Here you're looking at risk to life in respect of three properties?
A. Yes.

Q. Are you identifying the life most at risk in each property or are you identifying a single life most at risk across the three properties?
A. So, say, for example, for - let's pick on 2 Penny Lane, there's the person that is there the majority of the time, so what are they doing in their house, then what are they doing in their garden, do they access Penny Lane. You would - and I didn't in this case and I can explain why. You normally add those risks together, but fundamentally there's nearly always one hazard that governs. A lot of the time that's a similar landslide impacts the dwelling and the person's in the dwelling. That in this setting is a - or was a - is an unacceptable risk. To then add on more numbers to it to make the number bigger, you don't really need - you should do it, but you don't have to if it's already unacceptable.

That will be different to 10-12 walking around their garden or if they go down to the beach, so that their hazards you can add together. Yes. Does that answer your question?

Q. But at the end of the day if you do an assessment and identify the usage of each of the three properties, and we'll come back to that in a moment, and you determine, say, for example, that at 2 Penny Lane there's somebody

there all the time?
A. Yes.

Q. And it happens that that is the most compelling factor that means that person is the person most at risk?
A. Yes.

Q. In that premises. Does that mean you then - you don't need to consider the position of people at View Point Road or at the unit because you've identified the person who is most at risk? It's the person at Penny Lane who's there all the time?
A. The way I do it is per property.

Q. Yes.
A. So it's like --

Q. Yes. Thank you. All right.
A. Yes. Try not to smear them together because that doesn't fundamentally make sense.

Q. Good. Okay. So you're identifying the person most at risk in each of the properties within scope; is that fair?
A. Yes.

Q. Thank you.
A. Yes.

Q. And then you've got to identify that person for each property. And how do you ascertain the information necessary to make that assessment?
A. Regard, like, temporal at the time based probabilities. Essentially through my experience of being on the other side of the fence to people like Darren Paul and - in terms of he acts for councils as a technical reviewer. So through multiple attempts of putting landslide risk assessments past regulators, there isn't much argument in temporal probabilities. You could take a view that they're holiday houses and that they're hardly ever occupied. But, as I've been schooled by council employees, what happens when they sell the property, and so we take a view that there's not a lot of room for argument on time in a dwelling.

Q. Are you working from real data? Are you getting in contact with the owners of the property to ascertain who's there?

A. No, no.

Q. So these are assumptions?
A. Absolutely, yes. Yes.

Q. I see. Thank you. And so the assumptions are assumptions that the practitioner makes, that you make in this case?
A. Yes, yes.

Q. And do the AGS guidelines speak to those assumptions or are they matters of professional discretion?
A. There's a whole series of papers. I can't - so there's a bunch of key papers that talk to, I want to say, like, more appropriate ranges for temporal probabilities or spatial probabilities, yes.

Q. Yes. Okay. So you then compute the probability, and if we could go to .1217 in the Bates numbering, which is page 12 of the internal numbering, and if we could blow up the very bottom underneath the table. There's an equation here that possibly looks a little bit more complicated than it is in reality?
A. Yes.

Q. Could you just explain to the chair first what this equation is in the sense of what it's used for and where it comes from, and could you then just explain the integers?
A. Sure. So this is how we assess the risk to loss of life in a quantitative manner. So just putting numbers to it, essentially. So from - it's essentially four numbers multiplied by each other. So that's as simple as I can explain it. One of them is what's the probability of detachment. So that's what's the probability that the landslide will occur.

Q. Which one is that? Is that the H?
A. P - the first, sorry, going from left to right.

Q. Thank you.
A. So P - subsequent page. So that's probability that the event will occur. The second one, which is P with subscript SH, that is your spatial probability. So even in the event of the landslide occurring where does the debris run to. Now, that - I'll go through all four first. The third one is temporal. So the T - PTS, the T is for temporal, and the fourth is - which is literally what time

is the person on, in front of, like, how long are they there for, what's their exposure time to that hazard. And the fourth one is V for vulnerability. So if they are impacted what is the probability that they'll be killed or injured or - so there's a series of different scenarios that apply to that number. And you essentially multiply the four of them together and that's your outcome.

As I said before, if you've got a - an individual most at risk is in the garden for 15 minutes a day, in their bed - in the house for 80 per cent of the day, then you'll - if the landslide hits the house there will be a risk associated with that, but if they're in the garden there is a risk associated with that. And you will typically add them together. But if one of them - if the vulnerability, say, of being asleep in your bed is quite high, that will govern the number. So it can be quite an ordinary number when V is 1. If you're 100 per cent, if it hits you, you die, and then you've got - it's quite hard for that number to be less than the acceptable when you've got, like, genuine landslide hazards, yes.

Q. So I think the part that I don't sufficiently understand is the notion of the person being, say, in the garden for two hours a day, in bed for eight hours a day and watching TV for the balance of the day. How do you make that assessment? Does it depend in part upon the location of the property?
A. Yes. So because we're working through this report at the moment for council we're internally challenging ourselves on, like - so as you'll see in these reports and I think some of the experts agreed on it that 15 minutes on a property was - for someone on the property adopt 15 minutes. But from our experience this year it's quite hard to spend 15 minutes on a 45-degree slope. So we are challenging those numbers. But it's essentially what's in published literature for that probability, what do people typically use and publish on, and then we internally challenge ourselves on can you really spend 15 minutes on a 45-degree slope, or would you just walk down to the beach every day and walk the dog sort of thing. It's literally we workshop it internally, yes.

Q. I see. And the use will be at least different and potentially radically different depending on the occupants of the premises, won't it
A. If you've got an Airbnb that's only used in summer,

then sure, yes.

Q. Or if you've got a house with three kids as opposed to a single retiree, for example?
A. Yes. So you do have in the standard a societal risk calculation that you can do. That's the probability that more than one person will be killed. We have run the check - we are running the checks at the moment, and the individual most at risk is still governing here. So you should check societal. Where I've seen societal risk govern is, say, popular walkways down the Great Ocean Road. So if you're going to have thousands of people on a walkway where there's landslide hazards then societal - thousands per year, sorry, societal risk, more than one person dying may govern. But in this setting typically it's individual most at risk that governs. Like, you get a bigger number with the risk calc, yes.

Q. Yes. So the centrality of the individual most at risk in the calculations means that getting the individual most at risk right and the assumptions in relation to them right is very important; would you accept that?
A. Yes, correct. But in my experience the first two numbers - like, if you're never there, sure, the time --

Q. When you say "the first two numbers", to be clear, do you mean landslide probability and spatial probability?
A. Probability detachment, so PH, and the spatial probability, if they're high then the rest - they govern a lot of the time. So can a landslide actually happen and does your house sit in the runout, that's the spine of the calc.

Q. Yes.
A. Then you can argue all day long, "I'm only there for a minute," but I sell it to someone who will live there or retire there.

Q. Yes.
A. And so we don't argue too much. Not much space to argue on time.

Q. So this is not just a point-in-time assessment because things can change; is that what you're suggesting?
A. Yes, yes.

Q. Because it seemed to me that --

A. I didn't mean that if I suggested that. That is true, though, yes. It does change with time, absolutely, yes.

Q. Yes. Let me put a couple of things. First, to be clear, I'm not intending to criticise anything you've done in this report.
A. No, no, no.

Q. I'm just concerned to understand the robustness of the methodology that is the accepted methodology that you've employed here --
A. Yes.

Q. -- because it strikes me that these types of reports are very significant to people in landslide risk zones?
A. Yes.

Q. And so I'm just seeking to make sure that I properly understand it, and I appreciate there's a whole lot of literature out there on it, so we're scratching the surface, but that's the motivation for my questions, not any criticism?
A. Yes.

Q. But I had assumed, perhaps, that a risk-to-life assessment is in some respects a point-in-time snapshot of the risk to life at the time the report is written. Are you suggesting that they actually are reports that are drafted with a view to risk to life beyond the sort of immediate circumstances of the report?
A. No, they are limited by when - the timeframe in which you did the investigation, yes --

Q. Right.
A. -- because if you - certainly in marginally stable slopes there will be a temporal - and not to confuse the terms, but there will be time-dependent changes in, like - so wet season to dry season.

Q. Yes.
A. We do take a view, though, of longer term rainfall patterns. So it's like - yes, it is done on the time that we assess the risk.

Q. Yes.
A. But you do take a longer view on, like, what period of time have these landslides been happening, so that can be

hundreds of years, tens of years to millennia, like, that - it's valid from when we look at it, yes, but we do look across a long period of time. If you change the site conditions of course it might not be valid; yes.

Q. Quite. And I suppose that, putting aside the changes in the human use of the relevant land, questions about the changes in site conditions of the landslide-prone territory are taken into account in the first integer, the landslide probability, because when deriving that probability you'll be taking into account things like the prospect of unseasonably high rainfall, is that right, to determine what the PH is?
A. Yes, what - this job is a bit unique in that you're coming out to a hazard.

Q. Yes.
A. And it's got signs of movement. So there's not a lot of argument on probabilities of detachment for something that is detached.

Q. Yes.
A. But if you're looking, like as we are now, you do look at those rainfall events. So we have looked at what is published for 1952 and similar rainfall events in the published records. So, yes, you do look at both the intensity of those events, because there's a useful probability input there. If you have a one in 100 year storm and there's a landslide, then you've got some insights into return periods of landslides. And certainly with 1952 we look at not only how much rain fell in the two days in July but how much rain was recorded in the 30 days or the 60 days prior. So I think you put a chart up about above-average rainfall.

Q. In 2022 you mean?
A. That would have been 22, yes. So you can look at that for 1952 as well.

Q. Sure.
A. I don't know if they've got charts like that, but the raw data is certainly sitting there, yes.

Q. All right. Let's just have a quick look at your actual workings of the equation here. If we go over to the next page. So here you do - you calculate the probability of occurrence, which is the first integer at 4.3.1, and

then there's more set out later on, and then you move straight to spatial impact?
A. Yes.

Q. So you said here already probability of occurrence in the circumstance of this report's a bit different from an ordinary report because here the occurrence has happened?
A. Yes.

Q. Yes. Okay. So let's move to probability of spatial impact. Can you see that there at 4.3.2?
A. Yes.

Q. All right. Can you just briefly explain what this is, what you're doing here?
A. Literally I've only looked at two scenarios there in terms of people being in a dwelling, which is - if it's not obvious, that's for the dwellings down the hill, and then --

Q. Yes. Well --
A. To be specific, number 2 Penny Lane and unit 3/613.

Q. P1 there - where you say for property P1 there, that's the top of the hill?
A. Correct, yes.

Q. And P2 and 3 are at the bottom of the hill?
A. P2 and P3 are at the bottom of the hill, yes. So dwelling in which occupants may be situated, that applies to P2 and P3, and slopes on which pedestrians may be situated, that is obviously P1.

Q. Can I ask a question there about pedestrians. Does that mean that the person most at risk need not necessarily be an occupant of any of these houses? Is that the relevance of pedestrians?
A. Yes, correct. You've got Penny Lane there as well, which is public property as well. But, yes. Yes.

Q. All right. And then you're into reach angles?
A. Yes. So the spatial impact part is essentially how - in doing the risk assessment we look at what credible volumes of material could be associated with the landslide, and obviously if you've got one there in front of you that volume is not going to be disputed. A similar volume could happen again. And so then there's a bunch of - there's a

lot of published data on - and especially in granitics, if it mobilises how far does it --

Q. When you say granitics you're talking about the soil type?
A. Yes. Yes, in profiles that are formed in granite or residual granite or soils derived from granites. Essentially it's as simple as where does it detach from and how far does it run out, and if the person most at risk is within that envelope then there will be a probability assigned to that individual. So if they're right out on the edge of any published data or well beyond the debris flow that's observed, that probability should be obviously lower that they're going to be impacted. If they're - I was getting the directions wrong over there. On the northern boundary of 10-12 right at the toe of the slope the probability is quite high that they're going to be impacted. Obviously the debris went beyond that. So we do portion up your spatial probability based on where you are relative to observed runout and published runout, if that makes sense.

Q. Yes, thanks. If we go over the page, please. Could you just briefly explain inset 12 here?
A. I've lost signal on my screen. What page number are you on?

Q. Sorry, it's page 14 on yours. If you want to break your neck, you can see it on the big screen here. I'll get it blown up. Can we blow up the graph, please. But feel free to look at your hard copy if it's easier, Mr Pope.
A. Yes.

Q. Your screen is off, is it?
A. Yes.

Q. Okay. We'll try and get that fixed for you in the morning break perhaps. So this is inset 12. It's entitled at the bottom "Predicted volumes and measured reach angles to P2 and P3 plotted on Mostyn and Sullivan 2002 landslide data". Could you just explain what this graph is showing?
A. Essentially four different landslide volumes on that axis from --

Q. That's the volume of material involved in the slide, here translating?
A. Yes. Yes, or however it failed, which they have

different types of failure there in the legend. But essentially for an estimated volume or a known volume, which you can back-analyse these things, but essentially where does it come from, so, say, for property P1 just immediately below the stairs; how far can that debris run out from that point, and so it's literally just the angle is measuring - so, say, from the stairs - I've got the number in here somewhere. Anyway, essentially the reach angle is how far - so, like, it's literally the length of runout compared to the height from where it detached from, and that is that, like, height of the slope from where it came from versus how far out into land it ran is how that angle is derived.

Q. Yes. Thank you. I'll just take you quickly to your conclusions, and then we'll move to a different topic. If we could go to the next page, please, internal page 15. If we could blow up 4.4 and 5. Thanks. So here's the results of your assessment and your conclusion. It might just be worth me asking you to explain the maths in paragraph 1 there in that that says 2.1 times 10 to the minus 4; is that right?
A. Correct.

Q. To 6.27 times 10 to the minus 2?
A. Ten to the minus two, yes.

Q. And that's for pedestrians and occupants below the escarpment within the runout distances?
A. Correct.

Q. I see. And so you've identified the probability there as being within that range and concluded that the range is unacceptable?
A. Yes.

Q. Yes. And in mathematical notation terms what would bring it within an acceptable range?
A. That's a good question because the regulator normally sets the number --

Q. That's where I'm going. So let me - perhaps I'll ask you a question before that.
A. Yes.

Q. So far as you understand it, is there any legislated rule that fixes the probability that it's acceptable for

risk to life?
A. Not that I'm aware of.

Q. Are there guidelines within the - sorry, is there provision within the AGS guidelines that gives guidance on this?
A. There is a section which - I do have it here, but it essentially just says it typically falls with the regulator, and then it does give numbers that are generally used.

Q. The regulator here, you mean the council?
A. Would be the council, yes.

Q. And did they fix a number for you here?
A. No, but we were working to what was in the AGS, which - so tolerable --

Q. You mention there it's table 1 of section 8.2 of AGS --
A. Yes, no, I just actually wanted to read the part in the standard rather than make a meal of it. But essentially the guideline does give you numbers that are for tolerable risk, and then it does have text to the effect that acceptable is acceptable to all - like, acceptable risks have to be to all parties involved, and then it's typically an order of magnitude lower. So if it 's 10 to the minus 4 that is tolerable, then 10 to the minus 5 is generally acceptable. There are some people that take a view if there's an existing landslide it's got to be lower again.

Q. Yes.
A. I tend to not be that type of person. It's already pretty low already. But there are people that will go to 10 to the minus 6 for acceptable.

Q. Do you mean some people will do that because of the perceived risk of recurrence, notwithstanding there's been a landslide, there might be another one and for that reason they take a more conservative approach?
A. I think - well, it certainly wasn't asked of us here.

Q. No, no, I understand that, yes.
A. But it was essentially - I've had other projects, say, in Wye River, where the regulator deviated from AGS, which they're entitled to do because of a known bigger landslide

in the area.

Q. I see.
A. Which just essentially makes you work even harder to look at probability of detachments and spatial probabilities, essentially.

Q. I see.
A. Yes.

Q. By all means take a minute to read what's on the screen, but you ultimately drew conclusions in respect to each of the three properties?
A. Yes.

Q. Unacceptable risk to life for the occupants of P2 and P3?
A. Correct.

Q. And what was your view in respect of P1, the top of the slope?
A. Essentially that if you're going to be in and around those landslide hazards that it would be an unacceptable risk to life there.

Q. But if you stayed inside you'd be okay?
A. Yes.

Q. Thank you. So that was sort of the start of your engagement, and I've gone through that a little more slowly with you, Mr Pope, because there's a subsequent assessment that you do that we'll come to but we'll be able to move through it more quickly.
A. Sure.

Q. It looks to me there's some differences between the latter and the former, and perhaps we'll just concentrate on those. You can explain them.
A. Yes.

Q. But before we get to that let's keep it chronological. Can I show you another of your reports. It's MSC.5000.0001.0639.
A. Yes.

CHAIRPERSON: Mr Costello, would you like to tender Mr Pope's risk assessment?

MR COSTELLO: Yes, I'm happy to do that now if that's convenient.

CHAIRPERSON: Dane Pope's risk assessment dated 3 November 2023 will be exhibit CA5.

EXHIBIT #CA5 DANE POPE'S RISK ASSESSMENT DATED 3 NOVEMBER 2023

MR COSTELLO: Thank you, Madam Chair. All right. Mr Pope, we move forward in time a bit here to 11 June. This is your expert opinion report "Landslide assessment for 10-12 View Point Road McCrae"?
A. Yes.

Q. Just to begin with could you just explain, so far as you remember them, the circumstances by which you came to be asked to write this report?
A. So it was essentially the same phone call in October 2023, and then the brief followed in early November, which hopefully is attached. Yes. So in appendix B, 0673, we --

Q. This is the letter from Harwood Andrews instructing you?
A. Yes, correct. So we'd obviously had two letters, one 9 November 23 and then May 24 followed. Yes, you had a - CivilTest did a bit of extra work in the time between the initial meetings and this report.

Q. Was this report prepared for the purpose of proceedings that were on foot in the VCAT?
A. As I understand it, yes.

Q. Yes. So you were being briefed as an expert witness?
A. Yes, correct. Yes.

Q. Thank you. Is it right that in that proceeding CivilTest were the competing experts?
A. One of them, yes. So you had CivilTest, and then AS James was involved as well for I believe the Willigenburgs, yes.

Q. Thank you. All right. If we could move, please, to 0644, which is internal page 6. So in general terms perhaps, just to set the scene for this report, Mr Pope, what was it that you were seeking to do in this report?

What was the fundamental question or contest that you were engaged in?
A. Fundamentally to investigate cause.

Q. Yes. So this is a causal report?
A. Yes.

Q. And it's a causal report produced in circumstances where there is a dispute between the shire council and the owners of 10-12 View Point Road as to why it was that the 2022 landslide occurred?
A. Yes, correct.

Q. I see. And do you recall as you sit here now what CivilTest's conclusion had been?
A. Fundamentally in terms of landslide triggers was the obvious rainfall event of 80 millimetres in eight hours or thereabouts. So there wasn't any dispute about the rainfall being a trigger. The argument - the differences of opinion come primarily to the stormwater system on View Point Road and its contribution, if any, to that landslide.

Q. And when you say the stormwater system do you mean the efficacy of the system in diverting stormwater?
A. More so that at the time of the landslide it was an open kerb and channel stormwater system, and CivilTest had the opinion that the surface water flowing along the cracked kerb could enter surficial soils and then get to the landslide head and contribute as a major cause of the landslide.

Q. And I presume that you agree with the tenor of the evidence that Mr Darren Paul gave yesterday that in this type of landslide investigation investigating water and water levels in the soil is a critical aspect of any investigation?
A. Most investigations like this, yes.

Q. Yes. And all the more so where there's not another obvious cause such as earthworks, something like that, that may have disturbed the land; is that fair?
A. Yes, that's fair. Yes.

Q. And so here it was known that there had been a very significant rain event, but one of the questions is whether that rain event alone was sufficient to create the conditions that triggered the slide?

A. Yes.

Q. And a contention that was being advanced was that the rain - well, there's more than one. Let me do it in parts. Some of the rain will be adequately diverted by an adequate stormwater system?
A. Yes.

Q. Do you accept that?
A. Well, there's design limitations on residential stormwater systems.

Q. Yes.
A. Yes.

Q. So there's a question about what any stormwater system can do?
A. Yes.

Q. And then there's a question about whether or not the stormwater systems in place here were fit for purpose?
A. Sure.

Q. And a contention of CivilTest was by reason of open channels and either actual or potential cracks, rather than water flowing along the course of the stormwater system and being diverted away, it might in fact be - some of it may be seeping into places where you don't want water?
A. Sure, yes.

Q. Okay. And you had to consider that thesis in preparing this report?
A. Yes.

Q. And did you go about preparing this report in the way that you would ordinarily go about preparing a causal report for a landslide investigation?
A. Landslide - so I don't always go and drill holes for the sake of drilling holes. Obviously we didn't drill boreholes, but we did map the landslide in enough detail to get to a point where we didn't see value in drilling holes. So for this sort of setting, yes. I mean, yes, I would do this the same way. For this scale of landslide we often respond to them in this manner, yes.

Q. So you didn't drill boreholes; is that what you just said?

A. For 22, no.

Q. 2022. But CivilTest had?
A. Yes, correct.

Q. So in a sense you were able to at least look at the data that they had --
A. Broadly get an idea of ground conditions, yes. And they confirmed what was essentially mapped by Davin. If it wasn't that - essentially that slope is dominated by soils. It isn't like you drill two metres and hit rock, where you've got to get a core barrel out and core the rock. They augured that hole to the bottom of the hole, which is significant, and it tells me it's not amazing quality soils. So I say granite. A lot of time in granitic profile, especially if you're going up the top of the hill, you'd probably go half a metre in soil and straight into rock. So boreholes were used for to say, all right, this is a soil-dominant profile. They logged some wet soils, which is useful because you get a snapshot as to when it was wet and how - the time between the actual landslide and when they drilled is significant. It's still wet. The source of water isn't just that rainfall then. So there was enough facts there for me to get through this without drilling holes, yes.

Q. Okay. And you didn't need to do cone pressure testing, for example?
A. CPTs at that point in time, no.

Q. Okay. Was that because you were content in effect with the material that you had available to you, including the work CivilTest had done?
A. In the context of that landslide, yes, because you can see the bottom, sides and the back of it. So you could see what was controlling it from a soil perspective. So drilling holes 10 metres away, it doesn't really inform you what's there. Right in front of your face is more important, yes.

Q. How quickly did you come to the view that water of some kind was the trigger for the 2022 landslide?
A. As long as it takes to look at the rainfall data, yes.

Q. As soon as you saw --
A. I mean, it was reported by CivilTest and Davin anyway. So as soon as I saw the intensity of that storm -

literally I just checked the intensity on the bureau website, saw that it sat beyond one in 100 year return, and then from my experience in Victoria when we get rainfall like that certainly in La Nina periods there's quite commonly landslides following a storm like that. So, yes.

Q. All right.
A. Quickly, half an hour, yes. Not long.

Q. Yes. So from that process you've got at least an inkling, perhaps better than that, that rainfall is a factor?
A. Yes.

Q. And is it just that it's a factor or is it that it's a significant factor or is it that it's the cause?
A. Of the initial translational slide, that rainfall event - as I've seen in the Otways in western Victoria similar rainfall events cause similar landslides. So a trigger for me dominated by the obvious steepness of the slopes and them being soil dominant and the rainfall event, yes.

Q. Okay. I don't ask you this to be critical of you, but in circumstances where within half an hour you're aware that there's been a one in 100 year rain event and your experience is that in Victoria that's meaningful and likely to be causative of the landslide, why is it that it ends up taking sort of seven-odd months, eight months to do the report?
A. This report?

Q. Yes.
A. Well, it didn't. So it was issued as a draft, and there was very little changes between the draft pre-Christmas.

Q. I see.
A. Yes.

Q. So you issued this as a draft to your client?
A. Correct, yes.

Q. The council. But the draft wasn't finalised until 11 June?
A. Yes.

Q. Okay.
A. And - yes. Correct, yes.

Q. Thank you. And you knew that in terms of water there had been the very significant rainfall, but you also ascertained that there had been a burst pipe; is that right?
A. Well, so there's reliance on other people's --

Q. Sorry, perhaps I've been unfair to you by saying "ascertained". You became aware --
A. Yes.

Q. You became aware that others had formed the view there had been a burst pipe; is that the more accurate way of putting it?
A. Yes, and I haven't heard it disputed. So it's been reported. I think Davin had it in his risk assessment. And I haven't heard it disputed. So, yes. There is a water main that goes across the landslide. Essentially you have the rainfall event triggering the first landslide, which was the translational slip. Then the theory is that water main broke and then leaked into the head of the displaced debris and got that saturated enough to run down the slope as a debris flow.

Q. I see. So rain is a possible cause, perhaps a likely cause. You then need to investigate the consequences of the burst pipe, whether that's also causative; is that right?
A. So I do touch on that. To what South East Water say they guarantee for water volumes in a main, I just did a simple calc saying if that leaks for X amount of time what sort of water does it produce.

Q. Yes.
A. And that water applied across the volume of the landslide is essentially more than what came from the storm itself.

Q. Yes. I'll come back to that.
A. That's if it was on and connected to the street and had the pressure, it could do that; yes.

Q. Yes, we'll come back to that in a minute. Just before we break for the morning I just want to get down the potential causes that you were concerned to investigate.

So there was rainfall. There was a burst pipe. What else?
A. At the time it's clear, and I've documented it, that there was a significant amount of vegetation removed across the escarpment. In just street view imagery you compare the Google Street View imagery from different periods of time and the treeline clearly changes.

So I mentioned Deviation Road earlier as a project of mine. That started from not a very big rainfall event but a series of pine trees falling over. And let's say the storm hit, the trees fell over, and then it rained and then we had a landslide. So tree removal is a significant conditional event for landslides, and there's none other better example than Wye River. So a lot of those trees were killed by the fire.

And the Paddy Path landslide which closed the Great Ocean Road was essentially a well-vegetated part of the world, then was burnt, vegetation's pretty much decimated, and then we had a storm event later that year. It was an existing landslide that was sitting there, but essentially it regressed. So, like, you have the trees, essentially their suction is turned off by the fire, and then there's a period of landslide that followed in the next wet season. So I would expect if you go and remove trees on steep slopes, soil dominant slopes, you can trigger landslides.

Q. I see. So that was perhaps the third avenue of enquiry for the cause?
A. Yes.

Q. And was there anything else that you would add to the list?
A. Look, we obviously had to talk to leaky services, and CivilTest had done work with ground-penetrating radar to look at cavities and voids and things that could possibly transmit water to the landslide area. But in that - so in that space I looked at - you can see again in street view, you can see the water coming down the street in the kerb and channel, and you can see it going beyond where the defect in the road is and down towards 22 View Point.

So even, like, those roads up in McCrae, surface water will get through into the subgrade. That's just the nature of roads, especially older ones. That water would get into the sands. But, to their investigation, they looked at the radar they ran across the sewer trenches and they said that

there were voids in the sewer trenches. And so, for me, the water goes into the void, because the void is evidence that water's been there before.

In terms of a simple collapsed settlement explanation, if water gets into loose fill it will cause the fill to drop and settle immediately. You do get voids and cavities associated with collapsed settlement, especially in trenches. It's quite common.

So, for me, the water, yes, does get into the - would get through the cracked kerb. How much no one actually knows or has put - has actually measured. Difficult to measure. Essentially, that water would go into the immediate adjacent layer that is the most permeable. And deep trenches with fill in them are quite permeable comparatively generally to natural soils immediately adjacent. When I say "generally" it's if they put a different fill in, if for some reason they put clay fill in, it would mess that up. But, essentially, I've far more succinctly in my report said that the water would go into the trench and follow the line of the sewer trench.

Q. Yes.
A. For it to come out of that trench it's got to have something retard flow, like, it's got to have something block flow, and essentially I couldn't see a valid mechanism to do that, to get the water to literally go at right angles to get across to the landslide head. It might be easier to talk to the site plan in time --

Q. Yes. I'll put a site plan up.
A. Essentially, the water's got to go right angles to get across to the head of the landslide. And it's got to go parallel to contour. So the hill is sloped like that. Water is coming down the road, and it's got to somehow go at right angles across the contour to get to the landslide head. For me it comes down the hill, it goes down the hill and more likely into 14-16 View Point. You talk to I think it's Jon. That was a mechanism that happened. He did have water coming down his hill. So there was no basis behind the theory and I didn't take it beyond. If you can find a reason for the water to turn at right angles, then I'll investigate it further. But that was it.

MR COSTELLO: All right. Thank you. Madam Chair, is that a convenient time?

CHAIRPERSON: Yes. Mr Pope, have a 15-minute break and we'll resume at 11 --

MR COSTELLO: Madam Chair, can I ask for an indulgence. There has been a rather lengthy document that's been provided early this morning by others. It might have some relevance to questions I need to ask Mr Pope. Could we break for 20 minutes instead?

CHAIRPERSON: Yes. And if you need more time just let me know.

MR COSTELLO: Yes. It's not been produced by the shire, I should indicate. It's been produced by others. Thank you.

SHORT ADJOURNMENT

MR COSTELLO: Mr Pope is just returning to the witness box.

CHAIRPERSON: Thank you, Mr Costello. Mr Pope, I'm going to stand for a little while. I've got a back problem at the moment.
A. Sure. Understood.

MR COSTELLO: Mr Pope, we were discussing your 11 June causation report. When we were discussing the earlier risk-to-life assessment report there hadn't been a need for you to do testing, for example drilling boreholes, because there was a time constraint and there had been work done by others.
A. Yes.

Q. There had been work also done by CivilTest that you had access to in preparing this report, but did you have to do on site testing as well?
A. No.

Q. The data you had was sufficient for you to be able to draw conclusions?
A. Yes.

Q. Thank you. Could we come then, please, to the mechanisms for failure. This is MSC.5000.0001.0639 at page 0660, which is internal page 22.

A. Yes.

Q. So this part of your report's concerned with the failure of the slope?
A. Correct.

Q. Okay. And you may not recall the notations that you had given to these things but can you see there at paragraph 64 that you're talking about significant control of mechanisms M1 and M2?
A. Yes.

Q. Is groundwater and soil moisture?
A. Yes.

Q. As you sit there now can you recall what M1 and M2 were?
A. Well, it's in table 2 of the report. But, essentially, M1 is the translational slide that I've been talking about and M2 is the debris flow that followed.

Q. Thank you. And so you've described that as a significant control. Is that the same as saying a significant cause of M1 and M2?
A. Groundwater and soil moisture, yes.

Q. Thank you. I just want to make sure it's clear what's intended by the paragraph. You then mention in the second sentence of paragraph 64 that, "Where the change in soil moisture happens quicker than the soils can naturally drain landsliding may occur"?
A. Yes.

Q. And so does that mean that there can be a greater risk of landslide if there's a sudden deluge as opposed to deluge over time?
A. If the storm's significant enough then, yes.

Q. But even a gradual --
A. But we talk about - and I'm loath to introduce technical terms all the time - antecedent rainfall, which is essentially cumulative rainfall over a period of time. So you can have a lot of above average rainfall for months on end, and there be a landslide. You don't always have to have a storm event to trigger it.

Q. Yes.

A. If you've got saturated soils, you can have a landslide. And if that's come from three years of La Nina rainfall patterns or if it's come from a wet month and then a big storm, yes, so you look at both, if that makes sense.

Q. Is it primarily a question of pore pressure either way?
A. Saturation of the pores, yes. Yes, yes. Pore pressure, like, it depends, and I think you touched on it yesterday. If the water's in equilibrium and there isn't an extra source of pressure like excess pressure or Artesian pressure as everyone talks about in terms of on the agricultural sense, but, yes, if you had excess pore pressure that's another issue in itself. So, saturation, the pores are full of water. But if you've got excess pore water pressure then that usually increases the risk.

Q. I see.
A. Yes.

Q. You mentioned in the next paragraph that you had noted that trees had been removed in 2021.
A. Yes.

Q. And you mention there a large mature gum and further vegetation being removed from the landslide. They were conclusions that you reached by inspecting available historical images?
A. Google Street View you can see the treeline change. And Nearmap imagery you can see it as well. Nearmap offers imagery at an angle. Some licences have a 3D view. So you can actually see in 3D the changes as well.

Q. The vegetation removal you're talking about here is at the top of the slope?
A. The treeline actually changes off towards the 2025 landslide, but it also changes in the area of the '22 landslide. So the density of veg changes in those two areas; yes.

Q. And where in terms of the slope on the hill are these changes? Are they towards the top or is it towards the bottom?
A. Like, page 0699, it's appendix F, it's easy to see the changes at the top of the hill.

Q. Did you say 0699?

A. Correct.

Q. These are the images. Is that the one - no, next one, I think. Next page. Is that what you have in mind?
A. Yes, correct.

Q. And so --
A. Obviously 2018, February 2018 versus October '22, the prominent gum trees are up towards - sorry, the ones in the middle of the frame I know to be gums. I don't know what the one up adjacent to 6 View Point is, which 6 View Point is a two-storey white house.

Q. At the top on the left-hand side?
A. Correct, yes.

Q. And that is next door to 10-12?
A. Correct.

Q. Thank you. So you've identified there that, what, two or three trees have been removed? You've got three arrows. Is that one for each tree?
A. Yes, there's at least three that have changed. Comparing F7 to F8, a fair amount of '22 is in shadow - in that '22 area, sorry, I mean F7 is in shadow. But, to me, still there looks like changes in that area between the two images.

Q. The photo at the bottom, the 2022 photo, it looks to me as though close to the middle of the picture at the top of the hill, it looks as though there's a remnant perhaps of a tree there?
A. Yes, correct.

Q. It might be that a tree has been very heavily pruned?
A. Yes, correct.

Q. Is that possible?
A. Yes.

Q. Can't tell whether it's alive or not from that image, but there's something there?
A. Yes, correct.

Q. And is it possible that - so if you assume for present purposes that of your three arrows the - I don't know if the feature I've just identified is actually the first

arrow or the third arrow. It's not the middle one.
A. Top down. It's the top arrow, yes.

Q. Top arrow?
A. Yes.

Q. Is there a plausible prospect that there's also just been pruning of the trees at the other two arrows? It looks as though the middle arrow that there might still be a shrub in the same location but lower. The angles of the photos don't seem to be exactly the same so it's a little hard.
A. I'm pretty sure from current site inspections one of those big gums up the top has got regrowth, and one of them further down the hill doesn't is my current --

Q. Does not have regrowth?
A. Yes.

Q. Do you mean it doesn't have regrowth because it's been removed or do you mean it's been --
A. It's there.

Q. It's still there.
A. But it looks quite dead. I'm not an arborist obviously. But, yes.

Q. No. You can --
A. I believe one of those has probably got a little bit of growth as in it's not dead and the suction mechanism for that tree is not completely off. When you go pruning trees they don't pull as much water as they would in their mature state.

Q. Yes, you've anticipated my next question. So to cover the removal versus pruning point, if there is one, it might be that the three trees you've identified there in February 2018 are still there but were cut back in some respects quite significantly?
A. Those three in particular, I'm not sure whether the middle one is still there, the middle arrow.

Q. It is hard to tell.
A. Yes.

Q. There does look to me to be something approximately where the middle one was, but you can't tell from this

whether there was always another tree behind it and that's what you're looking at, for example?
A. Correct. If you look on the previous page, 698 --

Q. Yes.
A. -- and F5 --

Q. Would you like that to be blown up a little? Thank you.
A. If you look right-hand side of the image where the property boundary changes direction, so it goes from up and down the page and then it rakes off to the left, if you compare those two areas from the two images the treeline's changed. So they have planted new trees there, and some of those trees are down in 3 Penny Lane now. But essentially the treeline has changed. Whether they've been heavily pruned or removed. I'm not sure you can build a vegetable garden on top of trees too effectively, like they have. So there have been trees removed. The exact ones I'm not sure. To your point, some of the gums have been heavily pruned and I think one is dead. Now, the one that I think is dead is - this is kind of awkward. If you look at my top image and see where "tree is not visible in September 2021" --

Q. Yes.
A. -- there is a - a trunk of a tree is there. I'm not sure it's alive. They didn't fully remove the hardwood, for want of a better term.

Q. You've been out to this site. Where the arrow there that says "tree not visible in September 2021", how steep's the slope there?
A. Very. Exact angles are not in my head. But, essentially, we did ropes work to put the instruments in there.

Q. So removing a stump from that sort of a location wouldn't necessarily be an easy job?
A. Accessing, doing work on the tree would be a difficult job let alone removing it; yes.

Q. All right. Thank you. And so the relevance of tree removal here is - or pruning even is the loss of the suction power of the tree in taking moisture from the soil and evaporating it into the air. And is there any utility in - or strength given to the slope by the root system?

A. Yes. In general, like, I mean, you have this informal mother nature's soil nail sort of - the root balls do locally increase the shear strength of the soil just by the fact that there's timber. Often the root systems can get into the underlying soils and, yes, it does change the strength locally.

Q. Binds it to some degree?
A. Yes, to some degree; yes. The suction forces, though, from gum trees are significant. The analogy of that is like a household vacuum cleaner. What a gum tree can do is orders of magnitude higher suction. So the suction has a huge impact on shear strengths.

Q. I see. So any tree removal is of interest to a geotechnical professional investigating landslide cause, but gum tree removal might be potentially even more significant given their very considerable suction?
A. Highly evolved to low-water soils, yes, to pull water out of, like, heavy clays. So my experience in that is in landslides but also a lot of forensics for property damage with gum trees near houses. So they're well known to cause a lot of damages from their capability to pull water out of heavy clays; yes.

Q. Thank you. If we could go back to page point 660, please, in that document, which is internal page 22. We were going through here, Mr Pope, the failure mechanisms and you had noted at 65 the removal of trees, although I take it from the exchange we've just had that you might be slightly more circumspect about whether it's removal or significant pruning now?
A. Yes. Like, if you want to stop your house settling in reactive clays you prune the tree. You don't have to kill it to get it to stop damaging your footing system; yes.

Q. So, whether it was removal or pruning, either could be potentially causative?
A. Yes.

Q. Thank you. You noted in 65 that the tree removal was a significant conditional event?
A. Yes.

Q. And then you note that suction will change in the escarpment slopes over a period of 12 months to five years from tree removal?

A. Yes.

Q. And that trees typically influence the soil moisture over a distance of one to two times the height of the tree?
A. Yes.

Q. So that gum that was towards the top of the two photographs that we were looking at looked like a very high tree?
A. Yes, they will - growing gums tend to cause a lot of damage. When they get to their mature height they might not be - their demand for water might not be as significant. But, generally, big healthy gum trees pull significant water from one to two times the height of the tree.

Q. So I just wanted to make sure --
A. But usually in the residential standard there's a lot of technical background to that.

Q. I see.
A. Yes.

Q. I just want to make sure we understand the language here. When you say "they do a lot of damage", do you mean they can do a lot of damage to built structures?
A. Yes.

Q. And I suppose equally in the circumstances here where it's away from a built structure they can have a significant effect that's not damaging; that is, they can be pulling a lot of moisture from a slope?
A. Yes, a positive influence on stability; yes. Sorry, I'm crossing the two topics, but yes.

Q. No, that's useful. Thank you. You then move on and at 67 you talk about M2, which is the second landslide?
A. Yes, the debris flow.

Q. Was conditional on the initial event. So that means in more simple language that it wouldn't have happened if you hadn't had the first event?
A. Yes.

Q. And then you give some explanation about that. If we could go over the page, please. We're now here in some consideration of water. So you mention in (b) here - this

is mentioned in the context of why the second landslide wouldn't have occurred but for the first - damage to a waterline occurring because of the first slide; that is mechanism M1?
A. Yes.

Q. "Based on a flow rate of 20 litres per minute in a period of six to 12 hours where water from the waterline was directly flowing into the landslide area," and then you give some estimates as to the contribution of water into the area which we'll come back to.
A. Yes.

Q. But I just want to get clear what we're talking about here. What's the damage to the waterline that you're talking about?
A. The M1, the translational slide, is documented to have broken the - I think it's a private water main, and then that's leaked into the accumulated debris from M1.

Q. That's why I asked, because I think in a discussion we had a little earlier there was mention of a burst water main in this connection.
A. Yes.

Q. You don't mean, though, a water main as people might ordinarily think of it; that is, a water main operated by the local water authority on public land?
A. Correct. It's a private waterline is what I mean here.

Q. Does that mean it's a line used for irrigation?
A. Well, as I understand it, yes.

Q. I see. And then we'll come back to the subparagraphs of (b) in a minute, but if we could just look at your diagram at the bottom which I referred to - or, actually, I think Mr Paul referred to briefly yesterday.
A. Yes.

Q. This is, in effect, your model of the particular area; is that right?
A. Yes. I mean, it's talking to - yes, it is. It's got the geotechnical model, but it also has your hydrologic model, so how your rainfall infiltrates and where that water might travel, and obviously the influences of private infrastructure and public infrastructure; yes.

Q. Thank you. And so you've got the trees in the middle there and the evapotranspiration role that they play in reducing the water content in soils. Up the top left hand you've got damaged infrastructure. And do you recall now what it was you were talking about there?
A. Broadly anything. Like, specifically it could be - obviously council's been in a claim related to damaged stormwater systems. But, as drawn there, the stormwater system at the time wasn't below ground behind the property. So I'm broadly talking to a water main or - so leaky services can be a water main, public or private; the stormwater systems; and then even more complicated than that is the trenches which these assets sit in, them themselves can be, like, a conduit of flow. But essentially I'm talking to water mains, sewers, and stormwater. Now --

Q. Let me just stop you there for a minute.
A. Yes.

Q. Because I just want to be clear about this. So this is a concept illustration of the hydrological processes?
A. Yes.

Q. At the particular site?
A. Yes.

Q. That you have prepared after your investigations. And when you're pointing to damaged infrastructure - accepting that the location of the damaged infrastructure isn't precise, but when you are speaking of damaged infrastructure are you speaking of particular damaged infrastructure here, that is, for example, the CivilTest thesis of --
A. Yes.

Q. -- cracked --
A. I do have a specific paragraph that talks to - amongst other sources, yes, is the short answer.

Q. Amongst other sources is what I might call the CivilTest theory of inadequate stormwater diversion?
A. So in table 3, which is 0665, I talk to slope controls. In there I've got damaged infrastructure.

Q. Yes.

A. At length, on reflection. Dot point 8, significant water flows from other damaged infrastructure are speculative and, in my experience, very difficult to monitor and may not be occurring at the site. But I do list the sources that are relevant. So obviously first and foremost is the stormwater system, because that was what everybody was talking about.

Q. Yes.
A. The potable water supply, the South East Water sewer assets, and the backfill trenches.

Q. Do you recall if you were aware at the time of preparing this report that there had been a pipe burst at 23 Coburn Avenue on 14 November?
A. No. A water main? No.

Q. And in terms of doing these types of investigations do you typically - no, I withdraw that. I'll put it differently. When you're doing an investigation like this would you ordinarily seek information from the local water authority?
A. Obviously for this matter I didn't; but now we are trying to, yes.

Q. I see. At the time you produced this report would it be fair to say that if you were aware of, for example, a burst water main that you might seek information about that particular burst water main?
A. Yes, absolutely.

Q. I see. But you didn't have a practice of seeking information about - just generally about any bursts or leaks that might be present in the area?
A. Sorry, can you rephrase that?

Q. Of course. It wasn't part of your general process --
A. To go looking at all the water main, no, no.

Q. Or ask the local water authority, for example, to give you information about any damaged water main?
A. No. Essentially with that storm event and the amount of landslides we were seeing through 2020 to 2022 and how wet '22 had been, I didn't go further. So, yes.

Q. Yes. Thank you. If we can go back to 0661 in that document, please. So here this is admittedly informed

estimation on your part, but you say, "Based on a flow rate of 20 litres per minute"?
A. Yes.

Q. That's correctly described as an estimate on your part; is that right?
A. Yes, correct, or South East Water on their web - it came from their website, essentially. This isn't verbatim, but they try to give each property owner 20 litres per minute is from their website. I appreciate water mains can obviously have more water than that, but that's their words, 20 litres per minute.

Q. Okay. So that's the basis of your estimate there?
A. Yes.

Q. And then what's the basis of the range that you've given for the flow of six to 12 hours?
A. This is the time between - like, this is other people's reports on rainfall. So I went through the radar data to see how the period that that rain fell in, and then you have timing reports of the debris flow the following day. So I was just trying to bound the first landslide happens and then, say, if - obviously I don't know when the first one happened exactly, but it's just giving you a bound of time that it might have leaked for six hours. There's clearly a few people saying it. There was a gap between the two events. So that's an estimate, obviously.

Q. Okay.
A. The calc itself is pretty simple. So a millimetre of rain equates to basically a litre per square metre. And so you get your area estimate and then your volume estimate. It's just a matter of calculated over that time. So that's where the numbers are from.

Q. And so based on that, accepting that there is estimation involved at every step of it, you concluded that spread over the area the burst - I might just call it pipe --
A. Yes.

Q. -- to distinguish it from a water main, might have contributed 7,200 to 14,400 litres, which equates to or is equivalent with between 90 and 180 mms of rain?
A. Per square metre, yes.

Q. Per square metre.
A. It's a bit conservative to apply it to the whole area, but essentially that's what I've done.

Q. Why do you say it's a bit conservative to apply it to the whole area?
A. Because it will concentrate in a flow path. Water flowing down a hill will find the path of least resistance. So it will come in through a channel in the granite or something like that. Pretty rare for it to flow uniformally; like, an engineer's mind. It doesn't flow like that. It will just pick a channel and follow that. So it would be more concentrated that than, but I've just averaged it across that area.

Q. Now, just by way of contrast, or comparison rather, the 90 to 180 mms of water per square metre there is not dissimilar to in fact more than the one in 100 year rainfall event?
A. Correct, yes.

Q. And, just to be clear about that, if we could move to 0650 of that document, please, internal page 12. Here you've got the data from the Rosebud weather station?
A. Yes.

Q. And you define the rain event in 27(a) approximately 80 mm of rainfall was recorded and reported to 9 am over the preceding 24-hour period?
A. Yes.

Q. And that's - I think it was your words; that was the one in 100 year event?
A. It sits between one in 100 and one in 200.

Q. Thank you. And then if we move forward to 0663, internal page 25, here you set out your opinion and you identify it to be multicausal; do you accept that?
A. Yes.

Q. Okay. And then if we could perhaps blow up paragraph 71 and 72. So "no singular cause of the landslide" is the start of 71. "Combination of natural and anthropogenic factors or controls". "Primary factors and secondary factors"?
A. Yes.

Q. And then you give some more explanation about those. You then say in 72, "It is most likely that the initial landslide occurred primarily as the result of the natural geomorphological processes in combination with the rain event"?
A. Yes.

Q. "The rain event could have triggered the initial translational slide without major contributions from other controls." And then in 73 you conclude that the second event, as we've discussed already, was conditional on the first?
A. Yes.

Q. And it was the initial landslide that caused the damage to the pipe that we've been discussing; is that right?
A. Yes.

Q. And that contributed a large amount of water into the landslide area, and it was that additional inflow in combination with the geomorphical processes and the rain event that caused the second 2022 landslide?
A. Correct.

Q. And, if the assumptions about the flow rate and flow time of the burst pipe are correct, what that pipe contributed was the equivalent of a second between one in 100 year and one in 200 year amount of water into the area?
A. Broadly speaking, yes.

Q. And then in 74 you concluded that there were other factors, natural and anthropogenic, that were secondary to the landslide, including groundwater seepage, landscaping features, and loss of vegetation; do you see that? Could you just briefly - the three subparagraphs you've got there, groundwater seepage, and the second, landscaping features, could you just speak briefly to each of those? We've dealt with loss of vegetation.
A. Yes. So I talk to - there's a typo in this, sorry. So in 0650 I've purposely talked to the cumulative rainfall before some key dates. So, paragraph 27(c), the 30-day cumulative on 14 November was 133 mm. And then in (d) the significance of 1 March 2023 was when CivilTest drilled their boreholes. So that's 47 millimetres over 30 days prior to when they drilled. And that's obviously significantly lower.

There's a typo here. When Andrew did the site visit on 23 November '23, the numbers are correct, the 30-day rainfall there is 12.5 mm. This is on 0650. Essentially, seepage was observed on all three dates. So just the seepage in itself - obviously groundwater being there is going to contribute, but there was seepage on all three days. So just the seep on its own, for my mind, not a primary trigger.

Q. I see.
A. Yes.

Q. And --
A. Because it's there. It has been there this year. Like, it was there in January, February. At some point it's dried out.

Q. You mean evidence of seepage was there?
A. In these same locations, yes; similar locations. Some of it is drier. But certainly parts near the stairs, which is the next point that I'll talk to, there is still seepage there. So there is seepage in that area. Obviously if that was a primary control you'd expect landsliding all the time. So that's I guess the point there, yes.

Q. All right. Thank you. The second was landscaping features?
A. Yes. And it's documented in our appendices, there's agricultural drainage lines that lie behind the landslide. There's the path that obviously comes down to the stairs. Now, the simple analogy there is, like, for a roadway you have - on a hill you'll have a cut on one side and fill on the other to build the road. And for the footpath the simple analogy applies as well. You can't just wish a footpath in a place on a hill. So you've got to cut on one side and fill on the other. And they could have removed the fill. But a little bit of that path is going to be a preferential flow for surface water. And then the path terminates where the landslide is. So there's irrigation lines and things there. There's no way I think they were watering their garden when you get 80 mms in eight hours, but it's clearly been irrigated. The landscaping things, small landscape retaining walls, that sort of stuff.

Q. Yes, okay. All right. So based on all of that you came to conclusions. Would it be fair to describe them as

firm conclusions as to the causes of the two landslides in 2022?
A. Yes.

Q. Thank you. Your next report chronologically is the same date and it's concerned with rectification.
A. Yes.

Q. I just want to deal with it very briefly. It's MSC.5000.0001.1565.
A. Yes.

CHAIRPERSON: Mr Costello, if you want to tender the landslide assessment, I'll give that an exhibit number now.

MR COSTELLO: Yes, thank you. Sorry, I should do these things as I go.

CHAIRPERSON: Dane Pope's landslide assessment dated 11 June 2024 will be exhibit CA6.

EXHIBIT #CA6 DANE POPE'S LANDSLIDE ASSESSMENT DATED 11 JUNE 2024

MR COSTELLO: Now, Mr Pope, this report was written for the same purpose, that is in connection with the VCAT proceeding; is that right?
A. Yes, correct.

Q. Thank you. You tell me if I've misunderstood it but, to try and move things along, this is a further area of contest between the council and the owners of 10-12 View Point Road about what needs to be done in response to the 2022 landslide?
A. Yes, correct.

Q. And the owners of that property had by their engineers, CivilTest, proposed a solution?
A. Yes.

Q. And the council's - well, no, let me put it more neutrally. You were asked by the council to assess the merit of that solution?
A. Yes. Yes. Well, in the context of how would I fix it, like, yes.

Q. Yes.

A. Yes, yes.

Q. So it wasn't necessarily the case, for example, that the council had just determined that it was not inclined to do the works CivilTest had proposed; they were interested in your independent thinking about whether it was the best solution?
A. They were interested in the most economical and efficient way of getting it done, yes.

Q. I see. And do you recall now if CivilTest had only proposed one solution or if they had canvassed others?
A. Certainly some significantly engineered retaining walls and then - that was early days, and I think Davin Slade reviewed that sort of stuff. And then they've more recently tried to wind it back to landscape retaining walls.

Q. I see.
A. Yes.

Q. And if we could move to --
A. Clean up the landslide debris and then build some landscape walls, yes.

Q. Now, in fairness to you I should just point out something that we discussed early in your evidence. At the bottom of 1569, internal page 5, under the heading, "Document review", you make the comments that I alluded to earlier about the accuracy of that cross-section that we talked about. That's the cross-section there you'll recall we went to?
A. Yes.

Q. And then on the earlier page you have by this stage at least formed conclusions that it's not entirely accurate?
A. Yes.

Q. And they were conclusions that you had reached with more time to give proper consideration to the diagram?
A. Yes.

Q. Thank you. If we could move forward two pages, 1571, the CivilTest proposal is set out diagrammatically there?
A. Correct, yes.

Q. So this was a proposal, was it, for in effect four

retaining walls down the length of the slope?
A. Yes.

Q. And that's what they and CivilTest thought was the solution to structurally strengthen this slope?
A. Correct.

Q. And to mitigate the risk of future landslides?
A. Reduce the risk of them, yes.

Q. And, putting aside contests about whether there are other ideas that may be more effective or more economical, just assessing this proposal on its merits --
A. Yes.

Q. -- we've all been put into your position now; we don't have a screen?
A. That's all right.

Q. It might come back on if I keep talking. Was this proposal likely to work - that is, the four retaining walls proposed likely to strengthen the hill and reduce landslide risk - or does it just fail as an idea?
A. You can build it, for sure. But --

Q. When you say "you can build it", I mean, do you mean it's physically possible to build it?
A. I mean, engineers, we think we can do anything; right? But you can do this. We don't think they should.

Q. No, I understand that. I don't want to quibble with this but I just want to understand. You think there's a better path. I just want to understand, though, whether or not if you did this it would be likely to work. You might say it won't work as well as another thing. You might say it's egregiously expensive. But, just as a concept, does this concept work or does it fail at the first hurdle?
A. Like, they're long sockets in the granite. So there's a limit to how hard you can push a cantilevered wall, which these are. And we actually didn't run deformation analysis on them. So, the top wall there, I don't like the look of it at all. I think that would probably fail. So, coming from top down, I don't think that would be sensible, even if it was cement treated crushed rock. There's plenty of precedents of cantilevered walls behaving themselves on the escarpment and there's obviously precedents of them not behaving themselves. So you could build it, but we would

strongly suggest you don't.

Q. I see.
A. And they often do work reasonably well. But it's certainly not the cheapest way of - in my experience with the state, this won't be cheaper than what we roll out on the Great Ocean Road and the inland routes and that sort of stuff.

Q. Cheaper is a natural concern of government, but --
A. I'm not sure it's more robust than what we roll out on the Great Ocean Road. So what I've suggested in this report is what's on the Great Ocean Road in multiple places, and the risk on that road has been reduced significantly. We put that system forward because it can be built quickly and it's robust.

Q. The system you put forward in general terms is soil nails?
A. Yes.

Q. They're the primary aspect of the system?
A. Primary; yes, correct.

Q. And are they working in concept with other engineering controls?
A. They have a mesh. They're all interconnected by a mesh system. Essentially you set the soil nail spacing so that the mesh can tolerate a similar volume of soil moving between all the nails. The mesh is designed for the load in between the nails, and then the nails are there just basically - you bag up all the surficial sands, and you're pinning them, you're forcing them against the slope.

Q. The nails are essentially metal rods?
A. Yes.

Q. And --
A. There are different options, but yes.

Q. I see. Options different than metal, do you mean? Carbon fibre rods?
A. Yes. So there's stainless steel. There's galvanised steel. And then Paddy's Path I think was done with fibreglass.

Q. I see. And these are rods of different lengths

depending on the place that they're inserted into the slope?
A. Yes. If failures, parallel to slope. But, yes, you do lengthen them as needed.

Q. You've got to insert them at, what, an angle that is uniform along the slope or does the angle of the insertion of the nail vary depending on its location in the slope?
A. You do try and have the declination angle similar otherwise you can cross-foul if the angles are too different. But they are allowed to deviate a little bit.

Q. All right. I don't know if your screen's back but mine is.
A. Yes.

Q. Thank you. If we could go to 1588, please, which is internal page 24. There's a number of diagrams that I understand to be of your proposed solution.
A. Yes.

Q. I'll show you one. MSC.5000.0001.1565 will be the first page, and then if we could move to internal page 24, Bates number point 1588, thank you. And if we could just have that diagram at the top exploded?
A. To your point, they're longer at the toe to get through the debris of the toe, and then shorter up the top.

Q. I see.
A. Yes.

Q. So this was your solution. It's soil nails. That's the correct term, soil nails?
A. Yes, for here, like, it is borderline rock. So some people call them rock dowels or soil nails; yes.

Q. In any event, it's metallic poles drilled in through the soil into the hard rock base?
A. Yes, soil or rock; yes.

Q. With connecting mesh. And what that does is it creates - well, it structurally strengthens the soil on the slope; is that right?
A. The soil that's mobile parallel to slope, yes, it basically gathers it up and pins it to the face.

Q. Your conclusion was that this would be a better way of

strengthening the slope than the proposal of the four retaining walls?
A. Yes, this responds and when they drill it they'll follow the landform. So the design responds to the landform. It doesn't actually try and impose a cut for a - those retaining walls would need to be cut into the hill. So the risks during construction for the retaining walls are significantly higher than just having the ropes experts come and do - they do it by ropes. They can do it with crane access. But, essentially, they drill the holes, put the nails in and roll the mesh out, and it just responds to the landform. They don't have to cut into it; yes.

Q. And there would be a variety of risks in connection with either proposal, but one relevant risk would be triggering a landslide by the fact of doing the works?
A. Yes, absolutely.

Q. And you think this is a lower risk option in that regard than the opposing option?
A. This you can map - there's a risk of landslide because you're working on one. But they will work top down, and those teams will secure above them before they work down the hill.

Q. And is it fair to say you've been involved in a number of projects where this type of solution has been employed?
A. Yes.

Q. And, based on your experience, how long does it take for this type of solution to be put in place once a decision's made to do it?
A. Like, once the contract's initiated, two to three months maybe. I don't do --

Q. I'm not going to hold you to it.
A. No. It's not 12 months. If it's 12 months - so Deviation Road took forever, but it was not - well, actually did it? It was shut for a year. Deviation Road was shut for basically a year to respond. But it wasn't just this system on its own. So two to three months. It doesn't take long. They might design it in a month. Geobrugg and the likes might kill me for saying that, but they can design it pretty quickly. Andrew would probably be the better person to answer that question because of his experience with managing these contracts for the State. But a matter of months, yes.

Q. Okay. Mr Pope, you're well familiar with the concept of geological time.
A. Yes.

Q. Probably less familiar with the concept of barrister's time. I gave an estimate that I would be done with you by lunchtime, but I'm going to need a little more time with you, if that's all right.
A. Yes, that's fine.

Q. I suspect we can get through the balance reasonably quickly, but I think it would be a mistake for me to stop. So if that's a convenient time, Madam Chair.

CHAIRPERSON: Yes. We can break now, if that's your preference.

MR COSTELLO: Thank you.

LUNCHEON ADJOURNMENT

UPON RESUMING AT 2.15 PM:

CHAIRPERSON: If Mr Pope could return to the witness box.

MR COSTELLO: Thank you, Mr Pope. Before we broke we were talking about aspects of your rectification report, and I think we were at page 1588, internal page 24, which is the diagram of your preferred solution for the slope. I should be clear about this. The part of the slope that we were talking about here is that part which was affected by the 2022 landslide, not the part of the slope that was affected by the 2025 landslide; is that correct?
A. Correct, yes.

Q. And was it your evidence shortly before lunch that you thought, without being bound by it but in a ballpark sort of a way, that once a solution like this had been approved it could be implemented as quickly as three months, but may take longer?
A. Yes, yes.

Q. You thought that this was a more cost-attractive solution than the solution that had been proposed involving four retaining walls?
A. Yes.

Q. What are the relative cost differentials? Do you have an idea about that?
A. No. No. The numbers - this is sort of Andrew Wilson's experience in running these sorts of contracts for the department, so --

Q. I see. And also to be clear, looking at that cross-section, one might think that there's a single soil nail put in at each location from top of slope to bottom, but in reality would there be rows of these soil nails?
A. Yes, correct. Yes.

Q. Thank you. Could soil nails be put in across the entirety of the hill; that is, could they be put in from this area through across to the 2025 area?
A. Yes, you could. But there's some serious vegetation you'd have to remove. Yes.

Q. And I know we haven't quite got to 2025 yet, but have you at this point in time had any instructions to consider methods for shoring up the 2025 slide area?
A. All we've looked at, and there will be a temporary works proposal in the documents, is measures to reduce the risks in the short term. But we haven't looked at long-term rectification.

Q. I see. All right. We might come back to that. I want to move quickly to the second risk assessment report that I alluded to when we were discussing the first. It's MSC.5000.0001.1706.

CHAIRPERSON: Mr Costello --

MR COSTELLO: Yes, sorry, Madam Chair.

CHAIRPERSON: Mr Pope's rectification report dated 11 June 2024 will be CA7.

EXHIBIT #CA7 MR POPE'S RECTIFICATION REPORT DATED 11 JUNE 2024.

MR COSTELLO: Thank you. This is your 11 June risk assessment?
A. Yes.

Q. Now, we have touched upon aspects of this already.

I don't want to cover ground that is relevantly the same as in your earlier risk assessment report. But perhaps you could just begin by explaining the circumstances in which this report was requested; that is, why there needed to be another risk assessment report undertaken?
A. Broadly it was to include our observations from the site visit. So Andrew Wilson had done a site visit on my behalf, and essentially I could have just relied on his facts.

Q. On Mr Wilson's facts?
A. I could have just relied on his facts. That was good enough, what he had done. So it was to include his observations. Obviously kept the commentary regarding CivilTest and Stantec in there, and the exact directions, I can't recall. It was more just to include our facts, more of our facts, yes.

Q. So this is a report prepared with a more extensive range of facts and data available to you than the first report?
A. Yes.

Q. And do you recall as you sit there now whether or not your assessment changed in any material respect?
A. It 's still unacceptable to life. I dont - yes. Not meaningfully in terms of letting people back into their properties, yes.

Q. Thank you. Is there any particular aspect of this report that you want to draw attention to?
A. Not that jumps out at me, no.

Q. Thank you. As with the first report, this report was concerned with the same three properties: 10-12 View Point Road, 2 Penny Lane and unit 3/613 Point Nepean Road. No expansion of scope in that regard?
A. No.

Q. Thank you. Can I move then to what you describe as the reverse brief. That's MSC.5016.0001.1844.

CHAIRPERSON: Do you want to tender that risk assessment?

MR COSTELLO: Yes, I should for completeness, thank you.

CHAIRPERSON: Yes. Mr Pope's second risk assessment dated

11 June 2024 is exhibit CA8.

EXHIBIT #CA8 MR POPE'S SECOND RISK ASSESSMENT DATED 11 JUNE 2024.

MR COSTELLO: Now, you can see that on your screen and I'm sure you've got a hard copy in front of you?
A. I've got two reverse briefs, so which - what's the --

Q. Sorry, the one that I - sorry. It's not on the screen, sorry. Can we have MSC.5016.0001.1844. Thank you. The one that I'm speaking of is 17 March 2025?
A. Yes, sure.

Q. Could you explain the concept of a reverse brief?
A. For this situation, essentially it is what - it is literally what I think we need to get done to answer - it's basically PSM defining a scope for this particular item. It's not council coming to us with a scope. We identified that we needed to investigate the influence of stormwater and sewer systems on near-surface groundwater, and so we basically put it back to the council this is what we think we need to do.

Q. Okay.
A. As opposed to getting a brief and someone says, "I want you to investigate this," we're saying, "We think you should investigate."

Q. And was this directed to ensuring that you had the material available to you so that you could write a causal report?
A. It would feed into a causal report, yes.

Q. Thank you. So here you're identifying that which you need in order to properly investigate the effect of stormwater and sewerage infrastructure on the 2025 landslide; is that correct?
A. Yes. Yes.

Q. And what is the next step after you provide a reverse brief like this to a client?
A. We await acceptance. Normally it was - we issued this on the 17th; I think we got approval on the 21st, four days later maybe - wait for acceptance, get that in writing at least, and then proceed with ordering the materials that we needed. A significant part of this, though, was working

with South East Water for permission to actually drill in their trenches.

Q. Thank you. I'll come to that in a moment. But just so I understand the sequence, you've then got a report called "McCrae landslide evacuation order area". That's dated 9 April?
A. Yes, the --

Q. Which is only a couple of weeks after that?
A. Yes.

Q. That report doesn't rely upon the type of information that you're setting out as needing here; is that right?
A. Correct, yes, correct.

Q. Because the information that you're seeking --
A. This is more scope, yes, correct, yes.

Q. Yes. Good. Thank you. So in order for the work to be done in connection with the reverse brief you need not only client approval from the council to go ahead with the work but you need the cooperation of South East Water; is that right?
A. Yes, absolutely. Yes.

Q. All right. And so did the council approve you doing the works that you had proposed in this reverse brief?
A. Yes.

Q. How quickly did they do that?
A. 21 March, I believe, a few days later.

Q. Thank you. And then you set about undertaking the tasks that are set out in this document?
A. Correct, yes.

Q. Insofar as engagement with South East Water is concerned, is that something that you take up directly with them or do you do that through council officers?
A. I was assisted by council in that matter, yes.

Q. All right. And what in particular were you seeking from South East Water?
A. So they've got a bunch of legitimate rules for drilling near or digging near their assets. So we had to seek permission. Obviously the boreholes are targeted to a

fix of council and South East Water assets. "Is it okay that we do this," was the question. "How would you like us to do it?" And so we'd put forward the methodology of using, again that term, non-destructive testing, which is essentially a vacuum truck to advance the borehole in their trenches. Even that in itself has risk because it's high-pressure water, and they're clay sewers, you can damage them with water pressure. So there was a couple of weeks there where we were seeking permissions, getting permissions, and then South East Water wanted input into where the borehole locations would be. So there was time spent there negotiating, I guess, on locations and things.

Q. I see.
A. Yes.

Q. And did you ultimately get approval to do the works that you sought to do?
A. Yes. Yes.

Q. All right. Did you require any data from South East Water for this part of your work?
A. No, just permission basically, yes.

Q. Had you sought data from South East Water earlier in the year?
A. Yes, absolutely. Yes.

Q. And what data had you sought from them earlier in the year?
A. If it helps, certainly will help me, there was in a weekly report - it's a fair list. So it's document 5016, or, sorry, MSC.5016.0001.2047.

Q. Did you say 2047?
A. Correct.

Q. Thank you.
A. It's an April weekly report, 4 April 2025. But essentially attached to - we report weekly our progress to council in terms of obviously tracking what we're up to and what's left to do. But in that we had attached from early days an RFI register. And so I started asking for information from them as early as 21 Jan 2025. At that stage I wanted - I had a conversation with field techs from South East Water regarding chemistry - water chemistry testing, and verbally they had discussed the results. And

so I've obviously done similar testing and I just wanted to compare the results to see if they were consistent.

Q. I see. Sorry, whenabouts were you requesting this?
A. 21 Jan.

Q. And did you --
A. January, yes.

Q. Did you make that request directly to South East Water?
A. No, they were either through Harwood Andrews or - so that one - so I list out who I sent the RFI to. So that was Lisa and Ben at Harwood Andrews. If it wasn't directly through them, it was either through the project director from council or Derek's support team. Most recently I believe Lisa put in a formal list which is a group of all these. You'll see there's a whole bunch of South East Water requests that are essentially closed but with the comment, "South East Water will not provide." So essentially aside from this investigation any info I've asked for I haven't received. They've been helpful in drilling very close to their assets, though.

Q. I see. So they've facilitated you doing works to undertake your own testing?
A. Yes.

Q. But you haven't received data or information that you've requested?
A. Yes, and so I was pretty keen to understand - like, obviously Bayview and Outlook, that you've had a water main break, there's no contest that that broke, and I was enquiring as to water usage on that line over the past five years, so - or three to five years. I was interested in - like, I accept that you probably don't know how much - they won't have a hard - may not have a hard measurement of water from that main, but there should be some form of water usage record that can give some insight into the last quarter of last year.

Q. Yes. The broken water main that you're talking about there, do you have any views as to the likely flow of water from that burst?
A. Look, significantly more than the domestic line. It's 150 mm - that's documented as a 150 mm diameter main.

Q. Yes.
A. It would have pressure on it either by gravity to the nearby tanks or they apply pressure to it. I don't know what the pressure is.

Q. And then on the assumption that there was a break or burst to the main there, is that something that in your causal investigation warrants enquiry because water flowing from the burst could end up in the landslide area?
A. Yes.

Q. You don't think this can be ruled out in the sense that water from that main couldn't make its way to that location where the landslide occurred?
A. I mean, it needs to be tested. It could be ruled out that it got to the escarpment. If you look at the contours in the land and from, say, Waller Place down through Coburn down into Margaret Street, there was an old creek that ran from The Boulevard, which is above - it sits in the toe of the mountain, essentially. So there's The Boulevard, there was a creek there, it ran across the motorway down into Margaret Street, essentially. And so we do need to look at the possibility of having the main leaking can - obviously the water can go into the stormwater system, it can actually go into the fill associated with any old creeks that have been built over, and it can recharge near-surface aquifers. Doesn't mean it gets there. But, if you look broadly at Arthurs Seat, the drainage lines go to the bay. So if you have a big main break I do want to understand what's its pressure, how long was it leaking for, what's the water loss and is that volume - can that volume recharge the near-surface aquifers.

Q. All right. I'm going to come back to that topic in a moment, but let me try and keep it in some chronological order. You have prepared what's described - well, actually, I might tender that reverse brief which is MSC.5016.0001.1844.

CHAIRPERSON: Dane Pope's reverse brief dated 17 March 2025 will be exhibit CA9.

EXHIBIT #CA9 DANE POPE'S REVERSE BRIEF DATED 17 MARCH 2025

MR COSTELLO: Could I have on the screen, please, MSC.5007.0004.0078. All right. Sorry, MSC.5007.0004.0078. Mr Pope, this is a PSM geotechnical factual report dated

9 April 2025. This is another report that you signed?
A. Correct.

Q. And you prepared this together with the assistance of Mr Wilson, or did you do this one alone?
A. No, I definitely did not do it alone. So it's --

Q. At least with the assistance of others?
A. Assistance of others. Tim Nash certainly helped me as principal engineering geologist.

Q. Thank you. Now, can you just explain what it is that you seek to achieve by this report?
A. Look, it's to have - there are a series of lines of enquiry that we're looking at. It is essentially to have hopefully a defendable simple set of facts that can be used elsewhere, and so for obvious reasons I keep the factual report separate to anything that could be needed for litigation or - it's to keep it neat, clean and as little interpretation as possible, which obviously borehole logs have interpretation. But it's just - these are the facts that I was immediately curious about, and then upon issuing this then we go to the reverse brief to fill in some gaps.

Q. In terms of the facts that you were immediately curious about, this sets out the facts that you found in connection with factors that could potentially be causative of the landslide?
A. Yes.

Q. Thank you. And you engaged in a range of tests, the nature of some of these I touched on with Mr Paul yesterday?
A. Yes.

Q. Insofar as your investigation's concerned, groundwater levels and pore pressure, that involved the use of piesometers?
A. Yes.

Q. And the use of cone penetration testing?
A. CPT is more - I use CPTs more to characterise the strength of the soils, but yes.

Q. Thank you. In respect of groundwater and the piezometers, are they still in place?
A. Yes, absolutely.

Q. All right. And so there's data being collected?
A. Yes.

Q. And how often is that data collected?
A. The data loggers where they're set will take a reading every three hours. We can change that if needed. But we essentially each month, roughly every month, have been going to download the data from the data loggers. We basically take any - if it rains, so in March - I think 20 March I was doing the Reln drains, which are in - hand augurs, which are in the report, and it rained on that day. So we were curious to see what happened after that rainfall event, and went back and downloaded them. So we'll download them at a minimum monthly. But if we get 80 mm of rain tonight we would go within a week and pick it up. Yes.

Q. You would pick it up within a week because that would mean you had data sufficient to be robust; is that what you mean?
A. Like, if you had the same 22 storm happen, then that's very valuable --

Q. Yes.
A. -- in terms of having the monitoring data. The monitoring equipment in the ground when the event happens is incredibly valuable. So, yes, it would be robust. If a repeat storm like that happens, yes.

Q. So there's an obvious time requirement --
A. Yes.

Q. -- in order to get data that's sufficiently robust, but that time is not fixable by any defined measure; is that right?
A. That's correct, yes.

Q. It will depend upon, insofar as water's concerned, the extent to which there is rainfall?
A. Yes. I mean, if you had anthropogenic - if you had a water main break on View Point, I'd daresay the instruments would respond to it.

Q. Yes.
A. So, yes, rainfall or an anthropogenic source of water.

Q. And in the absence of significant rainfall or another source of significant inundation of the areas where the boreholes have been drilled and the piezometers sit within, how do you know when enough time is enough time?
A. Yes, it's a good question. I feel like - you need a wet - I would think when - I'm going to need a bunch of significant rainfall events back to back. You could need the wet season to inform to be robust, and it would need to be - I'm not sure a below-average rainfall wet season is going to help much. So at the moment we've got a lot of below-average rainfall. We're still capturing responses from - say, 30 mm of rain fell on 20 March and there was a response to that. We do need to see a few more events. But I would think - you certainly see a lot in a typical wet season, especially once - the power of evaporation, like, the sun's not as powerful, trees aren't needing as much water. So there is a fundamental change in saturation into the wet season. Yes.

Q. So you're concerned obviously to write a causal report that's based on data that's sufficiently robust that your conclusions are valid?
A. Yes, absolutely. Yes.

Q. And does that mean, at least insofar as water testing is concerned, that you're not in a position today to say how much longer will be required for those piezometers to sit in the ground?
A. Yes, correct. And I think Darren touched on it. Like, in some design cases and certainly on the big tunnel projects you are put in a corner where you've just got to assume worse case, like - it's like everything's saturated. But that's not helpful here. In a design case you can go, well, let's just design for full saturation to the ground level, even with the water table at 10 metres. But here for trying to investigate cause that's not going to be helpful to - you know what I mean? That design analogy of, "Oh, let's be as conservative" - it doesn't work in forensics.

Q. Yes. You mean - tell me if this is right - when you are setting out to design a structure that doesn't currently exist, choosing the most conservative available assumptions is a valid method?
A. Yes, you can, yes.

Q. Because you build to those assumptions?

A. Yes, especially to - you touched on sea level rise, and who knows where that's going to - I mean, a lot of reputable people do a lot of work in that space, but it's like where is it going to be? Like, I don't know what - what we think is conservative.

Q. Yes.
A. But in forensics I don't --

Q. But here you are trying to ascertain the cause of what in fact happened?
A. Yes.

Q. And so, that being the case, there's a natural limit to the amount you can assume?
A. Yes, absolutely. Yes.

Q. I'm sure you retain an open mind in respect of the causes of the 2025 landslide; is that fair?
A. Yes, absolutely. Yes.

Q. Is it fair also to say, though, that groundwater levels and pore pressure are significant avenues of enquiry for your investigation?
A. Yes, yes.

Q. Is there any plausible explanation for this - sorry, for the two 2025 landslides that doesn't involve at some causal level water?
A. We haven't yet run a back-analysis of that retaining wall. I suspect in - I'm - well, we need to do that because some of the piers were short enough to be, by modern design standards, problematic in terms of stability, with or without water. That being said, 22 event, the storm event, there was a retaining wall there and it didn't fail. So catastrophically I'll add. The wall that failed this year was a different wall to what was there in 22. So that wall got through a big storm event. So for then it to fail catastrophically now then I would think water is involved. It will be - and you could quite easily do a design check that that wall would be touch and go design wise, and that's from my experience with similar walls. We certainly don't do - we certainly have genuine sockets in competent material in our retaining walls. But I would think given the 22 wall didn't fail and it did rain significantly, then it's got to be something - I'm confident water's involved, yes. Yes.

Q. In terms of the investigations you've just been discussing in respect of the retaining wall, why haven't they been done yet?
A. The back-analysis of the - yes, well, that will feed into cause, essentially. Andrew Wilson is helping me with risk to life, and that's been our priority from day one, yes.

Q. I see. So it's just a question of timing and resources, but that's on your to-do list?
A. Look, we could have got someone else to do that analysis, but it's not going to be critical path on cause.

Q. I see.
A. It's one thing we want to look at. It's not --

Q. I see. But it's not on the critical path?
A. No, not at all. Probably two days work to look at that wall in that level of detail.

Q. Thank you. Just so the chair of the inquiry can have some understanding as to that which needs to be done and the likely timeframes of it, what is on the critical path for your causal investigation?
A. Getting risk-to-life report finished and out is critical path, and then --

Q. In the sense that that clears you up to do --
A. Once that's cleared and if cause is council's priority, that is their number one priority, is cause, then we need the sewer and stormwater data, like as in - as I've written in the proposal, we're hoping for at least a month groundwater monitoring from that data. Assuming you had favourable rainfall and the sensors all respond to water, these sort of reports - so I was - to use 22 as an example, if I'm briefed in early November and we issued a draft before Christmas, that's for one landslide hazard, that was two months. Obviously we spent a significant amount of time doing risk to life, and that timeframe isn't going to be repeated again. But I don't see us meaningfully reporting until July, and that assumes that it's number one priority.

Q. When you say July do you mean late July, early July? I appreciate there's an element of guessing involved in this, but based on your experience and what you know about

the work that you need to be done, without anyone holding you to it --
A. It would be later in July. It would be late July.

CHAIRPERSON: Mr Pope, have you been told by the shire that the causal report is a priority?
A. Not in those words and, sorry, I forgot, I haven't got a formal - I've been told it's a report that needs to be developed. But in terms of a formal brief similar to the one I received for 22, I haven't received that yet. That doesn't mean that's going to slow me down. But I don't have, like, five key questions or 20 questions.

MR COSTELLO: I see.
A. So I don't know to that level of detail.

Q. I see.
A. They tend to take a clean two months to write.

Q. And the writing of it, though, the clean two months depends on you having the data you need?
A. Yes, absolutely.

Q. One source of the data is rainfall, that's not within any of our control?
A. Yes.

Q. Another source of data is information that you have sought but not received from South East Water?
A. On that we can make some simple assumptions. So you could make assumptions on pressure and leaks and the likes in the mains and do it that way to keep it moving. But you need at some point to have the real data come in.

Q. Would these be assumptions akin to those that you made in respect of the leaking pipe at 10-12 View Point Road that we went through earlier?
A. Similar, yes, but you're trying to work out how much water is needed to fill the pore space for - I think it's like 40 hectares or something or - it's a lot of land anyway.

Q. It's a lot of land and it would require a lot of water?
A. Correct, yes.

Q. But, as you sit there now, you don't have any idea

about the sorts of volumes that would be necessary?
A. I haven't done the calc in a meaningful way. You would need megalitres of water, but - like, a lot of water, but I believe these systems are capable of producing that sort of volume.

Q. And it depends - the calculation is a little more complicated than the calculation concerning the pipe in 2022?
A. Yes, absolutely.

Q. Because you're talking about a burst water main in a less proximate location?
A. Yes, absolutely. It's quite complicated. It's near what we think is an old creek. It's got a whole bunch of trunk services that interact with where the water leaks. So the water main breaks, but it breaks next to a sewer trench and it also breaks next to a trunk stormwater trench. So not only do you have the residents talking to stormwater system being roaring, but you've got the trenches saturated as well, and how they come down the hill and distribute water across the hill is - like, complex is understating it.

Q. Yes.
A. You then have --

Q. And is that --
A. The geology itself is complicated enough that it will - it won't necessarily distribute water where you think it will either. So it's quite a complex surface water issue, groundwater issue, and a difficult question to answer.

Q. And all of those nuances need to be carefully considered for your causal report?
A. Yes, absolutely.

Q. So you'll need to form views, for example, on the likely flow of water from that burst water main, and that will require you to look into things like the creek that's no longer a creek?
A. Yes. Yes.

Q. I see. And will that involve some testing?
A. Look, in that reverse brief you just ran me through we have mainly targeted to the council stormwater trenches put

standpipes in so you can do water chemistry. At some point we may sample the water and do chemistry testing if we think we need to, if they produce water. That's the other thing. So yes.

Q. You have done some chemistry testing from samples you took at another occasion?
A. Yes, correct. In January, yes.

Q. I see. Can I just show you another document, please. It's - actually, I might just tender that report while I'm thinking of it.

CHAIRPERSON: Mr Pope's factual report dated 9 April 2025 --

MR COSTELLO: No, I apologise, I tendered it yesterday.
CHAIRPERSON: Yes, you did.

MR COSTELLO: That's CA2.

CHAIRPERSON: It is.

MR COSTELLO: Pardon me, Madam Chair. Can I show you another document, MSC.5031.0001.1289. Do you know, Mr Pope, if you've seen this email before?
A. I don't think I've seen it.

Q. Okay. Can you see there just before the bullet points it asks - this is sent by Mr Haines-Sutherland from the shire council to various parties that - first to Mr Lloyd at South East Water, and can you see there just above the bullet points it says, "Does SEW have information on the following to assist in tracking the movement of water in this area," and there are then a range of bullet points?
A. Yes.

Q. Estimate of flow rate through the sewer trenches, estimate of flow rate through the undisturbed ground area, information on the burst main, date of burst, date of repair, estimate of volume discharged, and then there's a reference to the fact that information had been sought the day before?
A. M'hmm.

Q. Do you know Mr Haines-Sutherland?
A. Yes, I did meet him early days, yes.

Q. Is this information the council was likely seeking from South East Water because you've requested it from - you've asked the council to obtain this data for you?
A. Some of it. I don't think I would have asked for flow rate in the sewer trenches, because I know how hard that is to measure. I definitely asked for CCTV. That was off the back of talking to one of their techs who had talked to cameraing View Point. Date of burst, date of repair, volume of discharge, I had asked similar questions. But it's not verbatim a request from me, no.

Q. I understand. Is this information in any event that would be useful to you in preparing your causation report?
A. Yes. If you could measure the flow, sure. Yes. But short answer, yes.

Q. But putting aside those things that may not be possible --
A. It would be useful, yes.

Q. I see. And, insofar as you are aware, has any of this information been passed on to you?
A. No.

Q. Might I tender that email?

CHAIRPERSON: Yes, Mr Costello. The email from Mr Haines-Sutherland at the Mornington Peninsula Shire Council to South East Water dated 30 January 2025 is exhibit CA10.

EXHIBIT #CA10 EMAIL FROM MR HAINES-SUTHERLAND AT MORNINGTON PENINSULA SHIRE COUNCIL TO SOUTH EAST WATER DATED 30 JANUARY 2025.

MR COSTELLO: Is it your understanding, Mr Pope, that there was a lot of water in the general area of the 2025 landslides in the months preceding the landslide? Have you been told that by locals?
A. To the extent that it got to 7 Prospect Hill, where there's back-to-back basements there were sump pumps, and so I'd certainly heard of and saw in January the water in Waller, Charlesworth, Coburn and Prospect Hill to approximately 7 Prospect Hill. But from there down the hill mainly the stormwater flow, like, so within the stormwater system, was commentary about that being higher

than normal. And then - so down in Margaret Street, property owners down there were talking to timing of hearing the stormwater system, seeing the beach get eroded by the outflows and that sort of stuff.

Q. Were you told by local residents about road surfaces being damaged by water coming up and through the road?
A. That came from Matt, like, in the - between --

Q. Who is Matt?
A. Matt is the building surveyor who --

Q. That's Mr Glover?
A. Yes, correct.

Q. Thank you.
A. So he shared the Facebook community post. So indirectly, yes. Council briefed me on Coburn Avenue potholes, and the Charlesworth potholes were through the Facebook group that Matt Glover had shared images from.

Q. You knew also that there was water flowing through the property at 3 Penny Lane after the earthquakes?
A. After the landslides.

Q. After the landslides, rather.
A. Yes. I inspected on the 6th and that was - yes, absolutely.

Q. Was there still water actually flowing through the property when you were there?
A. Yes. So that measurement was me with a water bottle measuring flow.

Q. Deriving a flow rate?
A. Crudely, yes. Yes, yes.

Q. Yes. And would you describe that as an unusual amount of water to have been flowing through the property?
A. Not for a spring, no. If it had never flowed before, then sure. But I'm not convinced it hasn't flowed before.

Q. That is you're not convinced that a spring hasn't flowed before?
A. Correct.

Q. Does that mean you are convinced there is a spring?

A. So in the facts behind that is that council has an inspection report from I think it's September 1987 for a complaint regarding what they thought was effluent running onto 607 Point Nepean Road, which was subdivided into 3 Penny Lane and 607. So essentially someone's gone out in the 80s and inspected, worked out that there were sewered properties and then - so there was a complaint about water from that - from uphill, and they ran it through and said it's sewered so it's not sewer. So it's not the first record of water coming down there.

Q. Okay.
A. We are testing whether that's a spring, yes.

Q. How do you do that?
A. So we're in the middle of doing it, but we're essentially dye tracing assets. So as late as yesterday we dye traced the bedding sand of a sewer trench on View Point with a view to - obviously the dye comes out of the sewer trench. We'll be looking at - that points to anthropogenics rather than a spring. The next - you can obviously do water chemistry testing, which we have done, and I would like to repeat it once it's safe to do so. So we would - if they can get the risk down on the landslide head, it would be good to sample the water again closer to the landslide head and see if that chemistry is different to what we picked up on Penny Lane and the likes.

Q. Speaking of springs, it's right, isn't it, that springs - not all springs will necessarily flow at all times?
A. Correct.

Q. A spring might, for example, flow and be present flowing in the immediate aftermath of a significant rain event?
A. Yes.

Q. And that flow might continue for a period until it's dried up?
A. Yes.

Q. And that's because springs need to be recharged?
A. Correct, yes.

Q. And so they draw water from a recharge area, and if the recharge is depleted the spring stops running?

A. Yes.

Q. And in that sense the area can be recharged by rainwater, but it can equally be recharged by other water sources?
A. Yes.

Q. You accept that?
A. Yes.

Q. And so an available thesis at least, depending on the flows of water from a burst main, might be that the burst main has recharged the recharge area of a spring and that some of the water from the burst main that's gone into the recharge area has then emerged through the spring; is that a theoretically possible occurrence?
A. Yes, yes. Yes.

Q. And would you expect the chemistry of the water to change where the water exits, say, a burst main and then travels through earth?
A. Yes. Yes, it's unlikely - it depends on the length of the flow path.

Q. Yes.
A. Yes.

Q. It's fair to say the greater the flow path the greater the prospect of a change in chemistry that's material?
A. Yes.

Q. And does that mean that making determinations from water chemistry tests taken from sample sites isn't necessarily a process that requires not only analysis but some degree of evaluation?
A. Yes, absolutely. Yes.

Q. You took samples from five sites, including one at Penny Lane?
A. Correct.

Q. The other four were up on the hill?
A. Yes.

Q. And I can take you to the testing if it will help you, but just in general terms did you derive any conclusions from those tests?

A. Broadly that the salinity was notably different between the stormwater system and the landslide water; that the levels of chlorides and calcium carbonate in the landslide water was notably different to anything from up the top of the hill.

Q. The landslide - by the landslide, what do you mean, the Penny Lane water?
A. Penny Lane. Sorry, Penny Lane, yes. Now, I mean this - that sort of analysis will fall into the principal hydrogeologist realm, and we do have one assisting. So in the nitty-gritty of chemistry I'll run out of talent. But essentially broadly there was enough difference in salinity, chlorides and calcium carbonate to be curious.

Q. I see. And the water that we're talking about here are surface water samples?
A. Correct, yes.

Q. And were there any groundwater samples taken?
A. No. And so we have - noting you've got time restrictions, but we have put standpipes in to get water chemistry samples. We held back on sampling because some of the standpipes didn't produce water, and they didn't produce water within half a metre of another test location that did. So there was some - that speaks to the variability of groundwater there in itself. But we are - we do have water in some of the bores now and we can sample water chemistry, and so we are curious to compare that water, the groundwater at depth, especially at the end of View Point Drive - we've got a standpipe there - sample that, compare - I mean, it's a different time stamp, but it would be nice to test the groundwater chemistry and compare it to the surface water.

Q. Yes. Okay. So that's all part of the causal investigation that you're undertaking?
A. Yes.

Q. And, just to loop back to this question of potential water flow from the burst main, is there a lot of work involved in ascertaining the potential water flows from that particular site?
A. It depends how - it's already quite complex to me technically. So I feel we would need inputs. Like, this is internally at PSM from the principal hydrogeologist and a principal hydrologist, which is like the flood modellers

that we have, and have reached out to both of them to sort of assist in that.

Q. Well, let me just be plain with you, Mr Pope. One of the reasons I'm asking that is you've given an estimate, which is not a binding estimate --
A. Yes.

Q. -- that you thought perhaps by the end of July, and that's in part based on your experience of about two months of being able to turn around a causal report. What I'm concerned to understand is whether or not the types of complications that you've pointed to now necessarily mean this is more complicated than the ordinary report that you've been involved with and if the likelihood is it will actually end up taking more time?
A. So, look, I was being optimistic. I mean, if you need inputs into hydrogeology and hydrology, then that is on top of the estimate, yes. I mean, they're other experts, right, so --

Q. Of course.
A. Yes.

Q. Of course.
A. You can write a causal report and then, as you have probably seen, people carve out what they can't do and then that runs on down the line.

Q. Yes.
A. Yes.

Q. I'm just concerned to understand that it's obviously relevant to the work of this inquiry but it's also of particular relevance to the local community?
A. Yes.

Q. And, to be perfectly frank, I'd prefer them not to have a headline date in their mind for your report being finished --
A. Sure.

Q. -- if it's unlikely to be finished in that time?
A. Yes.

Q. So, based on the discussion we've now had about the complications in mapping potential water flows or

ascertaining potential water flows, the need for sufficient data, including sufficient rainwater data, and the other more standard work that's necessary to put together this report, again, without in any way holding you to it, what's a realistic estimate for your causal report?
A. I think there's too many moving parts to - like, so my original answer is just to - if I don't have to branch out to other experts, best case. But I don't have - if I've got to get hydrologists or principal hydrogeologists involved, then I'm not confident with timeframes.

Q. I see.
A. Yes.

Q. I think that's an entirely fair answer.
A. Yes.

Q. Can I ask, though, that - through the shire's legal representatives, that if at some point in time you do form a view that you inform the solicitors assisting the commission so that we can take that into account?
A. Yes. Yes.

Q. Thank you. I just want to mention one more thing regarding potential water volumes. When we're talking about the burst pipe, which I differentiate from the burst main, your estimate was that there was in the order of 7,200 to 14,400 litres of water that had been contributed to the slope by that burst pipe. Obviously the volumes that one would be talking about in connection with a burst water main would be greater than that?
A. Yes.

Q. But I suppose subtracted then from that headline number is water that diverts elsewhere and doesn't find its way into the hill area?
A. Yes.

Q. Is that a fair way of describing the general type of work that needs to be done to understand the volume of water, if any, that may have gone into the hill?
A. You've got to look at what water's needed to saturate the soils and when it is saturated what breaches to surface level, which, as I understand it, you've seen where the sediment has come out downstream in the main. So then you need to look at can you overwhelm the stormwater system with the volume. But, yes, essentially, yes. You've got

to go how much water goes into the stormwater system; how much water stays in the soil; if it does saturate the soil and then seeps out on Charlesworth, if, seeps out on Charlesworth, all the - does it even get to View Point by surface flow.

Q. Yes.
A. It does seem like it goes very close, but you've still got to - there's a few missing links, which is why we've put boreholes in particular places as to - to get water from Prospect Hill down to View Point. Yes, you're looking at proportioning out to surface water flows, subsurface flows; do they get there; if they do, how are they getting there. It's quite complicated.

Q. It sounds like hydrogeologist territory?
A. Yes.

Q. You mentioned earlier that you would need effectively megalitres?
A. I would think so, yes. Yes.

Q. And, just so that we're all on the same page, how much is a megalitre?
A. A million litres of water. Yes.

Q. All right. So when we were speaking about 7,200 to 14,400 litres of water from the cracked pipe in 2022, we're here talking orders of magnitude greater than that would be necessary?
A. Yes. Yes.

Q. It may be of interest to you to know that, while there may be some contest about this because there are varieties of evidence, the direct evidence at least from South East Water will be that 37 megalitres of water escaped from that burst water main. Does that sound like a volume of water that necessitates enquiry into that thesis?
A. Yes.

MR COSTELLO: I have no further questions, Madam Chair.

CHAIRPERSON: Thanks, Mr Costello. Mr Pope, when do you expect to finish your risk-to-life report?
A. We are hoping to issue close of business next week, Friday, whatever the date is.

CHAIRPERSON: Do you think that's likely?
A. Yes, yes. So we've essentially internally, save for me being here today, I need to spend another day tomorrow reviewing. Then it gets handed to Garry Mostyn for the technical review early next week. If it's not Friday next week then it will be a couple of days late. It's not like it's weeks late. It will be - yes.

CHAIRPERSON: And once you have provided that report to council do you then propose to move to the preparation of your causal report?
A. Yes.

CHAIRPERSON: And will you then be working on the causal report on a full-time basis or a part-time basis?
A. We do have other - that's why I was talking of council's priorities. There are other bits of scope that we've been working on. So we do issue monitoring reports, which I do have to take a look at. That doesn't take a lot of my time. Tim Nash will be looking at another part of the escarpment for the council. So he can look after that. So it will be my main focus, yes, unless council changes what's my priorities.

CHAIRPERSON: Let's assume that you submit your risk-to-life report next Friday. If you were then told by council that the completion of the causal report is a matter of the highest priority, would you have the ability to work on it full time?
A. Yes.

CHAIRPERSON: Thank you.
A. Save I do have some leave, but not a lot.

CHAIRPERSON: And if you were to then turn to working on it full time from next Friday --
A. Yes.

CHAIRPERSON: -- and just reflecting on the evidence you gave earlier, the best case scenario is completion by the end of July, would that July date come forward if you were to turn to working on it full time from next Friday?
A. I don't think so, no. I'm overseas for a week in June. Like, I haven't had any leave this year. So I've got leave booked. So we're not under-resourced as a business. So we can make Garry work harder. I'm saying that on the record. I can make him do a bit more. But we

can resource it differently, yes.

CHAIRPERSON: Thank you. Does anyone wish to ask questions?

MS FOLEY: I do seek leave to ask a very small handful of clarifying questions.

CHAIRPERSON: You have leave.

MS FOLEY: Thank you.

<EXAMINED BY MS FOLEY:

MS FOLEY: Mr Pope, you were asked some questions by Mr Costello about your approach to the calculation of the risk to life; do you recall some of those questions?
A. Yes.

Q. And in particular you were asked some questions about assumptions that might be made about how people might spend their time on a property, whether it might be in their house or in the garden and so on; do you recall those questions?
A. Yes, yes.

Q. One question that might be asked is why wouldn't you in a given case just speak to the owners and say to them, "How much time do you spend in the property, how much time do you spend in the house, how much time do you spend in the garden" and so on. Why would you rely on assumptions rather than speaking to the owners?
A. My precedent is more from - it's a weird segue. Effluent field design. So when I worked for councils doing effluent field design the health officers don't care if someone's only using one bedroom. They're like, "We think this place will be maxed out. It will always be used. You have to assume they're there." So you could interview them. And 10-12 will be different to number 4, and it just gets quite complicated. But I maybe didn't make my point in that the risk to life, in my experience, really is controlled by can the landslide occur and where does it get to. If you are arguing about time it only affects, in my experience, an order of magnitude in the calc. So it doesn't - obviously if you're not there you don't get hit by it. But I don't think that's what's being asked. The people are there, and we do take a conservative view. Yes,

you can bring it down from 80 per cent to 40 per cent, or 80 to 20. But when the risk-to-life report drops you understand it doesn't change much.

Q. Thank you. And the approach that you've outlined that you take you would say is a more conservative approach?
A. Yes. We took a conservative approach - and we are now - on temporal and vulnerability because if you're too aggressive they're quite commonly challenged the other way. Like, you can't be too bullish there because someone will go two retirees or four retirees, whatever, they'll come up with some scenario that you can't rule out. So, no, we don't typically interview everyone for their use because we know it will change if they sell the place.

Q. I understand. Thank you. You were asked some questions in relation to the 2025 landslide in relation to causation, and there was a discussion about investigations as to the retaining wall; do you recall those questions?
A. Yes.

Q. And in answer to one of those questions you said it's one thing to look at but it's not a critical path. Could you explain what you meant by it's not a critical path?
A. The analysis of - like, we typically - and I say "we", Andrew and myself will back-analyse any failure. If we're going to design something, we'll look at the failure and back-analyse it so that we can move forward with a view of, "That's a known landslide. What engineering parameters applied to it," and take them forward. So we routinely do that. I'll get - most likely have Andrew take a look at that, which he does quite quickly. And so that is just one task in many. That doesn't take us particularly long to back-analyse a wall and work out whether it needed water to fail. For example, waiting a month for it to rain, waiting for rainfall or groundwater data is to me critical path.

Q. So you were talking more about timeframes rather than --
A. Yes.

Q. -- expressing some kind of preliminary view about causation?
A. Critical timing for the project, yes, not landslide related.

Q. Thank you. Only one other question. You were asked

some questions about other priorities the council might have and whether or not the causation report might be the number one priority. Are the other priorities that you were referring to related to the landslide and its consequences?
A. Yes.

Q. And is one of those risks to residents?
A. Yes.

MS FOLEY: Yes. Thank you.

CHAIRPERSON: Thank you, Mr Pope, for coming along today. That completes your evidence during this hearing block. We will likely need you back during a later hearing block. I'll excuse you from this hearing block today.
A. Thank you.

<THE WITNESS WITHDREW

CHAIRPERSON: Mr Costello, we'll have the afternoon break now.

MR COSTELLO: Thank you, Madam Chair.

CHAIRPERSON: And we'll get the next witness in.

SHORT ADJOURNMENT

MR COSTELLO: Madam Chair, the next witness will be Mr Oz, but before I call for him to move to the witness box can I just address a matter as to timing.

CHAIRPERSON: Yes.

MR COSTELLO: We're behind, and that's my fault, but I felt it important to address all of those matters with Mr Pope before he left. I suspect it won't be the last time we see him, but it was important to get that evidence into the record now.

As a consequence we won't get through the two remaining witnesses today. Mr Di Stefano will take Mr Oz, who is the next witness, and then there is Mr Simon. This is of course ultimately a question for you, but I have had a discussion with Ms Foley as to whether or not we could sit tomorrow if you're amenable to that. That's something

that obviously counsel assisting can and will do. The witness is available.

CHAIRPERSON: We'll continue tomorrow.

MR COSTELLO: The only preference is if we could perhaps start at 10.30 because Ms Foley has a court commitment tomorrow morning.

CHAIRPERSON: That's fine.

MR COSTELLO: Thank you. I'll leave it to Mr Di Stefano to call Mr Oz.

MR DI STEFANO: Thank you. Chair, I call Mr Bulent Oz.

CHAIRPERSON: Mr Oz, if you could just make your way to the witness box.

<BULENT OZ, affirmed:

<EXAMINED BY MR DI STEFANO:

CHAIRPERSON: Mr Oz, Mr Di Stefano is one of the counsel assisting this inquiry. He'll ask you some questions and, when he's finished asking questions, others may want to ask you some questions.
A. Sure.

MR DI STEFANO: Thank you, Chair. Mr Oz, do you mind restating your full name for the transcript, please?
A. Bulent Oz.

Q. And what's your professional address?
A. 90 Besgrove Street, Rosebud.

Q. Thank you. And your present occupation?
A. Chief financial officer.

Q. You're attending today pursuant to a notice to attend to give evidence to a board of inquiry; is that correct?
A. That's correct.

Q. And, for the transcript, that's dated 30 April 2025. You have had a witness statement prepared with your name on it; is that correct?
A. That's correct.

Q. Can a copy of that witness statement please be provided to Mr Oz. Mr Oz, you have the chance now to - is that correct, that that's your witness statement and its exhibits?
A. That's correct.

Q. Thank you. And there are no changes you wish to make to it?
A. No.

Q. Could you please sign that witness statement. Thank you, Mr Oz. I tender that, Chair.

CHAIRPERSON: Mr Oz's witness statement dated 11 April 2025 together with the documents referred to therein will be exhibit CA11.

EXHIBIT #CA11 MR OZ'S WITNESS STATEMENT DATED 11 APRIL 2025 TOGETHER WITH THE DOCUMENTS REFERRED TO THEREIN.

MR DI STEFANO: Thank you. Mr Oz, you've been employed by the shire for approximately 10 years; is that correct?
A. That's correct.

Q. And in your entire period of employment with the shire, save for the recent period where you were acting CEO, you were in the finance side of the shire?
A. That's correct.

Q. And from August 2019 until November 2024 you were the chief financial officer?
A. That's correct.

Q. And while you were chief financial officer you sat on the shire's executive committee?
A. That's correct. From mid-2022 I participated to the executive team until 28 November.

Q. So it wasn't for the entire time that you were the chief financial officer that you were on the executive committee?
A. I was chief financial officer, but I wasn't part of the executive team for the entire time.

Q. Okay. So that's from when did you say, mid-2022?
A. That's correct.

Q. Yes. Do you know approximately how many employees does the shire have?
A. In terms of full-time equivalents it is around 794.

Q. Yes. And do you have an idea - I assume you have an idea of its annual revenue?
A. The total operating income is around $291 million estimated for the next financial year. With grants, we estimate to be over $300 million.

Q. Yes. Thank you. Are you able to explain how it is that the executive committee interacts with the council itself, and by the council I mean the appointed councillors?
A. Can you please clarify the question in terms of interaction?

Q. Yes, that's okay. So what I would like you to explain to the chair is how the committee executive works within the organisation of the shire. So I understand that the shire is headed by the mayor and the council, which is comprised of the elected councillors; is that correct?
A. That's correct.

Q. And how does the executive committee interact with the group of elected councillors?
A. Thank you for the question and the clarification. The council or the councillor group, they are the ultimate decision-makers. The number of decisions or the reports that we present to the council, generally they come to executive team for the review. After it is endorsed, it is taken to the councillor group or to council meeting.

Q. Yes. So issues or decisions that have to be made by the council make their way up through the executive committee; they're considered by the executive committee; and then an endorsement, as you say - am I right in describing that as a recommendation - is made in respect of that to the councillors?
A. This is the recommendations usually. It's not in the report that it is endorsed by the executive team. It is usually coming from the other departments or from the other teams. But especially some material impacts or controversial issues or strategic decisions, it is executive team who reviews them before.

Q. So where something is significant, if I can use that word to describe what you just described, is that then endorsed or recommended; a recommendation is made in respect of that?
A. It comes to the executive team, but it is not in the report that is presented to the councillor group.

Q. So the reports that are presented to the councillors contain recommendations under the name of the relevant team that made that recommendation, but that report has come from the executive committee?
A. In most cases, yes.

Q. Yes. Thank you. Can you explain why it is that the shire required an acting CEO?
A. Our previous CEO resigned just before the council elections. During the period of the new CEO appointment the councillor group sought interest from the executive team, including myself, and they appointed an acting CEO until the permanent CEO is appointed.

Q. And so of course you were then appointed as the acting CEO?
A. That's correct.

Q. And when did you cease being the acting CEO?
A. 15 April.

Q. Yes. And who was your replacement?
A. Mark Stoermer.

Q. Thank you. Prior to your time as acting CEO - you worked in the finance team, as you said earlier - did you have any exposure or any interaction in that role with the planning department or the council?
A. Yes, I did.

Q. And what was that interaction?
A. My interactions are mainly related to - they're budget related or there could be some activities or budget requests coming to exec, or the financial reporting wise on a monthly or quarterly basis.

Q. Yes. So can you give some examples of what you would be requested to budget? By that do you mean to allocate budget to or to cost or some combination?
A. So the local government authorities are complex

organisations. So the planning is just one of the teams. In fact councils provide more than 100 services from community focused services such as maternal health, the aquatic centres, aquatic and leisure centres, to regulatory services as well like planning permits. So in fact there are almost, as I mentioned, 100-plus different businesses within one organisation.

So, the budget process in itself, we are looking at around a six-month process. During that six-month process we initially engage with all departments, understand their business as usual or their operating activities, how much for the next finance year that they require; in addition to that, what other projects they might be funded. Our role is to present this to councillor group for final adoption.

Q. Yes. Thank you. And so is it that the subdivisions of the council not the finance division - if that's the correct language, and you can correct me if I'm wrong - the departments? So, say the planning department, do they approach you with a draft budget or do you prepare a budget for them?
A. We work together with them.

Q. Yes.
A. We support them in building their budget.

Q. Okay. Thank you. Have you returned now to your role as CFO?
A. That's correct.

Q. Thank you. To move to a different topic, in your statement - which I don't need to call it up yet, but the doc ID is MSC.9000.0001.0001, the unsworn version - you have explained how the council acts to prevent and manage landslides?
A. Yes.

Q. And at paragraph 10 of your statement, or perhaps 9 and 10, you explain that the shire's role for managing and preventing landslides depends on the nature of the land in question?
A. That's correct, yes.

Q. Do you want to just elaborate what those different sorts of land are?
A. Firstly, the statement, witness statement, is based on

my general experience and also the information received from other departments. My understanding, the shire's roles and responsibilities will change depending on the nature of the land. So if it is Crown land in which shire could be the committee of - part of the committee of management or shire managing the committee of management, it is directed by the Crown Land Act, and the requirements under the Crown Land Act or it doesn't impose any requirements for landslide or landslip risks.

Q. Yes. So there's land that is privately owned; there's land that's owned by the shire; and then there's land that's subject to a committee of management that's Crown land; is that a fair summary?
A. That's right.

Q. But, irrespective of the subject land, the shire has effectively four main areas where it interacts with landslides? I'm reading from paragraph 10 of your statement. You say, "Planning requirements, emergency management planning and response, building surveyor management and infrastructure maintenance."
A. That's correct. In terms of the roles and the responsibilities.

Q. Yes. Can I just consider briefly with you emergency response. It's fair to describe the shire's role in emergency response as being, as is in the name, responsive to an emergency like a landslide; is that correct?
A. My understanding, the responsibility of the shire is driven by the Emergency Management Act. That Act requires each municipality to establish municipal emergency management committee, and which the shire is a member as well. It's represented by the other levels of the governments and other authorities as well such as police force, ambulance, Victorian State Emergency Service.

Q. Yes. So at paragraph 51 of your statement you refer to the municipal emergency management planning committee, which you've just described, being governed by the municipal emergency management plan?
A. That's correct.

Q. And that plan is a plan that kicks into action in response to an emergency; is that correct?
A. That's correct.

Q. And does that plan explicitly refer to landslides?
A. My recollection, yes.

Q. Yes. And so it provides a plan - sorry, I withdraw that. But, just to be clear, it doesn't in any sense create controls for the council to prevent landslides from occurring?
A. No, that's correct. So it doesn't, yes.

Q. And, in respect of the shire's control of the municipal building surveyor, that also doesn't have any proactive role in preventing landslides, does it?
A. The municipal building surveyor has limited powers; is usually reactive in response to the events such as the landslides.

Q. Yes. So the municipal building surveyor might, for example, issue an evacuation order. But, when it comes to certifying construction that is to occur, that typically is done by a private building surveyor?
A. That's correct.

Q. And the council doesn't have any influence over the building code or building requirements that are applied by the private building surveyor, save to the extent that it applies planning controls to that property; is that correct?
A. My understanding, the private building surveyor issues building permits. Once they issue the building permits or they take on the project, they need to notify the shire within seven days. So the shire still has the oversight on those projects. But these are building permits.

Q. Yes. But the shire doesn't influence - although it has oversight, the shire doesn't influence the content of the building code that's applied unless the shire imposes a planning control over that property?
A. That's my understanding, yes.

Q. So that leaves of the four that you list at paragraph 10, that leaves planning requirements and infrastructure maintenance?
A. That's correct.

Q. And for planning requirements I'm correct, aren't I, that the erosion management overlay is the council's primary and most effective control in respect of prevention

of landslip?
A. That's my understanding, yes.

Q. And when did you - the erosion management overlay, which I'll refer to as EMO, when did you first hear about the EMO?
A. During my acting role.

Q. Yes. So was that after the 2025 landslides?
A. That's correct.

Q. So did you in your previous role as CFO or any of the other finance roles have any exposure to or understanding of the erosion management overlay?
A. No.

Q. You can't recall whether it was ever discussed at the executive committee meetings?
A. No, I don't recall.

Q. Have you searched any notes you kept of executive committee meetings to see if it was discussed?
A. Just briefly, I did just check my own notes. I didn't go into the old agendas, but just from my notes. If such big events I usually take a note, and I couldn't see anything.

Q. Yes. Your statement includes some fairly significant detail about the operation of the erosion management overlay; do you accept that?
A. Yes, I do. It's based on the information received from the relevant teams.

Q. Yes. So you didn't draft those parts of your statement yourself?
A. No, I didn't.

Q. And did you personally talk to the relevant teams to understand what the requirements are of the erosion management overlay?
A. At a high level, yes.

Q. Who is it that you spoke to?
A. I have spoken to David Simon and also Katanya Barlow.

Q. Yes. You describe at paragraph 29 - and I'll read to you what you say - you say, "If the EMO applies to land it

can trigger the requirement for a planning permit for buildings and works as set out in clause 44.01 and the schedules to clause 44.01, including for types of development that are ordinarily exempt from planning permits under statewide controls in clause 62.02 of the scheme." Am I right in summarising that as the EMO can - the effect of an EMO over land is that for certain sorts of works a planning permit is required when otherwise it would not be required?
A. Just on that, because this is not my day-to-day job, my knowledge or the specifics of that, I don't want to give an uninformed statement here. Probably David Simon would be the best person to respond to that question.

Q. Mr Oz, this is your sworn evidence that you've just signed.
A. Yes. In terms of the specifics or the inference. The specifics of it, how it is applied or potential impact, the planning team probably will be the best person - Dave Simon will be the best person to respond to that.

Q. So do you have any understanding of how the erosion management overlay works?
A. I do have very high level in terms of the requirements.

Q. Yes. Could you explain your understanding of how it works?
A. Once the erosion management overlay is declared, certain area, it will trigger additional planning requirements. My understanding based on the information I received that might be in the form of requiring geotech report to minimise or to mitigate the risk of disturbance to land to prevent potential landslide or erosion.

Q. Thank you. At paragraph 42 of your statement you refer to a geographical information system?
A. That's correct.

Q. And you refer in the previous paragraph to research prepared in respect of the landslide risk for the shire area?
A. That's correct.

Q. And you explain that the EMO does not cover all of the land over which that 2012 research concluded there was a high risk of landslide, of landslide susceptibility

I should say?
A. My understanding we've got currently six EMOs not covering the whole municipality.

Q. Yes, not covering the whole municipality, but specifically not covering the areas which the 2012 reports concluded had high susceptibility to landslide?
A. That's correct.

Q. Yes. And at paragraph 43 and 44 of your statement, I'll read this to you, "It is my understanding that it has been the shire's practice to impose additional planning requirements on all properties that are mapped as falling within the areas coloured in red, i.e. high susceptibility, including in the McCrae area so as to prevent and manage the risks of landslides and landslips."
A. Yes.

Q. Well, a moment ago you weren't as emphatic as that, were you?
A. Sorry, can you --

Q. You say here it's all properties; all properties that are mapped as falling within the areas coloured red are required to have additional planning requirements. Do you know that? Is that your understanding, that all properties in that area have that additional requirement applied?
A. I don't have specific knowledge in that.

Q. No. So did someone tell you that all properties that have a high susceptibility have additional planning requirements applied to them?
A. Now, the planning or the EMO or the planning will kick in if there is a planning application. So the 2012 basically digitally mapped the whole area showing the red areas high risk in landslide. So, in terms of your question whether all properties have got those additional planning requirements apply, I can't answer that question because if the development happened before 2012 probably it didn't trigger that.

Q. So let me just break it into different categories. So you accepted earlier that the EMOs - you didn't accept but I put to you earlier that the effect of the EMOs is to require planning permits for certain sorts of works where otherwise there wouldn't be any planning permit required. So for those works that wouldn't otherwise require a

planning permit they wouldn't come to the council's desk to have additional requirements applied to them, would they?
A. I don't have specific knowledge in terms of the impact of that.

MS FOLEY: Chair, may I raise an issue?

CHAIRPERSON: Yes.

MS FOLEY: It seems to me that the way the questions are being framed there's a bit of confusion for my learned friend in relation to requirements applying where an EMO is in place and the additional planning requirements that are talked about in Mr Oz's statement which is outside of the EMO framework.

CHAIRPERSON: The way I read paragraph 43 is in that way.

MS FOLEY: Yes.

CHAIRPERSON: So that --

MS FOLEY: I think it might have confused things a little.

MR DI STEFANO: I'm happy to re-ask the questions.

CHAIRPERSON: Thanks, Mr Di Stefano.

MR DI STEFANO: Mr Oz, what I'm trying to get at here is that in paragraphs 43 and 44 of your statement you refer to a practice of imposing additional planning requirements on all properties that are mapped as being high susceptibility but that are not otherwise covered by an EMO. Do you understand the set of properties I'm referring to?
A. My understanding --

Q. If you can just answer my question. Do you understand the set of properties I'm referring to --
A. Yes, I do.

Q. -- because that's the nature of the objection? Thank you. So in respect of those additional requirements and your understanding of it how, given your lack of understanding of how the EMO works and planning in general, do you give the evidence that the additional planning requirements are applied to all properties that are mapped as falling within that red high susceptibility area?

A. My understanding, the additional planning requirements will be imposed if there is a permit application.

Q. Yes, but I'm asking you what is the basis of your understanding. How can you be so confident as to say the word "all", "all properties", in your evidence?

MS FOLEY: Madam Chair, may I raise another matter?

CHAIRPERSON: Yes.

MS FOLEY: Mr Oz was the interim CEO for a short amount of time. He has stepped forward to give evidence on behalf of the shire about some matters that are within his knowledge based on his CFO role. But the matters he's now being asked about are clearly within the specialised knowledge of the next witness. Mr Oz is sitting here answering questions as honestly as he can. But, as he himself has said, it's not his day-to-day work. So to the extent it would be helpful for this board to understand in reality how these things work in practice, in my submission, those questions would be more easily directed to Mr Simon.

CHAIRPERSON: And they probably will be. But I think Mr Di Stefano is just trying to ask you, Mr Oz, what's the source of your knowledge in paragraph 43. So did someone tell you that all properties are subject to this additional requirement? Did someone tell you that when you were preparing your statement?
A. This is collated by the other teams; that's correct.

CHAIRPERSON: What do you mean collated by the other teams?
A. The information based on the number of the questions that was received, our legal counsel, they were collating the information; and from the other teams - from the planning team and from the other teams, the whole information collated.

CHAIRPERSON: So someone's provided the content of paragraph 43?
A. That's correct.

CHAIRPERSON: You don't know who provided it?
A. The planning team. I can't --

CHAIRPERSON: Thank you.

MR DI STEFANO: Chair, thank you. I'll take this up with Mr Simon. But I should say this is, in my submission, critical evidence. One of the two means by which the council can prevent landslide risk is planning. And the erosion management overlay, as we've heard, does not apply to areas of land which they understand are of high susceptibility of landslide. So the existence or otherwise of this additional planning requirement and the practice is of critical importance. It's been put into Mr Oz's witness statement. So in those circumstances I'm prepared to take it up with Mr Simon, but to the extent there's been any suggestion that it's not this witness's evidence to be tested on I do say for the transcript --

CHAIRPERSON: I don't think that's being suggested. I think you should take it up with Mr Simon and, if Mr Simon can't adequately explain it, then someone within council, probably within the planning department, will need to prepare a witness statement.

MR DI STEFANO: Yes. Thank you. And I should say that I also was intending to ask Mr Oz about his conclusion at paragraph 47 where his witness statement at least says that, "The shire's prevention role with respect to planning requirements is comprehensive but also prospective." Again, it's that comprehensiveness which is being tested, and the existence of this practice or otherwise is critical to that comprehensiveness.

CHAIRPERSON: Mr Oz, this is a witness statement, is it, that's been prepared by a number of different people, and you don't have direct knowledge of a lot of the content in it; is that the case?
A. That's correct. That's not my day-to-day job and I've got limited knowledge and just general experience. But the detail, in terms of the applications of the planning requirements, I don't have specific knowledge or training.

CHAIRPERSON: Do you know why someone within the planning department didn't provide this witness statement?
A. I do not know.

MR DI STEFANO: I should say in fairness to Mr Oz it is referred to and confirmed to exist by Mr Simon. But, given it was included in Mr Oz's witness statement, it's only fair that he be tested on it. Mr Oz, on a related topic,

are you familiar that in 2018 and 2023 there were reviews conducted of the planning scheme?
A. I'm aware of now, but not at that time.

Q. Yes. And are you aware that there were recommendations made in both 2018 and 2023 to reconsider the boundaries of the EMO and to potentially extend it?
A. I am aware of now, but I wasn't aware then.

Q. Yes. And in respect of the 2023 review I understand that you weren't aware of it previously, but I can tell you that it provides in respect of the recommendations to do with the extension of the EMO that it was subject to funding. Are you aware at all or do you have any understanding of whether there were decisions made not to fund the work to extend the EMOs?
A. I'm not aware of any budget coming for extending the EMOs.

Q. Yes. When did you first become aware of the Piper and Slade paper, the 2012 analysis of landslide susceptibility?
A. Just recently.

Q. In the preparation of your statement?
A. That's correct.

Q. Do you accept that the council should have acted sooner to extend the EMOs?
A. My understanding, based on my previous discussions and my questioning a few months ago, the council manages the risks as mentioned previously through the digital mapping included in GIS. So the GIS that shows the red areas that are high in risk, the planning team or upon the planning applications, it might trigger additional requirements as well.

Q. But that's just based on what you've been told?
A. That's correct.

Q. So you don't personally know that?
A. No, I'm not a planner. No, I don't.

Q. So do you accept then that if it were the case that that informal practice that you've referred to wasn't applied to all high risk - high susceptibility planning applications, that the fact that the EMO wasn't extended is something that the council should have done sooner?

A. I can't comment on that, but I believe that Dave Simon will provide further information on that.

Q. Yes, but you were the acting CEO or you were the head decision-maker that wasn't a councillor. You don't have any - in your capacity as the most senior employee of the council, you don't have any comment on the fact that the council didn't update the EMO despite reviews from 2018 recommending that it be extended?

MS FOLEY: Chair, I do object to this question. Mr Oz was in the interim CEO position for a very short time. He is not a planner. He does not sit in the planning department. And he has not got the knowledge or experience to answer a question of that kind, which is not a criticism of him. He is ordinarily the CFO. He didn't sit in the planning department. He sat in the CEO's chair for a short time. But the questions that he's being asked are really questions properly directed to someone from the planning department who will be giving evidence next.

CHAIRPERSON: If Mr Oz doesn't feel he's in a position to answer the question due to a lack of knowledge, then he should explain that to counsel. So if that's your answer, "Due to my lack of knowledge on the topic, I can't express an opinion", then that's the answer to the question.
A. Due to my lack of knowledge and expertise in this area, I'm unable to give you an informed response on this.

MR DI STEFANO: Can I move to a different topic, which is infrastructure management. At paragraph 82 of your statement you begin at that paragraph to explain the council's role in responding to notifications of landslides and landslips?
A. Can I see that paragraph, please?

Q. Yes. If that could be brought up. It's MSC.9000.0001.0001 at page 15.
A. And just remind me the number, please?

Q. Sorry, paragraph 81?
A. 81.

Q. At that paragraph you note that the shire's asset management does not explicitly - I'll withdraw that. I'll read the quote, "While asset management does not explicitly consider landslip and landslide risk necessarily, the

shire's asset management function is generally relevant to ensure the shire's assets are maintained appropriately, and replaced when required." Can you explain what you mean by the asset management in the first part of that sentence, "While asset management does not explicitly consider landslide and landslip"?
A. Council's balance sheet shows that the council has around 3.4 billion worth of assets. We've got a number of contracts maintaining those assets, and they are all externally contracted. One of our main priorities to ensure that the community receive their services timely and without any risk as well, that those assets are maintained adequately and the required budget allocations is provided.

Q. Yes, but what is it that does not explicitly consider landslip and landslide risk? Do you mean that the department doesn't consider landslide risk?
A. No, the asset management is the infrastructure management. Basically it is maintaining, upgrading or identifying the conditions of the assets and the maintaining, and when it is required renewal of those assets.

Q. And that process, is that what you're describing? That process does not consider landslide or landslip risk?
A. Not explicitly.

Q. Not explicitly, no. Does it implicitly consider it then?
A. The maintaining, for example, drainage assets are important. And it is in one of our contracts as well. So the inspections, so the routine inspections, is part of the contracts. If there is any required works that need to be done, the budget will be allocated. If I give you one example. We've got approximately 50,000 pits across the shire, and there is a routine inspection program that is in place. It is proactive, not reactive.

Q. Yes, but does that routine inspection program in any way accommodate for, for example, the landslide proneness of a given area? Is there any prioritisation of areas that are prone to landslide or landslip?
A. I don't have specific knowledge in terms of the high-risk areas. But all areas we provide - allocate funding to address any issue that is coming, whether it is high-risk or low-risk areas.

MR DI STEFANO: Thank you, Mr Oz. Chair, I note the time. I can be quicker and probably be done in 10 minutes, if that suits, so we have this witness finished.

CHAIRPERSON: Keep going.

MR DI STEFANO: Thank you. So in that same paragraph you refer to the shire's asset management plan; you can see there 2022 to 2032 asset plan?
A. Asset plan, yes.

Q. That asset plan doesn't refer at all to landslide or landslip risk, does it?
A. No, it doesn't.

Q. It doesn't refer either to the 2012 susceptibility modelling?
A. No, it doesn't.

Q. To be fair to you, it does refer to risk. It does refer to risks, but it doesn't in any way specifically refer to landslide or landslip risk?
A. That's my understanding. That's correct.

Q. And do you have any understanding of whether infrastructure decisions, maintenance or upgrade decisions, take into account landslide or landslip risk separately to that document?
A. The asset plan is a legislative requirement for each local authority to develop of the 10-year plan. That basically indicates the conditions of the assets and enough funding allocated to maintain, to upgrade or renewal of those assets. It is a high-level document.

Q. Yes, but I think you've answered a slightly different question. Are you aware of any way in which infrastructure maintenance or upgrade decisions take into account specifically landslide or landslip risk?
A. I'm not aware of that.

Q. No. Since the November 2022 landslide you've been on the executive committee the entire time since then?
A. That's correct.

Q. And in that time I think you said a moment ago that you don't recall there being a discussion of the EMO?
A. I do not recall that.

Q. Do you recall there ever being discussion in the executive committee of the 2022 landslide?
A. I do not recall that either.

Q. So, even though there was a fairly significant landslide within the shire, that wasn't discussed at the executive committee level as best as you can recall?
A. I can't say whether it was discussed. It could be because I might be on leave. But I do not recall personally.

Q. Are you aware of whether any policies or procedures of the council have changed as a result of the November 2022 landslide?
A. I do not have specific knowledge in that, but I am aware that the risk was known to a number of teams.

Q. The risk of landslide prior to 2022 was known to a number of teams?
A. That's correct.

Q. And so was it that there was no need to change any policies or to update policies or procedures in response to it?
A. I do not have specific knowledge in that area.

Q. So, just to be fair to you, the council has two methods by which it can act to prevent landslides, as we've discussed. One is planning controls and the other is infrastructure maintenance and management. In respect of infrastructure maintenance and management, as far as you're aware, there's no explicit reference to decision-making or prioritisation to prevent landslides or landslips to minimise risk?
A. Not specifically for landslides, but it is very important for us that all assets are maintained adequately so that they are serviceable.

Q. Yes. So there are general ambitions but there's nothing specific about landslide or landslip in respect of infrastructure management?
A. I do not recall that, no.

Q. No. And in respect to planning there are six EMOs but they don't cover all of the area over which the council knows there is a high susceptibility of landslide?

A. That's correct. Having said that, the GIS system that shows the whole municipality, those high-risk areas.

Q. Yes. So the council knows which areas are high risk based on the 2012 information?
A. Yes. And, based on my witness statement, those high-risk areas - if there is a development requirement or a permit is required, that will trigger additional the planning requirements.

Q. Yes. That's the evidence you referred to earlier about the informal requirement of additional requirements?
A. That's correct.

Q. Yes, which you explained was in your witness statement but you didn't know necessarily the source but you assume it was within the planning team?
A. That's correct.

Q. Yes. So do you accept then that in respect of those two - I withdraw that. Do you think the council could have done more to be proactive about preventing landslide and landslip or minimising landslide and landslip risk?
A. My understanding that the council was actually addressing the risk by referring to our GIS digital mapping. So EMO is, I understand, the most effective way. But we had the other general control, which I referred before, GIS system.

Q. Yes. So your evidence is that the fact that you had the GIS system you were doing enough, the council was doing enough?
A. I'm not saying that, but the other control, the GIS system, was in place. This is how the planning team was addressing that.

MR DI STEFANO: No further questions, Chair.

CHAIRPERSON: Thanks, Mr Di Stefano. Mr Oz, the GIS system, are you referring there to the informal additional planning requirements system? Is that the GIS system you're referring to?
A. That's my understanding, yes.

CHAIRPERSON: Yes. And is it the case that you don't know when the GIS system was introduced?
A. My understanding, the Cardno, geotech firm, was

engaged by the council early 2000, and the digital mapping or the information report was made available in 2012.

CHAIRPERSON: Yes.
A. That information helped us to develop another layer in GIS system that shows the high-risk, medium-risk and low-risk areas.

CHAIRPERSON: And then you say in paragraph 43, based on information that others have given to you, that the council then introduced an informal requirement that if a property inside the red zone was applying for a planning permit then there were additional requirements?
A. My understanding. Probably I wouldn't be using the term "informal", but when there is planning applications the planning officers will consider the high-risk areas. This is my understanding. And I'm sure that Dave Simon will be able to elaborate and give further information on that.

CHAIRPERSON: And they started doing that at some stage between 2012 and 2022?
A. That's correct.

CHAIRPERSON: But you don't know when in that decade the planning department started taking that approach?
A. No, I can't give any specific --

CHAIRPERSON: It could have been 2021?
A. I can't give - I can't comment on that.

CHAIRPERSON: And do you know why the council went down the path of adopting that approach as opposed to taking steps to put an EMO in place? Do you know why council took the planning path rather than the EMO path?
A. I do not have specific knowledge on that, no.

CHAIRPERSON: So the answer is you don't know?
A. I don't know.

CHAIRPERSON: Thank you. Are there any questions?

MS FOLEY: I would seek leave to ask a couple of clarifying questions.

CHAIRPERSON: Yes, you have leave.

<EXAMINED BY MS FOLEY:

MS FOLEY: Mr Oz, you were asked some questions about infrastructure management; do you recall that?
A. Yes.

Q. And you were asked some questions about the asset plan and what's in the asset plan?
A. Yes.

Q. If a drain is not maintained, for example, and it leaks water would you agree that that may have some bearing upon landslide risk?
A. I believe so, yes.

Q. And so in that sense if an asset is to be maintained pursuant to the asset plan that maintenance might be relevant to landslide risk even if the asset plan doesn't use the words "landslide risk"?
A. That's correct.

MS FOLEY: No further questions.

CHAIRPERSON: Any other questions? Mr Oz, that completes your evidence. Thank you for coming today, and you are excused.
A. Thank you.

<THE WITNESS WITHDREW

MR DI STEFANO: No further witnesses for this afternoon, Chair.

CHAIRPERSON: Thanks, Mr Di Stefano. We'll resume at 10.30 tomorrow.

AT 4.25 PM THE HEARING ADJOURNED UNTIL FRIDAY, 9 MAY 2025

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