

IN THE COURT OF APPEAL OF NEW ZEALAND

**CA609/2014
[2015] NZCA 246**

BETWEEN VERO INSURANCE NEW ZEALAND
LTD
Appellant

AND ANTHONY BRENDON MORRISON
AND GAIL CROSS
Respondents

Hearing: 17–18 February 2015

Court: Ellen France P, Stevens and White JJ

Counsel: M G Ring QC and P J L Hunt for Appellant
N R Campbell QC and S P Rennie for Respondents

Judgment: 16 June 2015 at 10 am

JUDGMENT OF THE COURT

- A The appeal is allowed in part. The question of the quantum of Vero’s liability for a separate indemnity payment in relation to the June 2011 event is remitted to the High Court for reconsideration.**
- B The cross-appeal is dismissed.**
- C The respondents must pay the appellant 75 per cent of its costs for a complex appeal on a band A basis and usual disbursements. We certify for second counsel.**
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REASONS OF THE COURT

(Given by Ellen France P)

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Introduction

[1] The Tony Morrison Trust (TMT) owns a building in Woolston, Christchurch.¹ The building was severely damaged by the Christchurch earthquakes. TMT had insured the building with Vero Insurance New Zealand Ltd (Vero). The insurance policy provides indemnity for damage to the building on an event by event basis. The amount of cover reinstates at the end of each 72 hour event period.

[2] TMT claimed there were five earthquake events causing loss to the building: on 4 September and 26 December 2010, and on 22 February, 16 April and 13 June 2011. Vero said it was only liable to indemnify the damage caused by the

¹ The respondents are trustees of TMT.

September 2010 and February 2011 earthquakes. The parties' dispute over TMT's claim was dealt with by Whata J in the High Court.²

[3] In advancing its claim in the High Court TMT employed modelling that measured the ground shaking intensity of each earthquake to assist in identifying the events of loss and quantifying the extent of the damage caused by those events. Whata J found that the modelling was reliable and substantially helpful "for the purpose of quantifying the capacity for earthquake events to cause damage to the building and as an input for the assessment of the allocation of damage per event of loss".³ The Judge concluded that a reasonable allocation of damage and repair costs was as per Vero's assessment in relation to the September event and as per the repair recommendations of TMT's expert for the February and June events. Whata J said that TMT had not proved its claim in relation to the December and April events. The Judge also found that TMT's building was not "destroyed" in terms of the policy as a result of the February earthquake. Finally, the Judge held that TMT could not recover the cost of new piles.

[4] Vero appeals against the Judge's decision to accept TMT's expert's evidence in relation to the June 2011 event and Whata J's conclusion that TMT's building was not "destroyed". TMT cross-appeals against the Judge's determination that the cost of repair associated with the damage caused by the September 2010 earthquake was as assessed by Vero. TMT also cross-appeals against the Judge's decision that the cost of new piles should not be recoverable.

[5] Underlying the appeal is Vero's challenge to the admissibility of and weight given to the modelling used by TMT's expert and accepted, in part, by Whata J.

Issues on appeal and cross-appeal

[6] The issues arising on the appeal and cross-appeal can be addressed by answering the following questions:

² *Morrison v Vero Insurance New Zealand Ltd* [2014] NZHC 2344.

³ At [6] and see [144].

- (a) Was the Judge right to prefer TMT’s expert evidence concerning the additional damage caused by the June 2011 earthquake, and TMT’s scope of repairs for the June 2011 earthquake, over that of Vero’s experts?
- (b) Was the Judge right to conclude the building was not “destroyed” as a result of the February 2011 earthquake?
- (c) Was the Judge right to conclude the depreciated cost of repairing the physical damage to TMT’s building caused by the September 2010 earthquake was no more than Vero’s assessment?
- (d) Was the Judge right to exclude the cost of new piling in determining the depreciated cost of repairing the cumulative physical damage caused by all of the earthquakes?

[7] We set out the background before turning to each of these issues in turn.

Background

[8] There are two aspects of the factual background we need to discuss, namely, the relevant features of the building and of the policy. We deal first with the building and then discuss the policy.

The building

[9] We adopt Whata J’s description of the key features.⁴ The background is as follows. The building is located at 23 Heathcote Street in Woolston, Christchurch. The building comprises two stories. It is an industrial/commercial building. The building was originally a wool scouring facility but has since been subdivided into a number of commercial workshop and storage type tenancies. The exact age of the building was a matter of debate at trial but we need only note it was built in the first half of the 20th century.

⁴ At [15]–[19].

[10] The building is on a site gently sloping from the north (front) down to the Heathcote River at the rear. The riverbank is some 15 metres from the rear of the building. Whata J explained the construction features in this way:⁵

The building consists of cast-in-place concrete reinforced frames with concrete masonry unit infill walls at the perimeter of the structure. The first floor is a composite floor with a reinforced concrete slab supported on either an interspan flooring system which consists of precast concrete ribs and timber infills or in some areas a metal deck spanning between the beams of the concrete frame. The mezzanine floor in the ground storey has metal decks supported on steel frames. The mezzanine floor on the first storey is timber framed. Interior walls are timber framed partition walls with plasterboard. The building is supported on top of cast in-place reinforced concrete slab-on-ground and footings. The sawtooth and gabled roof of the building has corrugated asbestos cement panels or in some areas corrugated metal panels on timber framing.

[11] Before the earthquakes, there were ten tenancies and a number of common areas. After the earthquakes the rear office lean-to part of the building could no longer be used. The damage led to other tenants vacating. However, as Whata J said, “even after the major earthquakes, the vast majority continued to be leased either by the original or a new tenant”.⁶ Mr Morrison, on behalf of TMT, still collects rent although rates have been reduced.

[12] Initially Vero was apparently prepared to allow Mr Morrison to relocate and buy similar properties up to the amount insured as a method of reinstatement. Vero eventually decided not to enable Mr Morrison to do so. At that point, a company called Risk Worldwide New Zealand Ltd took over TMT’s claims process in 2012 leading to the submission of a claims package to Vero in December 2012. Vero sought a per event claim analysis which Risk Worldwide provided on 16 August 2013 along with an apportionment statement of loss of \$10,042,790.83.

[13] Vero did not accept the claim. Its initial assessment was an indemnity value payment of approximately \$1.8 million. However, Vero reviewed the amount it considered payable in the lead up to the trial. This meant that by the time of trial,

⁵ At [16].

⁶ At [17].

Vero had paid \$3,904,193 in relation to the February earthquake.⁷ In terms of the September earthquake, Vero had paid TMT \$79,881.

The policy

[14] The features of the policy are also set out in the High Court judgment.⁸ For present purposes we need only note some key aspects. First, the policy is a material damage and business interruption policy.⁹ The total sum insured per event is \$3,482,000 subject to a deductible for earthquakes of 2.5 per cent of the loss. Other deductibles are quantified in dollar terms.

[15] Second, the policy is an event by event policy with the amount of cover reinstating at the end of each event period. The parties agree this is the effect of the following provision in the policy:

Section 1 - Material Damage, Section 2 - Business Interruption

Each Section of the Policy is to be interpreted as if issued as a separate policy and, unless the context requires otherwise, the word ‘Policy’ is to be read accordingly.

In this Policy, ‘Event’ means an event or series of events arising from any one cause during any period of 72 consecutive hours.

[16] Third, the indemnity is, as the Judge describes, “an old for old indemnity, that is, the object of the indemnity payment is to restore TMT to its position prior to the event of loss”.¹⁰ This is apparent from the definition of the indemnity, as follows:

Section 1, Material Damage

THE INDEMNITY

If any physical loss or damage – unintended and unforeseen by the Insured – happens to any Insured Property during the Period of Insurance, the Company will indemnify the Insured for that loss or damage.

Except where expressly provided to the contrary, the Company’s liability will not exceed the Sum Insured and, if more than one Item is included in the Schedule attaching to this Policy, will not exceed in respect of each Item the Sum Insured set against that Item.

⁷ As Whata J records in *Morrison v Vero Insurance New Zealand Ltd*, above n 2, at [19], n 6, “This amount represents an indemnity value of \$4,004,300 less the deductible.”

⁸ At [21]–[52].

⁹ Vero agrees “to indemnify the Insured as set out in the Sections of this Policy”.

¹⁰ At [25].

[17] “Insured property” is defined to mean:

... tangible property of every description not expressly excluded, the Insured’s own or held by the Insured jointly or in trust or on commission and for which the [I]nsured is responsible, or while located at any situation or other place anywhere in New Zealand.

[18] Finally, as Whata J noted, the policy includes a memorandum providing for Reinstatement in addition to simple indemnity.¹¹ We discuss the detail of the relevant provisions later.

Preference to TMT’s scope of repairs – June event

[19] It was accepted at trial that the June earthquake may have caused additional damage. However the approach of TMT’s expert was that this damage would have altered the scope of repairs so that TMT was entitled to a further payment as a result of that event in addition to payments received for the September 2010 and February 2011 events. By contrast, Vero’s experts saw no change in the scope of repairs or, if there was any change, it was very minor.

[20] The Judge preferred the evidence of TMT’s expert on this aspect. The issue is whether the Judge was right to do so.

The approach in the High Court

[21] Whata J said there was insufficient information to determine relative damage without the use of modelling. That was because the inspections that occurred involved investigations of a “lower order”.¹² Either there was no site inspection (by Vero’s expert Dr Quincy Ma) or, if there was an inspection it was not invasive in nature. Generally, Whata J found that TMT’s expert was in a better position than those giving evidence on behalf of Vero in this respect. That was primarily because TMT’s expert, Dr Anurag Jain, did undertake a site visit.

[22] Whata J said that modelling could assist to fill the information gap. It was appropriate to use the modelling as an input where Vero’s own experts did not reject

¹¹ At [44].

¹² At [135].

that proposition outright. Further, the Judge said it would be unfair in the circumstances to simply let the losses lie where they fall. It followed that the Judge found Dr Jain was in a superior position to that of the experts giving evidence for Vero because he incorporated modelling outputs into the assessment of the scope of repairs. Finally, Whata J considered there was qualitative support for the assessment of damage advanced by TMT in a photographic essay produced by Dr Jain. That essay portrayed a series of photographs of the building after the various events.

Admissibility

[23] Vero challenges both the admissibility of the expert modelling evidence and the weight given to that evidence.

[24] Section 25 of the Evidence Act 2006 states that expert opinion evidence is admissible if the fact-finder is “likely to obtain substantial help” from the expert’s opinion. Both “expert” and “expert evidence” are defined terms. Section 4(1) of the Evidence Act provides that an expert means “a person who has specialised knowledge or skill based on training, study, or experience”. “Expert evidence” is defined as an expert’s evidence “based on the specialised knowledge or skill of that expert and includes evidence given in the form of an opinion”.¹³ The High Court Rules make it plain that the “overriding” duty of an expert witness is to “assist the court impartially on relevant matters within the expert’s area of expertise”.¹⁴

[25] The Privy Council in the criminal law context recently addressed the approach to s 25.¹⁵ Their Lordships referred to this Court’s decision in *Mahomed v R* where it was said the concept of “substantial” help required consideration of the “relevance, reliability and probative value” of the proposed evidence.¹⁶

[26] In the present case, we do not doubt that the evidence was admissible. It was plainly relevant. We also consider it met the reliability threshold and had some probative value. As we shall discuss, we accept Vero’s submissions that there were

¹³ Evidence Act 2006, s 4(1).

¹⁴ High Court Rules, sch 4, cl 1.

¹⁵ *Pora v R* [2015] UKPC 9, (2015) 27 CRNZ 47 at [41].

¹⁶ *Mahomed v R* [2010] NZCA 419 at [35].

flaws in the model that limited its probative value. However, we have not seen that conclusion as requiring us to revisit the threshold question of admissibility.

[27] Instead, we focus on the weight given to the model by the Judge because that analysis appears to us to better capture what is truly in issue in the present case.

[28] The challenges to the approach taken in the High Court require us to consider whether there was a need to use modelling, the extent of expert support for the model, the flaws Vero identifies and the extent to which Dr Jain's photographic essay supports Dr Jain's thesis.

Paucity of information

[29] Vero's case is that there was no need to use modelling because there was reliable evidence based on observation of the damage caused by each earthquake. In reply, TMT says that the only relevant inspections were those occurring after the February and June events none of which were detailed engineering inspections and were correctly described by the Judge as of a "lower order".¹⁷

[30] The principal experts for each party were at odds over what could be drawn from these inspections. Dr Ma, an academic with expertise in earthquake engineering, said in evidence there was sufficient information to develop per event allocation. He said:

Once you rule out the irrelevant events, it comes down to determining what was damaged after September, what was damaged after February and what is necessary to remediate the building now. The damage allocation can be evaluated by comparing the repair scopes from one event to another. Using observed damage directly would be a far better (also more logical and scientific) use of the most appropriate information, rather than making predictions based on an approximately equivalent building using approximate ground motion. I believe there is little merit to rely on computer simulation when much more reliable scopes of repair are available

[31] TMT's expert Dr Jain is a principal at Weidlinger Associates Inc (WAI) and his specialist field is structural engineering. Risk Worldwide engaged WAI to report on the damage to the building and produce per event repair recommendations.

¹⁷ *Morrison v Vero Insurance New Zealand Ltd*, above n 2, at [135]. The dates of the various inspections and the individuals undertaking them are listed in the Appendix to this judgment.

Dr Jain said he did not consider there was sufficient documentation of damage by a building professional to “develop a detailed scope of work” for the repairs after each of the earthquake events. Dr Jain continued:

... once I had reached that conclusion ... there were two options. One was to make a guess based on engineering judgement to come up with the allocation of damage to the various events or number two is to ... do a scientific analysis using engineering judgement to determine the allocation of damage to the building from the various earthquake events so in light of the fact that there wasn't sufficient detail available after each event we proceeded to do a second step which is to do a scientific analysis and then use that as basis for our engineering judgement to develop an allocation of damage per event instead of just guessing it.

[32] We consider Vero's submission on this aspect is without merit. It is not hard to see that the nature of the inspections after events of this type would leave some gaps in the information available. Further, there was support for the Judge's approach in Dr Jain's evidence. There were some deficiencies in the information otherwise available and so a basis for utilising modelling was established.

[33] In the context of considering the sufficiency of the information otherwise available, Whata J observed it would be unfair for the losses to simply be left to lie where they fall.¹⁸ The Judge endorsed a passage from the decision of Gross J in *Equitas Ltd v R & Q Reinsurance Company (UK) Ltd*.¹⁹ Gross J saw the use of actuarial modelling as assisting in “doing practical justice in this case – a solution emphatically preferable to leaving the losses to lie crudely where they fall”.²⁰

[34] Mr Campbell QC for TMT relied on *Equitas* for the proposition that in a case such as the present the burden of proof may be discharged in a different way. In particular, it is not necessary to achieve scientific exactitude. Rather, the question of whether the burden has been discharged is to be assessed in the context of the available evidence. For example, Mr Campbell observes, it may be that there is an earthquake after which inspections are not possible.

[35] *Equitas* was a test case for the use of an actuarial model designed to represent, as far as possible, the effect of the London Market Excess of Loss (LMX) spiral, to

¹⁸ *Morrison v Vero Insurance New Zealand Ltd*, above n 2, at [135], n 36.

¹⁹ *Equitas Ltd v R & Q Reinsurance Company (UK) Ltd* [2009] EWHC 2787 (Comm).

²⁰ At [208].

prove loss under reinsurance contracts. The case concerned two claims made against the London market, one relating to the cleanup operation resulting from the grounding of the tanker Exxon Valdez, and the other concerning the loss of aircraft in Kuwait following the invasion by Iraq. The problems of proof that arose and the Court's response are helpfully explained in this way:²¹

In each case there were many hundreds of layers of excess of loss reinsurance in what was known as the ... (LMX) Spiral. Claims from both events were fed into the Spiral and were paid at its lower levels, but litigation intervened and showed that the amount recoverable was up to 20 per cent less than had previously been assumed. Claim payments stopped, and the market ground to a halt because it was impossible to reconstruct the Spiral and thus impossible to determine whether the financial trigger for the attachment of successive layers had been reached. Gross J, opting for practicality rather than legal principle, held that it sufficed for a reinsured to prove its liabilities on the balance of probabilities, and this had been achieved by the production of an actuarial model which purported to replicate, as far as possible, the pattern of policies in the Spiral and the relevant attachment points.

[36] On the point relied on by TMT in this case, that is the method of discharging the burden under standard clauses, Gross J said this:²²

... The *legal* burden on Equitas does not alter. But [the Settlements Clause and the JELC clauses] say nothing as to the *evidence* required for Equitas to discharge the legal burden resting upon it. Such evidence will necessarily vary, depending on the facts of the case. ...

... The *extent* of losses, once liability has been established, need not be proved with scientific exactitude. ...

... A claimant is left to take decisions on the manner of proving its claims, using the best evidence available and upon which the claim may or may not succeed. A claimant is not, however, bound in all cases ... to prove a loss at each underlying level in the chain – a matter of which a claimant may ordinarily have no or the most limited knowledge.

[37] *Equitas* was followed in another case involving reinsurance claims: *IRB Brasil Resseguros SA v CX Reinsurance Company Ltd*.²³

²¹ Rob Merkin and Jenny Steele *Insurance and the Law of Obligations* (Oxford University Press, Oxford, 2013) at 156.

²² At [71].

²³ *IRB Brasil Resseguros SA v CX Reinsurance Company Ltd* [2010] EWHC 974 (Comm). See also *Latvian Shipping Company v The Russian People's Insurance Company* [2012] EWHC 1412 (Comm) and *New Zealand Local Government Insurance Corporation Ltd v R+V Versicherung AG* [2013] NZHC 690. In the latter case MacKenzie J cited with approval the approach of Gross J to burden of proof under a clause for loss settlements in reinsurance. The standard was not satisfied on the facts of the case: at [26].

[38] The approach in *Equitas* was a logical one in its particular context and has been viewed by commentators as a practical solution to the question of proof of loss under reinsurance treaties.²⁴ Mr Ring QC for Vero is correct that it is important that in *Equitas* it was common ground there was no alternative means of proof and that the problems of proof in this case are not of that order. We note there is precedent in other areas where there are similar difficulties of proof of requiring something less than what Mr Campbell described as scientific exactitude. We refer, for example, to the modified approach taken by the House of Lords to the rules of causation in claims of negligence or breach of a duty in respect of industrial disease.²⁵ That said, we do not need to decide whether the *Equitas* approach extends to other types of insurance. That is because the real issue for us is whether Whata J was correct to give the model the weight he did. We turn now to the questions relating to that topic.

The model

[39] We first need to say a little about the model.

[40] Put in simple terms, the WAI model measures the ground shaking intensity of the identified earthquakes and “their corresponding relative impact on the resilience of the building over time”.²⁶ The supplementary WAI report of 13 August 2013 explains how a hysteresis curve traces the response of the building during repeated loading and unloading cycles that occurs during earthquakes. The modelling calculates the energy dissipated through hysteresis at the end of each event.²⁷ The theory underlying the model is that by comparing the dissipated energies at the end of each event, the relative contribution of each event to the total energy dissipated by the

²⁴ Merkin and Steele, above n 21 at 156; John Lowry, Philip Rawlings and Robert Merkin *Insurance Law: Doctrines and Principles* (3rd ed, Hart Publishing, Oxford, 2011) at 518; Robert Merkin *Colinvaux’s Law of Insurance* (10th ed, Sweet & Maxwell, London, 2014) at [17-047]–[17-048] and see Desmond Derrington and Ronald Shaw Ashton *The Law of Liability Insurance* (3rd ed, LexisNexis Butterworths, NSW, 2013) at 2645; Colin Edelman and Andrew Burns *The Law of Reinsurance* (2nd ed, Oxford University Press, Oxford, 2013) at [4.17] and *Halsbury’s Laws of England* (5th ed, 2011) vol 60 Insurance at [785].

²⁵ *McGhee v National Coal Board* [1973] 1 WLR 1 (HL); *Fairchild v Glenhaven Funeral Services Ltd* [2002] UKHL 22, [2003] 1 AC 32; *Barker v Corus UK Ltd* [2006] UKHL 20, [2006] 2 AC 572; *Sienkiewicz v Greif (UK) Ltd* [2011] UKSC 10, [2011] 2 AC 229; *Durham v BAI (Run off) Ltd* [2012] UKSC 14, [2012] 3 All ER 1161. See generally C T Walton (ed) *Charlesworth & Percy on Negligence* (13th ed, Sweet & Maxwell, London, 2014) at [6-20]–[6-48].

²⁶ *Morrison v Vero Insurance New Zealand Ltd*, above n 2, at 114.

²⁷ “Hysteresis” means “the delay or lag in response by an object to a change in the force that acts upon it”: Christopher Gorse, David Johnston and Martin Pritchard *Dictionary of Construction, Surveying & Civil Engineering* (Oxford University Press, Oxford, 2012) at 215.

building's lateral force resisting system during the earthquakes is revealed. That contribution is then related to the percentage contribution to the damage likely caused by each event.

[41] On this basis, Dr Jain identified in percentage terms the damage likely caused by each earthquake. Vero's expert, Dr Ma, reviewed Dr Jain's exercise and he too gave evidence as to the relative magnitudes of event allocation. As will be seen from the table set out below, the main differences between these two experts were for the September and June earthquakes, but in other respects the figures are similar.²⁸

Event	Weidlinger Results	Dr Ma's Revised Results
4 September 2010	22%	9%
26 December 2010	2%	1%
22 February 2011	61%	57%
16 April 2011	1%	1%
13 June 2011	14%	32%

[42] We come back later to some of the detail of the modelling but the description above is sufficient at this point.

Support for the model

[43] As we have noted, the Judge proceeded on the basis that there was some support for the model from Vero's own experts. Of particular relevance here is the evidence of Dr Ma. In the first of his reports dated December 2013, Dr Ma explains a review has been undertaken of WAI's damage allocation exercise. He says the review examined its methodology, input parameters and output. "On a conceptual level" the report stated:

²⁸ The table is taken from *Morrison v Vero Insurance New Zealand Ltd*, above n 2, at [94].

... WAI's approach is logical for allocating damage potential, provided ground shaking is the primary source of damage. ... However, as damage potential is not linearly related to the cost to remedy damage, and damage at the site of interest is potentially strongly influenced by soil liquefaction, this raises questions as to the appropriateness of the output in determining damage cost apportionment.

[44] The various experts including Dr Ma and Dr Jain caucused prior to the hearing and produced a joint expert report. That reflected directions for conferral by the parties' experts made prior to trial by Wylie J.²⁹ We interpolate here that the High Court Rules provide for the Court to direct that experts confer.³⁰ In addition, there are protocols for expert conferral under the High Court Earthquake List which, among other matters, require experts to comply with sch 4 of the High Court Rules.³¹

[45] The key passages from the joint report reflecting the experts' agreements are as follows:

- (c) The use of computer modelling, in lieu of more detailed information, is a consistent and practical platform to develop estimates of damage allocation between different earthquake events.
- (d) Both analyses produced damage allocation based on hysteretic energy dissipation. This estimate of damage is not a direct equivalent to per-event cost of repair, but it is suitable as an input parameter by others to make further informed interpretations.

[46] In cross-examination, Dr Ma emphasised that the estimates were not a direct equivalent to per event cost of repair. However, he agreed that without a liquefaction problem the joint report to the Court after expert conferral was advice that the estimates of damage allocation in the table are a suitable input in establishing the cost per event of damage caused by earthquake.

[47] Where Dr Ma and Dr Jain differed was in the nature of the necessary inputs referred to in (d) cited at [45] above. In his evidence-in-chief, Dr Ma explained what he considered would be suitable as an "input parameter". He said he envisaged the figures would be overlaid "with a probabilistic translation between the energy dissipation which is an engineering demand to damage states, ... the likelihood of

²⁹ *Morrison v Vero Insurance New Zealand Ltd* HC Christchurch CIV-2013-409-792, 4 December 2013 (Minute of Wylie J).

³⁰ Rule 9.44 and sch 4, cls 6–7.

³¹ *Protocols for Expert Conferral Under the High Court Earthquake List* (27 March 2014), cl 1. Available on request from the High Court at Christchurch.

actual damage occurring and then being able to translate that actual damage to scope and then cost”.

[48] By contrast, Dr Jain envisaged input in terms of the existing documentation after site inspections and so on. In light of this difference, the Judge perhaps overstated the level of support for the model. Not too much can be made of Dr Ma’s alternative figures. That is because they reflect a review of Dr Jain’s exercise using the inputs Dr Ma considered more appropriate rather than any acceptance of the model. With the two caveats, as to differences over the inputs and the nature of Dr Ma’s exercise, we agree it can be said there was some support at least at the conceptual level for Dr Jain’s exercise. We interpolate here that this acceptance answers Vero’s criticism based on the novelty of the model. In this respect we note Dr Ma accepted that the June earthquake caused additional damage. He also accepted that it was possible that Dr Jain was in a better position to make an assessment about the impact of liquefaction because he had visited the site.

The limits of the model

[49] The model is, obviously, designed to measure the relative impact of the events. Vero says it is unhelpful because, first, it does not take into account all of the causes of damage, particularly, it does not take into account liquefaction. Given that a large proportion of the damage in the February 2011 earthquake was as a result of liquefaction, Vero says the model cannot therefore be an accurate measure of the damage. Second, once the Judge adopted Vero’s assessment of the damage and related repair scope for the September event, Vero says the WAI percentage figures for the other events cannot be correct. That is because the remaining percentages on WAI’s model would not add up to 100 per cent. Finally, Vero says the model only measures the potential for damage to the building as a whole caused by a particular event, not the actual damage to specific building elements. It is therefore of no assistance in determining the scope of repairs.

[50] In response, TMT says Vero’s criticisms misstate the purpose of the model and how it was used by Dr Jain. In essence, the argument is that Dr Jain used the model as one input in conjunction with other evidence, such as the reports from the visual

inspections. For example, TMT argues that Vero's point about the impact of liquefaction is addressed by Dr Jain's use of the damage reports. They say it is also relevant that Dr Jain accepted that if items required replacement after the February earthquake they were not taken into account in WAI's list of repairs. When the model is used as one input, as the Judge accepted, the percentages can still be given weight apportioning damage as between events.

[51] We deal in more detail with each of the issues raised by Vero in turn.

Liquefaction

[52] Dr Jain opined that liquefaction caused only 5 per cent of damage to the structure of the main building when compared to hysteretic energy. The Judge, correctly in our view, rejected that proposition. As Whata J noted, the visual inspections showed "very significant lateral displacement (over 300 mm in places)" was caused by liquefaction in February 2011.³² The Judge noted that Davis Ogilvie's geotechnical report of November 2012 concluded:³³

The geotechnical investigation [conducted] at 23 Heathcote Street has determined that damages sustained to the pre-1950s warehouse building, were sustained primarily as a result of liquefaction-induced lateral spreading towards the Heathcote River.

[53] Whata J said that the authors of the report were not called to give evidence but that both parties relied on the report and it was "difficult to reconcile" Dr Jain's opinion that liquefaction caused only 5 per cent of the damage with the report's conclusion.³⁴ The percentage cannot be reconciled in our view.

[54] Dr Jain accepted liquefaction was not taken into account in his model. He accepted he had not formed an opinion on the relative percentage allocation of the contribution of the five earthquakes to the overall damage from all causes. Accordingly, he accepted that the Court did not have a percentage to work from in terms of assessing the overall damage from all causes. Given that acknowledgement, we agree with the appellant that the extent of the impact of liquefaction in February

³² At [137] (footnote omitted).

³³ At [138].

³⁴ At [139].

2011 and the failure of the model to take that into account cast doubt on the weight to be given to the modelling as a measure of damage and related scope of repair.

Relativities

[55] We also agree with Vero that, having accepted Vero's assessment for February, it was necessary to consider how that affected the other percentage figures. The figures as Dr Jain advanced them cannot be an accurate measure of relativities because the percentage that attributed to February is higher than the 61 per cent adopted by Dr Jain. Dr Jain was asked about this in the context of cross-examination relating to the impact of liquefaction. It was put to Dr Jain that the percentages produced by the model were meaningless because of the liquefaction damage. Dr Jain did not agree with that proposition. However, he did accept that if something was added to "earthquake number three for liquefaction damage" that would affect the other percentages. The same logically applies where there are other factors altering the percentages so that the relativities must be affected in some way. In light of all the evidence as to the contributing causes of the damage in the five events, we uphold Vero's criticism of the relativities produced by the model.

[56] This point leads into the last criticism relating to the use to which the model can be put.

A measure of damage to building elements?

[57] Vero says the model can only identify the potential for damage to the building and not, as required to meet the terms of the policy, the actual damage to specific building elements. Vero also says it is not clear how Dr Jain used the model to prepare the list of the scope of repairs.

[58] Dr Jain explained that he would consider all of the building information including the engineering reports and expert witness accounts and use them to identify the elements requiring repair. He would use the allocation percentages to distribute the damage to those elements that did not have quantities associated with them. He also claimed there was some link between ground shaking and the intensity of that and liquefaction. As he put it:

... [T]he amount of liquefaction or the probability of liquefaction occurring is also a function of the ground motion intensity or the earthquake intensity so, and the allocation which is dependent on the ground motion intensity from the shaking model is ... a function of the intensity of the ground motion, and so is liquefaction.

[59] In further explanation of his approach he said:

After the September earthquake that separation of the outside was in the range of 20 to 25 ml or about an inch or so ... so it went from about an inch to four inches from September to end of all the earthquakes so if I use that as a proportion as I have 22 per cent from my analysis for September. It's about a quarter so to me that seems like a logical explanation so where we don't have the detailed measurements or documentation of the types of damages the allocation methodology can certainly provide relevant input for looking at the damages that exist of the building. ...

... [T]his crack in its ... current size was probably caused by the, or, or that width was finally – it stopped at that point after the February earthquake. That would be my opinion based on the other information that I have seen and, ... based on my per-events report where I'm suggesting that the slab on grade needed to be ... [n]o sorry that's correct so at the end of the February earthquake is when in my per-events report I'm recommending replacement of the slab on grade so what I would think is that for the particular slab on grade if I take the allocation percentages from the model from the three event and think of them as full, full damage so the 22 per cent, the 2 per cent and the 61 per cent as the equivalent of 100 per cent damage to the slab on grade then I can use that as a basis to allocate the damage to the different – those three events which resulted in damage to the slab on grade.

[60] The difficulty with Dr Jain's approach to this aspect is, however, apparent in other aspects of his description of how the model worked. In cross-examination he explained that the effects of liquefaction had to be treated separately and that he had taken those effects into consideration in his third report. Dr Jain continued:

That's a combination of the analysis to supplement the missing pieces in terms of the details after damage documentation and then sort of convolve them together to come up with an answer.

[61] When pressed about the contribution of liquefaction he referred to the computer modelling for the September earthquakes as still at 22 per cent. But, he continued:

In terms of considering the third report which I have prepared and how that filters into the cost and what is the percentage allocation based on costs, I don't know.

[62] The end result is that there is no explanation as to how the 14 per cent figure adopted by Dr Jain in relation to the June earthquake translates into the list of repairs. The key WAI report dated 9 March 2014 sets out the following list of repairs for the June 2011 event:

1. Further cracking of concrete columns and beams should be repaired by injecting epoxy. ...
2. Blocked off areas of the building deemed unsafe should be reconstructed.
3. The rear addition to the building should be reconstructed.
4. Bent and tilted steel frames should be removed and replaced. The mezzanine floors supported by these frames should also be reconstructed.
5. Roof deck metal panels should be checked for damage and leaks; damaged and sheared off metal roof deck panels and finishes, if any, should be removed and replaced.
6. Displaced and damaged water utility lines should be removed and replaced.
7. Hardscape and driveways on the building grounds should be removed and replaced. ...

[63] However, the report is conclusory and simply says that the repair recommendations are based on the observations by WAI in June 2012 and the differences in repair recommendations between WAI's observations and those undertaken by Vero's experts subsequent to the February 2011 earthquake. In addition, the report states, "we considered the eyewitness accounts of Mr Morrison and Mr Weir". Some reliance could be placed on the inspections and on Mr Morrison's evidence. However, Mr Weir did not give evidence. Further, it is not clear how these sets of inputs interact to produce the list of repairs. It is not a sufficient response in our view to say that Dr Jain explained he removed from the list items already to be replaced after the February earthquake. In any event, it appears that the WAI list in fact includes items already being replaced after the February event.

[64] When these three difficulties with the model are taken into account, we consider the model was given considerably more weight than it should have been. That conclusion is, however, not necessarily the end of the matter. We still need to

address whether the model, when viewed alongside Dr Jain’s photographic essay, nonetheless supports the conclusion as to the scope of additional repairs required after the June earthquake.³⁵

Additional repairs necessary after June?

[65] The thrust of the evidence for Vero is that the June earthquake did not cause any significant new damage. Importantly, the evidence is that any further damage was not relevant in terms of the scope of repairs. While it is accepted there was some additional cracking or spalling, the cost of repair relating to this additional damage was insignificant. Most of this additional work, in any event, would be covered by the fact that it related to items already being replaced after the February earthquake.

[66] The general purport of this evidence is encapsulated in the statements from Vero’s expert David Southwick. Mr Southwick is an engineer with Batchelar McDougall Consulting Ltd (BMC). Quoting from his report prepared for BMC dated 30 August 2013, he said:

No significant new damage has occurred to the building that would require the repair scope presented in the BMC report of 11.05.11 to be altered.

[67] Mr Southwick explained what he meant by “significant new damage” in the following passages:

At paragraph 25 of the [MWH Recovery Ltd] report they conclude that the scope and costs of total damage have been built into the scope of repairs following the 22 February 2011 event. I agree that the repair scope due to the 22 February event would cover all significant damage caused by subsequent events;

In my opinion, significant damage is damage that would substantially alter the scope of the repair. For instance, some additional cracking and/or spalling of the concrete frames is an extension of a repair item that already exists in the scope and does not substantially or significantly alter the cost of repair.

[68] In explaining BMC’s acceptance that there may have been additional damage due to the June event but not damage that would have altered the repair scope, Mr Southwick said:

³⁵ *Morrison v Vero Insurance New Zealand Ltd*, above n 2, at [144].

The potential additional damage that I was aware of primarily related to masonry infill elements which are located on both storeys within the concrete frame elements located between Grids A and I of the drawings ... [a]s the repair scope from February had already required those elements to be replaced, the effect of this damage on the repair scope was not considered of any relevance.

[69] Mr Southwick accepted in principle that if existing cracks in the columns and beams were exacerbated they could require the injection of some further epoxy. But Mr Southwick's belief was that the associated costs would be "insignificant" and would not affect the basic scope in relation to this element that was already included in the February repair scope.

[70] Stuart Preston, a structural engineer and director of ISP Consulting Engineers Ltd, also gave evidence for Vero. He opined there was some additional damage but that this was more in the nature of exacerbation. The further damage was "relatively minor to the point of being insignificant" in respect of the extra work required in the scope of repairs. When asked about the photographs of the June earthquake he said those photographs:

Reinforced my impression that, that that damage was to a very large extent pre-existing and would have been required to have been repaired post-February had there been an earthquake in June or not.

[71] A further Vero expert Adam Ward, a construction manager at MWH Recovery Ltd (MWH) with experience in management of design, construction and closeout of earthquake damaged properties, said that it was possible that cracking to the columns and beams may have been exacerbated by the June event. However, if there had been some additional cracking then "some further material (epoxy) and labour may have been required to plug the extra cracking but I believe the requirements and associated costs would have been minimal".

[72] Finally, Gregory Griffin, on behalf of Vero, a project and programme manager with MWH, said he thought the scope of repairs was not altered in any way as a result of the June event.

[73] Whata J put the photographic essay into the mix in rejecting this evidence. In doing so, the Judge rightly acknowledged that there were limitations to the

photographic essay. Mr Ring was somewhat dismissive of the photographic essay given the analysis of the photographs involved a subjective interpretation. But we consider the Judge was right, having looked at this evidence in light of all of the other evidence, to conclude that it was of some assistance in determining that there was “discernible additional damage to the building after the June event”.³⁶ The photographs show some further damage and that is not inconsistent with the evidence of Vero’s experts. Dr Jain said in his evidence:

These photographs also illustrate that quite a bit of the damage caused by the June event is shaking induced. Further, these photographs also illustrate that a lot of incremental damage was caused to the concrete frames and not just the masonry infill elements as indicated by Mr Southwick

[74] In terms of how this affects the scope of repairs, one of the list of repair recommendations in the WAI March 2014 list is reconstruction of the rear addition. On this, Dr Jain’s evidence was as follows:

The next set of five photographs shows the rear addition to the building. This is one of the areas of the building which was blocked off and there is also if you look at the top left corner of the window where there is some broken concrete blocks you can see the progression of damage after the various events, the February, the April and the June.

[75] That last excerpt from Dr Jain’s evidence illustrates the difficulty of determining how the additional damage has an impact on the scope of repairs.

[76] Dr Jain says he has taken account of those items of repair which required replacement after the February earthquake. There does, however, appear to be an overlap between some of the items on the WAI March 2014 list and items marked for replacement after the February earthquake. For example, WAI’s recommendations in relation to the February 2011 event include this item:

9. Roof deck metal panels should be checked for damage and leaks; damaged and sheared off metal roof deck panels and finishes should be removed and replaced.

[77] The same item appears in the June 2011 list of repairs we have set out at [62] above. For other items, it is difficult on the basis of the material we have to determine the extent of any overlap. Whata J said that “[o]n closer examination” the

³⁶ At [144].

additional items of repair identified for June “relates to cumulative damage on items that did not previously require replacement”.³⁷ That seems inconsistent with the earlier scope of repairs. But we simply cannot resolve this on the material before us.

Drawing the threads together

[78] When all of these matters are considered, our view is that TMT has shown the June event required some additions to the scope of repairs. However, given the limitations of the model, particularly the failure to take account of liquefaction and the apparent overlap in repair items, we envisage the cost of these repairs applying MWH’s approach to costing as adopted by Whata J would be relatively minor. We could simply set a fairly nominal figure but that would inevitably be somewhat arbitrary. In the circumstances, we see no alternative but to refer this matter back to the High Court. We hope, however, that the parties could reach agreement on this aspect. To this extent, the appeal is allowed. We add we see no reason to alter the approach taken to the cost of repairs for the February event.

The other challenges to the model

[79] Vero also says Whata J was wrong to reject Vero’s other criticisms of the model and its challenge to Dr Jain’s independence. For completeness, we deal with these, but we do so briefly because we agree with Whata J’s reasons for dismissing these aspects of Vero’s challenge to the model. The further criticisms of the model are summarised by the Judge as follows:³⁸

Various inputs are flawed, including questionable observational ‘evidence’, arbitrary criteria for including earthquakes, use of weighted averages, modelling based on an erroneous north/south, east/west components when the building is orientated north-east/south-west and north-west/south-east, and use of inapposite values based on US construction standards.

[80] Whata J accepted some of the inputs used were open to question. For example, he said, the use of a north south axis was an error. The Judge rejected,

³⁷ At [154].

³⁸ At [121(i)].

however, what were termed “the fine grained criticisms of the modelling inputs”.³⁹
Whata J stated:⁴⁰

I was not taken to any statistical or empirical analysis that revealed the materiality of the alleged error or errors specific to this context. To illustrate, Dr Ma criticised the use HAZUS-MH capacity values because they were not intended for assessment of individual buildings. Dr Ma also cited literature suggesting that nominally similar buildings can have vastly different damage during an earthquake event. He also says the wrong HAZUS code was used. However, Dr Ma also noted in his independent explanation to the joint expert report when dealing with the use of HAZUS values that “the results [of the modelling] should be view[ed] as an informed estimate rather than an exact solution.” He added that “it would be more sensible to ignore any energy dissipation estimate below 5%”. All of this suggests that the identified error is not a fatal flaw and that the modelling can still be useful.

Relevantly also, unlike Dr Jain’s team, Dr Ma has not undertaken a detailed inspection of the building or its characteristics to inform his view as to the appropriateness or otherwise of the use made by Weidlinger of the HAZUS-MH capacity values.

[81] We are not persuaded we should take a different view. The Judge accepted there were some problems but did not see them as material. We were not taken to evidence that compels a different view.

[82] On the question of Dr Jain’s independence, Whata J said this:⁴¹

[133] I also reject the submission that Dr Jain lacked requisite independence. His evidence appeared to trespass at times into advocacy, for example his tabular breakdown of inconsistencies between the evidence given by the defendant’s expert team was a step too far. But he can hardly be singled out for that criticism when Dr Brooke explained that the purpose of his evidence was to outline the weaknesses of Dr Jain’s evidence. I also put no store in the fact that Risk Worldwide had the temerity to identify Dr Jain as one of their team. I accept his explanation that this was done without his approval. Moreover, his curriculum vitae reveals a depth and breadth of experience that does not support the inference that he or his team have been captured by Risk Worldwide. Rather it reveals both strong academic and experiential expertise on the specific issues before me.

[83] Whata J made this finding having had the benefit of extensive cross-examination of Dr Jain on the topic. We see no basis in that evidence for taking a different view.

³⁹ At [127] and see [132].

⁴⁰ At [127]–[128] (footnotes omitted) and see [132].

⁴¹ Footnotes omitted.

Was the Judge right the building was not destroyed?

[84] Vero's alternative argument is that the building was already destroyed as a result of the February 2011 event. This would affect any further liability for the June event because TMT was already entitled to a replacement building at the time of the June earthquake.

[85] The policy defines "destroyed" as meaning "so damaged by an insured event that the property, by reason only of that damage, cannot be repaired". Vero's case is that this definition contains an implied requirement that the building cannot "reasonably" be repaired and the Judge was therefore wrong to ignore the economic and practical considerations of repair in this case.

[86] TMT supports the approach of Whata J, relying on the definition of "destroyed". It is said that, on Vero's approach, as soon as repair costs more than replacement, the building would be destroyed and that is not the effect of the policy.

The other relevant provisions in the policy

[87] The definition of "destroyed" is found in the special provisions memorandum in the policy which deals with reinstatement. The memorandum states:

In the event of any Insured Property to which this Memorandum applies being lost or damaged, the basis on which the amount payable under Section 1 of this Policy is to be calculated will be the cost of Reinstatement of that property. Insurance under this Memorandum is subject to the Special Provisions set out below.

[88] "Reinstatement" is defined to mean:

- 1) where property is lost or Destroyed, its replacement by an Equivalent Building or by Equivalent Plant as the case may require.
- 2) where property is damaged but not Destroyed, the restoration of the damaged portion of the property to a condition substantially the same as, but not better or more extensive than, its condition when new, and including any alterations that may be necessary to comply with any Law.

[89] “Equivalent Building” means:

- 1) a building or structure that is as nearly as practicable the same as the building or structure lost or Destroyed, using currently equivalent materials and techniques and incorporating such alterations as are necessary to comply with any Law.
- 2) where, as a result of any special circumstances, no building or structure that falls within the scope of paragraph (b)1) [above] can be constructed; a building or structure that is designed to perform a purpose or function the same as or equivalent to (but not more extensive than) that performed by the building or structure lost or Destroyed.
- 3) where, as a result of any special circumstances, no building or structure that falls within the scope of paragraph (b)1) [above] is suitable to the Insured’s reasonable requirement, a building or structure that is designed to perform a purpose or function suitable to that requirement, but not more extensive than that performed by the building or structure lost or Destroyed.

[90] The limitations on the amount payable include the following:

Where the Insured Property is damaged but not Destroyed, the Company’s liability will not exceed the amount the Company could have been called upon to pay for Reinstatement if the property had been Destroyed.

[91] There are also specified circumstances in which the memorandum does not apply. Special provision 4 states that “No payment, beyond the amount that would have been payable had this Memorandum not been incorporated in the Policy, will be made” in certain circumstances including:

- (d) where a building or structure is damaged, but not Destroyed, and the repair of the damage is not permissible by reason of any Law, or by reason of the condition of the Undamaged portion of the property.

Where, by reason of any of these circumstances, no payment is to be made beyond the amount that would have been payable if this Memorandum had not been incorporated in the Policy, the rights and liabilities of the Insured and the Company in respect of the loss or damage will be the same as if this Memorandum had not been incorporated in the Policy.

[92] Finally, there is a constructive total loss provision which states:

Where the Insured is prevented from reinstating any Insured Property by sole reason of any Law, the Insured Property will be deemed for all purposes of this Policy to have been destroyed. For the purpose of this clause, ‘Law’ means any statutory, regulatory or code requirement imposed by the authority

of any Act of Parliament or regulation or by-law promulgated by any lawful authority.

The approach taken in the High Court

[93] Whata J noted that the proper starting point is the “intentions of the parties, objectively assessed, as expressed in the policy”.⁴² Whata J continued:⁴³

Issues of feasibility might assist interpretation in cases where it might be said that the parties could not sensibly have considered ongoing indemnity for a building beyond economic repair. But it seems tolerably clear to me that both parties were content to allow the sum insured to reinstate notwithstanding the Richardson and BMC reports, because the building retained some functional value, as proved to be the case. Vero’s obligation therefore was and is to pay the indemnity and or reinstatement value of the repair even though it may be that the repair or rebuild is not now “economically” feasible.

[94] The Judge referred to the discussion in *QBE Insurance (International) Ltd v Wild South Holdings Ltd (Wild South)* of the relevance of economic feasibility but said that ultimately it was a question of fact in each case.⁴⁴ The Judge relied on the fact the building retained a functional value. He said he preferred the evidence of Mr Richardson and Dr Jain that the building was not damaged “beyond repair” by the February earthquake.⁴⁵ The Judge’s conclusion was as follows:⁴⁶

In the circumstances of this case, I am satisfied that the building was not in fact destroyed as defined by the policy. Destroyed means “so damaged by an insured event that the property by reason only of that damage, cannot be repaired”. As noted, the building retained functional value, and I prefer the evidence of Mr Richardson and Dr Jain that the building was not damaged beyond repair by the February event. While I accept that full repair may not be economically feasible, this should not preclude the contracted for indemnity of the repair cost associated with the June event.

The relevant principles

[95] The approach to the meaning of “destroyed” in a similar policy was considered recently by this Court in *Wild South*. The Court observed that the language of the policy in that case pointed to an objective assessment by the Court,

⁴² At [156].

⁴³ At [156].

⁴⁴ *QBE Insurance (International) Ltd v Wild South Holdings Ltd* [2014] NZCA 447, [2015] 2 NZLR 24.

⁴⁵ *Morrison v Vero Insurance New Zealand Ltd*, above n 2, at [157].

⁴⁶ At [157].

informed by considerations which may include any special features of the building, the insured's intentions for it so far as they are not eccentric or unreasonable, and the respective costs of reinstatement and replacement. The test was not what the insured would do if it were spending its own money.⁴⁷ Miller J, delivering the judgment of the Court, explained:⁴⁸

The single owner standard was rejected in *Reynolds v Phoenix*, and our attention has been drawn to no other insurance case in which it was adopted. Other considerations may inform the decision, and perhaps carry more weight; they include any special character or features of the building, the insurer's promise to pay the costs of reinstating (subject to policy limits) that particular building, and the insured's preferences so far as they are not eccentric or unreasonable. To what extent, if any, these various considerations inform the decision must depend on the circumstances.

[96] In *Wild South*, the policy distinguished between destroyed and damaged buildings. In particular, different measures of indemnity were applied to each.⁴⁹ The cost of rebuilding was the measure of indemnity where the property is destroyed.⁵⁰

[97] The Supreme Court of New South Wales in *Morlea Professional Services Pty Ltd v The South British Insurance Co Ltd* similarly emphasised the need to approach the meaning of "destroyed" from a practicality perspective.⁵¹

[98] It is also important that the relevant policy in issue in *Wild South* differs in two respects from the TMT policy. The first difference is that the present policy defines "destroyed". The second difference is that the TMT's policy contains a constructive total loss provision.⁵²

Discussion

⁴⁷ *QBE Insurance (International) Ltd v Wild South Holdings Ltd*, above n 44, at [96]–[100].

⁴⁸ At [107] (footnotes omitted).

⁴⁹ At [92].

⁵⁰ At [104].

⁵¹ *Morlea Professional Services Pty Ltd v The South British Insurance Co Ltd* (1986) 4 ANZ Insurance Cases ¶60-777 (NSWSC) at 74,732. See also Merkin *Colinvaux's Law of Insurance*, above n 24, at [10-003].

⁵² It appears from the discussion in *QBE Insurance (International) Ltd v Wild South Holdings Ltd*, above n 44, at [91] and [95] and from the absence of any reference to such a provision in the judgment at first instance (*Marriott v Vero Insurance New Zealand Ltd* [2013] NZHC 3120), that the Marriotts' policy did not contain such a provision.

[99] We turn then to apply these principles to the present case. The relevant evidence came from Mr Morrison and from the various experts.

[100] The first point that emerges from the evidence is that, as Whata J noted, the building is still functional. The pertinent evidence came from Mr Morrison who explains that the building was still in use and tenanted although some of the tenants left and lesser rentals were received. His evidence was as follows:

Tenants occupied the building after the February 2011 event. I have continued to receive rents from these tenants in the building. Over the course of the many earthquakes, tenants moved out and I was able to re-let many of the spaces or alter the rents to accommodate my tenants.

The vacancies in the “lettable” part of the building were eventually filled. My tenants continue to go in and out of the building and have done since the time of the February 2011 event to and including the present day.

[101] Mr Morrison emphasises that while it was not safe to occupy the front or back lean-to additions the main building part was satisfactory. Mr Morrison said he wanted to repair the building. He explained that he had purchased the building because of its historic significance and he wanted it for his retirement. Mr Morrison described research he had done showing that the wool scours used to come up the Heathcote River and moor outside the building. He expressed a wish to share the historical aspects of the building with the public.

[102] Second, the evidence of Vero’s expert Mr Richardson that the building had a “short future life” is open to the criticism his focus was on its economic viability.

[103] Mr Richardson is an experienced civil and structural engineer. He inspected the building after the September earthquake on 28 October 2010 and, again, on 9 March 2011, after the 22 February 2011 earthquake. His report stated the February event had “tested the building more severely and in general the building and its structure have survived reasonably well”. His report went on to note that issues reported on previously had further deteriorated but not to the point where the main building had become dangerous. Mr Richardson’s report also said that none of the noted issues gave “immediate cause for concern as to the stability of the original building in its present condition”. He then discussed the increase in separations and the fact that the building had moved by up to 100 mm towards the northwest.

[104] Under a heading “the future” Mr Richardson’s report said this:

The building despite its defects was still serviceable and worthy of repair or at least securing. This is survival mode.

[105] Mr Richardson said that in the short term the building “may continue to be serviceable and tenanted within the restrictions noted previously. The building should be considered to have a very short future life and at this stage unlikely to benefit from cosmetic repairs.”

[106] In his evidence, Mr Richardson said that his statement in his report about the building not being dangerous in its stability related to the main building. His reference to the main building is to the five bay by four bay two storey beam column structure. The remainder, both front and rear, are additions to this original five bay by four bay structure. It was the later additions that were more severely affected by the February 2011 event.

[107] He said that he was not talking in his report specifically about whether the building was viable for repair. In fact, he considered the building to have a very short future life after the February 2011 earthquake. What he said in his brief of evidence was:

The meaning it was conveying was that the building had not collapsed, nor was it in imminent danger of collapse. This was typical of many buildings after the 22 February event.

The reference to no cause for concern as to stability at the end of the “reinspection” section refers to the original building.

Those comments must be read in conjunction with “the future” and “conclusion” sections of my report. In “the future” section I conclude that due to liquefaction this collection of buildings was compromised. In the “conclusion” section I emphasised the building should be considered to have a very short future life.

At that time I was not in a position to condemn the building and order immediate evacuation. However, I was at the time, and still am, of the opinion that the building was beyond economic repair.

[108] He accepted that it was possible to repair the main building if the two additions, front and rear, were removed.

[109] The third point is that there was conflicting evidence about the practicalities of repair. There is, however, force in Mr Campbell's submissions that the concerns of a number of Vero's experts were rather more directed to the economic viability of repair.

[110] Dr Jain's evidence was that repair was possible and the building was not destroyed. We need to note, however, that the WAI report of 30 November 2012 described the list of repairs as "of a conceptual nature" and acknowledged rebuilding may be more economical.

[111] For Vero Mr Southwick expressed concerns about the impact of the foundation damage. He said that "repairing the building by moving it sideways would be extremely difficult but most likely impracticable." He went on to say that when all of the necessary remedial works are taken into account repair was not likely to be "financially feasible".

[112] Dr Nicholas Brooke, another structural engineer who gave evidence on behalf of Vero, agreed that in "a physical sense" the building was not destroyed, it could be repaired, but that would be uneconomic.

[113] Mr Preston accepted the building was "technically" repairable but that this was "financially unfeasible". He went on to say that the "scale of the vertical and lateral movements of the building" cast doubt on "the practicality of remediating those". He continued:

Other factors were the requirement to demolish and replace all infill walls, uplift and replace the entire ground floor slab, replace the entire roof, demolish and reconstruct the rear addition, demolish and reconstruct the front portion of the building, underpin, relevel and straighten the remaining concrete structure and repair all residual cracks.

[114] Mr Ward for Vero accepted in evidence that if he was providing advice to Mr Morrison in 2012 as to what to do with the building he would, comparing the two scopes of repair, tell him to repair it.

[115] Finally, Mr Griffin gave evidence on behalf of Vero that the building was "effectively" destroyed as a result of the February earthquake. He said his firm's

view (MWH) was that it was neither “physically nor practicably feasible” to repair and the building should “realistically” be demolished and rebuilt from scratch. He then went on to explain that a brief comparison of the figures shows that the estimated repair scope was higher than the estimated rebuild scope and the new rebuilt building would be far superior to a repaired building.

[116] The third aspect is the relevant figure for the cost of repair and related values. The cost of repair is some \$14,573,573. The repaired value of a repaired building is \$2,564,103. The cost of rebuilding is \$13,619,744 and the building’s rebuilt value is some \$3,428,571.

[117] The final point is one made by Vero, namely, that even on the WAI repair recommendations the list of 19 structural and non-structural components were “overwhelmingly” marked for replacement, including piles, ground floor slab, perimeter walls, roof gables, roof and internal partitions and ceilings. Mr Ring submits that the “notable exceptions” were the five columns, bracing beams and first floor slabs and that “stripped down to that state, the building would be unrecognisable as such”.

[118] Applying the principles set out in *Wild South*, Vero correctly identifies economic and practical considerations supporting its claim the building was destroyed. There are, however, some countervailing considerations. As we have noted, the building is still functional. Further, Mr Morrison’s evidence was that the building has some heritage value and he purchased it with a view to leasing it. That evidence should not be overstated but is part of the mix. Finally, as Mr Campbell submits, while the comparison between the estimated repair and rebuild costs is, as at April 2014, a stark one, the relationship between the estimates as at December 2012 was somewhat different. At that point the estimated rebuild cost was approximately \$9 million and the repair cost some \$7.1 million. On the facts in this case, there was a basis to conclude the building was not destroyed.

[119] It is also significant that, as we have noted, in contrast to *Wild South*, the policy in issue in this case contains a definition of destroyed. It is also relevant that the constructive total loss condition in the TMT policy is limited. In particular, the

provision could have, but did not, include economic destruction within that extended provision. In all these circumstances we consider it is not open to us to read in a reasonableness requirement as Vero would have. We uphold the Judge's finding that the building was not destroyed.

Calculation in relation to the September earthquake

[120] On the impact of the September earthquake, the Judge preferred Mr Richardson's evidence that this earthquake resulted in "only relatively minor observable damage" to the building.⁵³ The Judge was not convinced that "the damage requiring repair correlates closely to the modelled percentage", namely, 9 to 22 per cent.⁵⁴

[121] TMT says that in reaching this view the Judge did not adopt the approach he had said he would take, namely, combining the modelling and visual inspections to arrive at a realistic appraisal of the likely repair "necessary after each event".⁵⁵ TMT relies on Dr Jain's evidence that 12 building elements were in need of repairs after the September earthquake making it not likely that \$80,000 or 1 per cent of the total repair cost related to the September event. Finally, the limits of Mr Richardson's inspection of the building are emphasised. In particular, Mr Campbell points to the fact Mr Richardson accepted that a detailed engineering evaluation would have been necessary "to gain a full understanding of this building's structural strength and its effect by earthquakes".

[122] Vero supports the judgment. Mr Ring submits that the Judge was entitled to rely on Mr Richardson's evidence.

[123] Whata J essentially found that for this event, there was sufficient information available to assess the issue on the basis of the visual inspection undertaken by Mr Richardson. On this approach, the model did not add anything. We agree.

⁵³ At [141].

⁵⁴ At [141].

⁵⁵ At [131].

[124] As we have noted Mr Richardson visited the site on 28 October 2010 and again on 9 March 2011, that is, after both the September 2010 and February 2011 earthquakes. He produced two reports, the relevant one for present purposes being the one dated 5 November 2010, the other was dated 11 March 2011. Mr Richardson explained that he visited the property on 28 October 2010 where he met Mr Morrison at the site. Over a period of about three hours he inspected the building taking notes and making descriptions of the parts of the building he saw which had been affected by the earthquake. He also took a number of photographs. His report sets out a repair schedule.

[125] BMC used Mr Richardson's report to prepare a detailed scope of works for the September earthquake. These, in turn, allowed MWH to prepare their detailed scope and costing to repair the September damage. MWH costed the works for the September earthquake at just over \$74,800 including GST. Vero then later added a 10 per cent contingency on the recommendation of Stewart Harrison, a quantity surveyor.

[126] Mr Richardson's evidence was that the WAI estimate of damage attributable to the September earthquake was "staggering and grossly overstated". He refers to the fact that he obtained an initial quote for \$26,000 and he would not have expected the additional repairs to have exceeded a further \$40,000. He accepted that price increases might mean those figures were larger but "that would only be a matter of up to two or three times my original perception of cost". He continued, stating:

I simply cannot accept that a scope of works based on my observation of damage can be priced at \$2.6 million. In my view that alone suggests that the model which produces the 22% allocation for September seriously over estimates the allocation in financial terms of the repair costs for the September event.

[127] Mr Southwick in his evidence said on the basis of the information he reviewed the required repair scope was "limited". He noted the following items only:

- (1) Cracking to reinforced masonry walls requiring injection of cracks to repair;
- (2) Grout patching for concrete damage;
- (3) New connections/tightening of anchorage straps and bolts in rafters;

- (4) Localised repairs of gables due to roof racking.

[128] Dr Jain's position is based on his view that there was "or at least starting to be" separation and cracking of the foundation even after the September earthquake requiring repair. In reaching his conclusions, Dr Jain relied on Mr Richardson's scope of repairs. He was asked in cross-examination whether he accepted MWH's scope of work. He identified a discrepancy in MWH's report by comparison with observations in Mr Richardson's report. He said that MWH had underestimated the cracking repairs required to the external wall. Essentially, he said that MWH had not allowed for repairs on both sides and this would involve approximately another 240 linear metres.

[129] It is relevant, however, that Dr Jain's starting point was Mr Richardson's report. Further, Mr Ward in his evidence was asked about the difference of 240 linear metres and he explained why it was not appropriate to simply add up the linear metres within Mr Richardson's report. His evidence was that the scope of repairs had "plenty of coverage for the cracks that are listed in Roger Richardson's report".

[130] Having reviewed the evidence, we agree with the submissions for Vero that there is only one factual issue that might "materially expand" Mr Richardson's list of damage. That is the possibility the building suffered damage as a result of liquefaction in the September event. Otherwise, the evidence is clear as to the very limited impact of the September event on the scope of repairs.

[131] The Judge dealt with this possibility in this way:⁵⁶

There is very little probative evidence of any liquefaction damage occurring at this time, with Mr Morrison ultimately conceding that he may have been wrong about the observation of liquefaction related damage after the September event and that he relied on hearsay observations from a tenant about liquefaction inside the building.

[132] Dr Jain's evidence in cross-examination that there was "also liquefaction reported from the September event" faces similar difficulties at least to the extent he relied on Mr Morrison's account. Further, Dr Jain's evidence was that it was the additions to the building which were affected by liquefaction induced lateral

⁵⁶ At [141].

spreading. As Mr Ring submits, that suggests separation occurring in the September earthquake could not be as a result of lateral spreading given the geography of the building. This would otherwise involve the land under the front addition laterally spreading uphill.

[133] Finally, there was considerable other expert evidence against liquefaction induced damage having occurred in the September earthquake. Mr Richardson said there were “minimal signs” of liquefaction and “no evidence of ejecta”. Steve Youl, a loss adjuster with Vero, inspected the building on 26 October 2010. His “overall impression” was that any damage was “not extensive”. He said he had “no record of liquefaction” at the site from the September 2010 earthquake and did not observe any liquefaction induced damage during this inspection. Dr Ma said he thought the “two key dates” of liquefaction induced damage were the February and June 2011 earthquakes. Dr Brooke said no “significant” ground damage was known to have occurred at the site prior to the February 2011 earthquake. He was aware “some foundation repair was required after the September 2010 earthquake” but said that, compared to the final scope of work, this was “orders of magnitude lower in cost”. Finally, neither Davis Ogilvie’s report of November 2012 nor WAI’s report of 30 November 2012 refer to any liquefaction induced damage to the building caused by the September earthquake.

[134] We agree with Vero, there was an insufficient basis for expanding Mr Richardson’s list of damage. We uphold Whata J’s conclusions on the September event.

Responsibility for the cost of new piling

[135] TMT also cross-appeals against the Judge’s conclusion that the cost of new piles, required as part of earthquake strengthening, was not to be included for the purposes of calculating the indemnity payment, but was to be included for the purposes of reinstatement.

[136] Our conclusion that the Judge was right as to the approach to quantum concerning the September earthquake means this issue is effectively moot. That is

because it is accepted that if the quantum for September is unchanged and the piling cost remains as part of the sum payable as a result of the February event, Vero has paid all it can ever pay for the latter earthquake.

[137] The depreciated estimated cost of installing new piles would have to be allocated to the event causing this cost to be incurred.

[138] It is clear from the BMC and MWHR reports of 30 August 2013 and 4 April 2014 respectively that the cause of this cost is the February earthquake. The WAI report of 9 March 2014 similarly includes “[n]ew foundations ... with deep pile foundations” as part of the scope of works for the February event. There is no reference to new piles in the WAI scope of repairs for the September or June events.

[139] Against this background, we deal with this issue briefly.

The High Court judgment

[140] Whata J dealt with this issue by explaining that treating this cost as a reinstatement payment “reflects an important distinction made in the policy between indemnity for repair costs on an old for old basis and reinstatement on a new for old basis”.⁵⁷ His Honour continued:⁵⁸

The former is concerned to restore TMT to the position it would have been had there been no damage (ie, the status quo ante). This notional position is not concerned to achieve the reconstruction of a new building, so does not require provision for piles. The latter, by contrast, expressly contemplates replacement with an as new building or equivalent building. Equivalent building means:

- (b)(1) a building or structure that is as nearly as practicable the same as the building or structure lost or Destroyed, using currently equivalent materials and techniques and incorporating such alterations as are necessary to comply with any Law.
- (b)(2) where, as a result of any special circumstances, no building or structure that falls within the scope of paragraph (b)(1) can be constructed; a building or structure that is designed to perform a purpose or function the same as or equivalent to (but not more extensive than) that performed by the building or structure lost or Destroyed.

⁵⁷ At [170].

⁵⁸ At [170].

[141] The Judge considered that the new piles were required “to enable an as new building or an equivalent building”.⁵⁹ The policy’s reinstatement objective would be defeated if the piles were then treated as betterment and outside the scope of the sum insured. Further, he stated, “[i]n any event, for the purpose of an indemnity payment for a notional repair on an old for old basis, the cost of new piles should not be included.”⁶⁰

Discussion

[142] In challenging this reasoning, TMT says there can be no relevant distinction between the piling cost and any other repair costs found in the MWH estimate. All of these costs are necessary for the repair of the building. Further, Mr Campbell submits, on this approach many of the costs necessary for repair would not be included in calculating the indemnity payable. Finally, to the extent Vero says this cost is betterment, the onus was on Vero to prove that. They did not do so especially as their experts included this cost in their scope of repairs.

[143] We agree with Whata J for the reasons he gave reflecting the relevant principles of indemnity and this policy. As Mr Ring notes, before the earthquakes, TMT had a building with no piles. The indemnity payment is founded on the depreciated estimated cost to put the building back to its “pre-earthquakes, no piles” condition.

[144] We agree also with the analogy Vero draws with the position outlined in *Farmers Mutual Insurance Co Ltd v Bay Milk Products Ltd*.⁶¹

[145] That case addressed indemnity and replacement cover under the now repealed Earthquake and War Damage Act 1944. The Court there discussed costs required to update a building or plant to meet new regulatory requirements in force at the time of the earthquake but with which the building did not comply.

[146] Richardson J said this:⁶²

⁵⁹ At [171].

⁶⁰ At [172].

⁶¹ *Farmers Mutual Insurance Co Ltd v Bay Milk Products Ltd* [1989] 3 NZLR 647 (CA).

⁶² At 659–660.

Where the basis of calculation of indemnity value is the cost of reinstatement, what is contemplated is restoration to the condition in which the property was at the time of the loss, and therefore, as *Ivamy, Fire and Motor Insurance* (4th ed, 1984) at p 171 notes, the amount of indemnity will not include increased cost of reinstatement due to regulatory upgrades unless that increase is specifically insured. The reason is that the costs of complying with such requirements were not part of the damaged structure and are [not] therefore properly included in the amount of the damage without such a specific clause (*Pleasurama Ltd v Sun Alliance & London Insurance Ltd* [1979] 1 Lloyd's Rep 389, 394 per Parker J).

...

In short, the indemnity value as certified and approved does not include the costs of regulatory upgrade. They are included in the reinstatement costs explicitly covered with the insurer (Farmers Mutual). The legislation, the certificates and the policy thus recognise a common approach, namely that regulatory upgrade is included as an element of replacement cover not indemnity cover ...

[147] The cross-appeal is accordingly dismissed.

Result and costs

[148] For these reasons, the appeal is allowed in part. The question of the quantum of Vero's liability for a separate indemnity payment in relation to the June 2011 event is remitted to the High Court for reconsideration. The cross-appeal is dismissed.

[149] The parties agree that costs should follow the event. Vero has succeeded overall. However, reduced costs should follow to reflect the fact Vero failed on its argument about the admissibility of the modelling evidence. A reduction of 25 per cent reflects the time taken up with this part of the argument. The respondents must pay the appellant 75 per cent of its costs for a complex appeal on a band A basis and usual disbursements. We certify for second counsel.

Solicitors:
P Hunt McElroys, Auckland for Appellant
Rhodes & Co, Christchurch for Respondents

APPENDIX A

Site inspections

Date	By whom
28 October 2010 and 9 March 2011	Roger Richardson, civil and structural engineer
9 May 2011	Stuart Preston, structural engineer
29 June 2012	WAI
October and December 2012	Christopher Lang, quantity surveyor
21 May 2013	BMC
August 2013	Dr Anurag Jain, principal at WAI
28 November 2013	Stewart Harrison, quantity surveyor
23 January 2014	David Southwick, engineer
Early March 2014	MWH site visit(s) (Adam Ward, construction manager; Gregory Griffin, project and programme manager; Christopher Lang, quantity surveyor; David Southwick, engineer)
28 March 2014	Stuart Preston, structural engineer