



Determination 2018/056

Regarding the refusal to grant a building consent for proposed earthquake repairs to two residential buildings at 21 Victoria Street, Rangiora



Summary

This determination considers two houses damaged in the Canterbury earthquake sequence and whether the information provided in support of the building consent for the repair of the buildings was sufficient for the authority to be able to grant the consent.

1. The matter to be determined

- 1.1 This is a determination under Part 3 Subpart 1 of the Building Act 2004¹ (“the Act”) made under due authorisation by me, Katie Gordon, Manager Determinations, Ministry of Business, Innovation and Employment (“the Ministry”), for and on behalf of the Chief Executive of the Ministry.
- 1.2 The parties to the determination are:
 - the owners of the property, R and R Clifford (“the applicants”). The applicants are represented, in part, by an agent (the applicants’ agent)
 - the structural engineer, B Spence (“the structural engineer”) who, as a Chartered Professional Engineer, is deemed to be a licensed building practitioner² (“LBP”) and therefore a party to the determination. The structural engineer was engaged by the company responsible for the proposed releveling of the foundations (“the releveling company”)
 - Waimakariri District Council (“the authority”), carrying out its duties as a territorial authority or building consent authority.

¹ The Building Act, Building Code, compliance documents, past determinations and guidance documents issued by the Ministry are all available at www.building.govt.nz or by contacting the Ministry on 0800 242 243.

² Chartered Professional Engineers under the Chartered Professional Engineers of New Zealand Act 2002 are treated as if they were licensed in the building work licensing class Design 3 under the Building (Designation of Building Work Licensing Classes) Order 2010.

- 1.3 I consider the following are persons with an interest in this determination:
- IAG New Zealand Ltd as the insurer (“the insurer”) by virtue of their contract of insurance with the applicants for the buildings on the property.
 - Cook Costello Limited, the engineer for the insurer (“the insurer’s engineer”).
- 1.4 This determination arises from the applicants’ concerns about the compliance of a proposed repair solution (“the proposed repair work”) for two residential buildings as described in the documentation provided to the authority in the application for building consent. The applicants’ primary concern is that the repair work to the foundations to both buildings is deficient because of the nature of the land is such that the existing foundations to both buildings need to be replaced with deep piles.
- 1.5 The insurer proposed the releveling of the existing foundations. The applicants’ position is that they were advised that the earthquake repairs described in the documentation³ for the building consent application would provide a code compliant solution and the applicants then applied for a building consent on that basis. The authority refused to grant the building consent as it was not satisfied on reasonable grounds that the provisions of the Building Code would be met if the proposed foundation repair work was completed in accordance with the plans and specifications that accompanied the building consent application. The applicants agree with the authority’s decision to refuse to grant the building consent and have subsequently applied for a determination about this decision.
- 1.6 I therefore consider the matter to be determined is whether the authority was correct to refuse to grant a building consent for the proposed repair work to both residential buildings.
- 1.7 This determination only considers the matter set out in paragraph 1.6. I have no jurisdiction in respect of contractual matters between the parties and these are out of the scope of the determination.
- 1.8 Appendix A of this Determination provides a list of all relevant submissions to the matter to be determined and the documents provided with the submissions, that have been provided to me during the course of this determination. I note that a significant amount of correspondence between various persons involved in the background to this determination has been provided. I have not described and referenced the content of all correspondence in this determination, however, correspondence directly related to the authority’s decision to refuse to grant the building consent is referenced.
- 1.9 In making my decision, I have considered the submissions of the parties, the reports of an independent expert commissioned by the Ministry to advise on this dispute (“the expert”) and the other evidence in this matter.

2. The buildings and damage to the buildings

- 2.1 The main building at the front of the site (“the front house”) is a 1920s single storey, timber-framed building. The external wall cladding is weatherboards and the roof is clad with corrugated steel. The front house has a timber floor with a concrete perimeter foundation with internal concrete piles and two double brick fireplaces.

³ This was documentation provided by the structural engineer and the insurer’s engineer.

- 2.2 The foundation system to the front house is classified as Type B1 in the Ministry's document 'Repairing and rebuilding houses affected by the Canterbury Earthquakes' (December 2012⁴) ("the Ministry's foundation repair guidance").
- 2.3 The secondary building at the rear of the section ("the rear house") is a 1970s outbuilding now used as a dwelling. The rear house has a combination of concrete slab on grade foundations, and concrete perimeter foundation with precast concrete piles, supporting a timber subfloor. The walls are a mix of masonry block and timber frames with cement sheet cladding. The building has a low-pitched corrugated steel roof.
- 2.4 The foundation to the rear house is classified as a combination of Type B1 and Type C in the Ministry's foundation repair guidance.
- 2.5 The buildings were subject to a series of earthquakes known as the Canterbury earthquake sequence⁵. Both buildings suffered damage identified in a number of reports. Observed damage included cracking and some crumbling to the foundations of the front house and vertical separation of the timber walls from the concrete perimeter foundation and step cracking and movement damage to the masonry walls of the rear house.

3. Background

- 3.1 The applicants employed a number of experts after making claims for the damage to the buildings with the insurer and the Earthquake Commission.
- 3.2 A structural engineer engaged by the applicants ("the applicants' structural engineer") provided a report dated 16 January 2014 that recommended areas of the perimeter foundation to the front house be replaced on a "like for like" basis. In respect of the rear house, the structural engineer recommended that the timber floor area of the rear house be replaced with concrete slab foundations, and the existing concrete slab on grade foundations of the rear house be relevelled. The report noted a combination of historic and recent damage to both buildings.
- 3.3 In a report dated 23 December 2015, a geotechnical engineer engaged by the applicants ("the applicants' geotechnical engineer") described the geotechnical considerations to be taken account of in the repair of the foundations. The report noted an unfactored ultimate bearing capacity of 200 kPa was found below the top soil at approximately 0.3 m below ground level (bgl) and states the groundwater level was identified at 1.2 m bgl. The report states that taking account of the geotechnical constraints, "a releveling strategy would be suited to the site."
- 3.4 Inspections of the property were subsequently carried out by the insurer's engineer. Structural engineers inspected the property on 13 April 2016, with a Structural Assessment Report being completed on 9 June 2016. A geotechnical engineer inspected the property and carried out ground investigations on 22 April 2016, with a geotechnical assessment report being completed on 9 May 2016.

⁴ Ministry of Business, Innovation and Employment. Guidance: Repairing and Rebuilding Houses affected by the Canterbury Earthquake (Version 3, December 2012)

⁵ The Canterbury Earthquake Sequence includes the 'Darfield Earthquake' of 4 September 2010 with a moment magnitude of 7.1, followed by a series of aftershocks that included a 6.3 magnitude shake on 22 February 2011.

- 3.5 The Structural Assessment Report summarises the findings of the 9 May 2016 geotechnical report prepared by the insurer's engineer as follows:
- Ground investigations completed at the property encountered groundwater at a depth of 2.1-2.3m below ground level.
- The report states that an ultimate bearing capacity of 200kPa is available at a depth of 0.4m [below ground level]. However due to the depth to this material and the historical consolidation from the current structure this material is not considered to be a significant issue.
- 3.6 The Structural Assessment Report concluded:
- The construction of the dwelling generally fits within the scope of the [Ministry's foundation repair guidance] and has a foundation/floor Type B.
- Maximum floor level variation measured across the Type B foundation is approximately 62mm.
- 3.7 The insurer's engineer recommended a releveling solution incorporating a lifting process using hydraulic jacks and a design subsequently developed by the structural engineer.
- 3.8 The applicants subsequently applied for a building consent dated 12 December 2016 which describes the proposed work as:
- Undertake foundation repair and earthquake repairs for house and rear unit
- 3.9 The application for building consent was accepted by the authority on 14 December 2016. In an undated letter to the authority from the applicants' agent (the letter appears to have accompanied the building consent application), the agent set out the background to the application.
- 3.10 The agent stated that the insurer had recently indicated that the plans and information provided would be sufficient for the authority to issue a building consent. The agent stated:
- We understand that the insurer is confident that the same repair methodology proposed for the main dwelling is also to be implemented for the rear dwelling and we ask the [authority] to consider both options, as we will undertake this proposal as a staged consent, one for the main dwelling and one for the rear dwelling.
- ...
- We are submitting all information available to the [authority] to enable a considered assessment as to the merits of the proposal as it stands relevant to the Building Act and Code.
- 3.11 The agent noted that the applicants had employed a number of consultants who considered the buildings were severely earthquake damaged and required comprehensive repair solutions to remediate the damage. The applicants' agent described the differences between the applicants' consultants and the insurers' consultants as follows:
- The applicants' [consultants] recommended a foundation relevel or rebuild that would address the site specific soil and sub-soil conditions; *Visa vis*; (*sic*) the [insurer's consultants] that recommended a relevel solution that ignored the site ground conditions.
- The applicants' [consultants] identified the following site conditions as critical to a foundation repair solution based on their site specific investigation ...:

- (i) High water table [determined] by “on site” Piezometer, hand augers, an onsite investigation by their senior engineer and a site specific CPT⁶, with a [groundwater level] at less than 1000 mm.
- (ii) Layers of peat and soft silts and high ground water saturation.
- (iii) Liquefaction ejecta under the main dwelling.
- (iv) Ongoing severe settlement to the ring foundation and piles of both [dwellings] since the 2010 events (some 20 mm).
- (v) The brittle nature of the unreinforced rubble ring foundation that is fractured every 2 m on average.
- (vi) The ongoing ponding of water under the main dwelling.
- (vii) The major ground settlement and high water table adjacent to the rear [house].
- (viii) The cracked and deflected boundary wall on the common boundary.

The insurers' consultants .. determined that a relevel strategy incorporating [a lifting process using hydraulic jacks] based on information from their assessment

- (i) Erroneously setting the [groundwater level] at 2.3 m based on a desktop assessment (Geotechnical Database) related to a drill site some 70 metres from the applicants site.
- (ii) Failing to reference their own on site hand augers which determine wet and moist sub-soils at less than 1000 mm.
- (iii) Failing to reference the similar site conditions and recommendations for foundation solution at [a nearby property], 2 sections away from the applicants' site.
- (iv) Not making this information available to the [engineer] providing a PS1⁷ for the [releveling strategy].
- (v) Selectively referencing expert advice including [a review by a structural engineer engaged by the authority], who clearly does not support the insurer's repair methodology.

3.12 The authority engaged an engineer (“the authority’s consulting engineer”) to provide advice about the building consent application. In an email dated 20 September 2016, the authority’s consulting engineer advised that it was his view that it would be possible to relevel the floor to bring the overall variation in floor level over all of the house to a maximum of 25 to 30 mm variation, which would be substantially the same as when new, and also stated:

... this does not address the ground water issue and the likelihood of ongoing settlement. It would be pointless to re-level and repair without addressing these issues and any such repair would not meet [Building Code] requirements.

3.13 The authority’s consulting engineer also stated that from his current understanding an appropriate repair of the building would be:

- To seal or intercept the source of the ground water on the site and under the house and drain to a suitable outfall.
- Remove the house from its foundations and construct new foundations appropriate for the site. I understand that some adjacent properties are founded on piles.
- Relocate the house onto the new foundations and carry out necessary repairs.

⁶ Cone penetration test

⁷ Producer Statement - Design

- 3.14 The authority sent a request for information to the applicants on 18 January 2017. I have not seen a copy of this letter.
- 3.15 On 16 March 2017, the structural engineer wrote to the authority responding to the authority's request for information dated 18 January 2017. With respect to information requested relevant to the geotechnical issues, the structural engineer stated:
- The proposed levelling measures enhances the existing foundation system because of the significant increase in bearing areas provided by the installed jacking pads, and the widened insitu footing formed under existing strip foundation.
- [The insurer's engineer's] geotechnical report identifies "good ground" (ie 300 kPa UBC) exists at the founding depth of the jacking pads, and which has better bearing capacity than that at 400 mm depth – likely approximate bearing depths of existing footings.
- 3.16 On 20 March 2017, the authority wrote to the applicants requesting further information about a number of issues relating to the scope of the application (including whether the rear house was included) and the documentation provided. The authority attached a letter from the authority's consulting engineer dated 9 March 2017. The authority noted that:
- A peer review was completed and verified our concerns regarding the suitability of the ground to support the jack and pack system and the impact of the higher water table ...
- 3.17 The authority's consulting engineer was of the view that "there is not enough surety in the information provided to allow [the authority] to be confident that the proposed repair [will meet] the requirements of the Building Code. The items raised in the engineer's 9 March 2017 letter are set out in paragraph 5.6.
- 3.18 On 2 May 2017, the authority wrote to the applicants requesting further information. The letter noted that the authority had received information on 28 April 2017, but not all issues raised in the 20 March 2017 request (refer to paragraph 3.16) had been resolved.
- 3.19 On 18 May 2017, the authority wrote to the applicants noting that no information had been received further to the request for information on 2 May 2017. The authority noted that it would refuse to grant the building consent if it did not receive the information requested by 25 May 2017.
- 3.20 On 26 May 2017, the authority wrote to the applicants refusing to grant the building consent for the proposed repair works. The authority noted:
- The proposal does not comply with the requirements of [the Act] and/or Building Code in the following respects:
- The [authority] is not satisfied on reasonable grounds that the provisions of the [Building Code] would be met if the building work were completed in accordance with the plans and specifications that accompanied the application.
- The documents do not demonstrate that due consideration has been made for the ground conditions nor were the items raised by the peer review addressed, therefore the documents provided do not comply with [Clause B1] of the Building Code.
- The scope of the work for the rear house was not contained within the property boundaries and would entail access to the neighbours property for construction.
- The construction details for the internal fire places are not site specific.

4. The initial submissions

- 4.1 The Ministry received an application for determination on 28 July 2017 that was accepted on 11 August 2017. A list of the documents contained in the application for determination is included in Appendix A.
- 4.2 On 8 August 2017, the applicants' agents subsequently provided an email with a copy of the signed application for appointing the agent to act on behalf of the applicants.
- 4.3 On 29 August 2017, the applicants' agent submitted photos and video of surface water under the front house.
- 4.4 On 30 August 2017, the insurer's engineer submitted an email containing a copy of the insurer's engineer's job sheet.

5. The expert's first report

- 5.1 As mentioned in paragraph 1.9, I engaged a firm of consulting engineers with specialist expertise in geotechnical engineering to assist me ("the expert"). The personnel used included an engineering geologist and a geotechnical engineer; both are Chartered Professional Engineers.
- 5.2 The expert's first report ("the expert's first report") was a result of a desktop review of the documentation for the determination. The report was provided on 24 October 2017 and copied to the parties on the same date.
- 5.3 The expert's brief was to review the material submitted in support of the building consent application and form a view as to whether this provides a repair solution that is likely to be Building Code compliant.
- 5.4 Having carried out a desktop review of the documentation, the expert was of the view that "the releveling strategy is technically viable". However, the expert noted that:
- ... the consent application does not holistically deal with all the Building Code issues to the standard that [the authority] requires to meet [section 49] of [the Act] and ... addressing the queries regarding static settlement, the fluctuating/high water table and the potential for future settlements.
- 5.5 The expert considered the 9 March 2017 letter from the authority's consulting engineer (refer to paragraph 3.16) and the statements in this letter on which the authority based its decision to refuse to grant the building consent.
- 5.6 The expert set out their views of these statements as follows:

| Statement in letter from authority's consulting engineer | Expert's assessment |
|--|---|
| <p>"There is a suggestion of ongoing settlement since initial level surveys were completed but no specific reference to whether static settlements are occurring, haven't happened, or that affect that releveling works will have on site."</p> | <p>[The insurer's engineer] has made, in our opinion, a reasonable assessment of the static compressibility of the soils beneath the site. [The insurer's engineer states]:</p> <p>"Any ongoing static settlements experienced by the re-levelled foundations will be primarily due to the consolidation of the underlying peat layers and also to a lesser extent by the normal consolidation of near surface soils which would be expected even for a new foundation at the site (for instance the use of [NZS 3604⁸]) limits soil predicted settlement to < 25 mm over the life of the building). Having</p> |

⁸ New Zealand Standard 3604: 2011 Timber framed buildings

| Statement in letter from authority's consulting engineer | Expert's assessment |
|--|---|
| | <p>said this however, the soils beneath the current foundations have been experiencing this ongoing consolidation since they were constructed circa 1920 and so the majority of settlement would be expected to have already occurred.</p> <p>Further the proposed re-level solution involves underpinning the foundation with concrete pads and placing of a widened strip footing between these pads once the foundation has been lifted. This acts to provide a foundation that has a greater bearing footprint than previously which will result in a decrease in loading applied to the underlying soils.</p> <p>In general, we consider that the potential for the relevelled foundation to settle under static loading will be no worse, and likely improved, compared to when the foundation was constructed. We also believe that the proposed works will satisfy the requirements of the Building Code to the extent required by the Building Act."</p> <p>We agree with [the insurer's engineer's] assessment of this issue.</p> |
| <p>"Good ground to NZS 3604:2011 is not met due to the presence of peat material, which requires specific engineering design."</p> | <p>We agree that the majority of the consolidation within the thin peat layer at depth would have occurred (accounted for up to 25 mm over the life of the building). The key statement that [the insurer's engineer] has provided is that:</p> <p>"the potential for the relevelled foundation to settle under static loading will be no worse, and likely improved, compared to when the foundation was constructed."</p> <p>We agree with this statement and that the proposed work will satisfy the requirements of the [Building Code] to the extent required by the [Act].</p> <p>Regarding re-leveling the dwelling, [the report by the applicants' geotechnical engineer] states that an unfactored Ultimate Bearing Capacity (UBC) of 200kPa will be achieved from a depth of 0.3 m below ground level (bgl). However [the insurer's engineer] state 200 kPa will be achieved from a depth of 0.4 m bgl. [The insurer's engineer's report] states that 200 kPa of UBC is to be confirmed by the engineer prior to placement of compacted hardfill and this is generally considered to be appropriate for re-leveling of sites in Christchurch. The geotechnical engineer should confirm that this is suitable bearing for the site and will need to consider groundwater levels, as discussed below.</p> |
| <p>"There is wide variability in the estimates and measurements of depth to ground water by multiple parties. This again affects the geotechnical conditions under the foundations and should be clarified and impacts accounted for."</p> | <p>Groundwater readings taken from a piezometer installed in the courtyard at the site indicate that between October and December 2016 depth to groundwater fluctuated between approximately 0.75 m and 1.0 m bgl. The week proceeding 25 August 2017, [the applicants] measured the depth to groundwater at 0.42 m to 0.5 m bgl and provided photos showing standing water at and just below the ground surface.</p> <p>We have obtained long term data sets from Environment Canterbury monitoring boreholes in the vicinity of the site. The most useful of which is M35/9001 which is 1.65 m deep and located approximately 700 m from the site. It indicates that groundwater levels have been as high as 0.10 [m bgl] in August 2017.</p> <p>Based on the piezometers, the groundwater maps and piezometers in the area, the geotechnical assessment undertaken on site, the photos and video provided of standing water under the house and the wet 2017 winter, we consider it is likely that there is currently a static groundwater table between ground level and 0.5 m and that this has significant seasonal fluctuation.</p> <p>High groundwater levels, even above ground level, do not preclude compliance with the [Building Code] or the ability to do</p> |

| Statement in letter from authority's consulting engineer | Expert's assessment |
|--|--|
| | re-levelling work, although the issue of the groundwater level currently being above the proposed 0.5 m excavation depth will need to be addressed in terms of constructability and normal geotechnical engineering design. |
| "There is the unanswered issue regarding the source of the groundwater. We would consider this to directly affect the geotechnical conditions under the foundations and influence the ability of the relevelled structure to meet the Building Code." | There is evidence of a water table that can fluctuate from 2.3 m bgl (later summer) to above ground surface (in winter). This may have led to unresolved water tightness/dampness/liveability issues which are not discussed in the consent application. From a geotechnical standpoint; however, as long as the design engineer is satisfied that suitable bearing for the site is achieved with the worst case scenario groundwater elevation then this issue does not influence the ability of the structure to meet the performance requirements of the [Building Code]. Dealing with groundwater issues in the design and construction of foundations through appropriate design and construction techniques is standard practice in the releveling of houses. |
| "The PS1 for the releveling notes that the geotechnical stability of the site is not covered, and there is no guarantee against preventing future settlements. The [insurer's engineer's] geotechnical report does not directly address predicted future settlements for a relevel repair to the foundation. The [insurer's engineer's] letter of 8 September 2016 confirms their view that the proposed repairs are appropriate from a geotechnical point of view." | [The insurer's engineer] and [structural engineer] both exclude predicted future settlements from their PS1 leaving a gap in design responsibility, which [the authority's consulting engineer] has correctly identified. In our opinion this leaves a "gap" in the design responsibility for a key element of the foundation releveling and [the authority's consulting engineer] is correct to ask the insurer's engineer to include predicted future settlements in their PS1. |
| "The geotechnical engineer has not stated that they have reviewed the repair design (including relevelled design from [the releveling company/the structural engineer]) and confirmed it is in accordance with the geotechnical reporting." | We agree that the insurer's engineer should provide confirmation they have reviewed the [structural engineer's design] and confirm it is in accordance with their geotechnical reporting to ensure that there is adequate design continuity between the foundation designer and the constructor. Additionally, no specific information has been provided for the repair of the second dwelling on site. |
| "The amount of moisture viewed under the house may indicate an issue with the amount of subfloor ventilation provided." | We agree this may be an issue and should be addressed by a suitably qualified professional engineer. |

6. The parties' responses to the expert's first report and subsequent submissions

6.1 On 6 November 2017, the applicants' agent commented on the expert's brief and questioned whether the expert's first report fulfilled that brief.

6.2 The authority made a submission on 7 November 2017 noting the expert's report appears to confirm that there was insufficient information to fully address all the issues raised. The authority noted that the expert presented commentary on the authority's process for requesting further information, and submitted that:

... the application was for the releveling of both buildings but the review omitted the reference to the rebuild of the two chimneys.

[The expert] noted ... that the information for the rear house was not included in the documentation. Therefore without information on how this building was to be relevelled a consent could not be granted.

The assessment of the consent rejection with regards to the assessment of ... Good Ground under NZS 3604 is not met is upheld by the comments that the geotechnical engineer is to confirm the bearing of the site and will need to consider the ground water levels.

[The expert] confirmed that the ground water levels need to be addressed for constructability and normal geotechnical engineering and reiterated that this would be standard practice for releveling houses and go on to confirm that future settlements need to be considered...

The commentary regarding the standard that the [authority] was required to meet section 49 and the [request for information] process was outside the scope of [the expert's] engagement and it should be noted that [the authority] and the client were involved in communication over a 5 month period without achieving a resolution to the information requested. To state that if a normal [request for information] process was followed then the concerns would have been addressed is an unreasonable comment to make...

6.3 On 14 November 2017, the structural engineer made a submission in response to the expert's report. The structural engineer noted:

With respect to the releveling:

[The insurer's engineer's] report indicates 300 kPa UBC exists at 1.0 m bgl, and this is at (or close to) the intended footing levels of the proposed jacking pads.

...I advised [the authority] the estimated bearing stresses at pad footing levels based on current design code loadings (1.2G + Su) and assuming all foundation loads to be supported by the closely spaced jacking pads....

[The estimated bearing stresses at pad footing levels] are around 20kPa for the front dwelling proposals, since the rear [house] was not part of the consent, at that stage.

The soil bearing capacities are not a critical issue for the intended proposals, given that a dependable bearing capacity of 150 kPa will exist at pad footing level, and 100 kPa may be assumed above this.

Based on the results of geotechnical investigation and knowledge of an adjacent site, I do not envisage the need for [the insurer's engineer] to confirm 200 kPa UBC is "suitable bearing for the site" when the effective (design) Ultimate Bearing Stresses are less than 20 kPa (front dwelling).

With respect to groundwater issues and source:

Considerable experience of levelling dwelling units on sites in Christchurch with extremely high water tables demonstrates there are no constructability issues for the proposed levelling... other than the need to control sediment and ground water discharges.

Given the very low effective soil stresses which will apply to the proposed enhanced foundation systems, I am satisfied that the fluctuations and presence of high water levels will not compromise the ability of the structures to meet the performance requirements of the Building Code, to the extent required by the [Act]. It should be noted the proposals to level the foundations and floors of these buildings are "repairs" to existing buildings and it is not intended to substantially replace the existing foundations.

With respect to the PS1 for releveling:

In this case, it is not a requirement to provide enhancements to the existing foundations to address inadequacies which may apply to these. ... The proposals will significantly enhance the foundation system and I suggest this will mitigate future foundation settlements. ... there is no requirement to take responsibility for the future stability of this site and suggest my PS1 to be entirely prudent and justified in this case.

With respect to the expert's conclusion:

... I have provided sufficient information and evidence to demonstrate [section] 49(1) has been met, and therefore, on this basis, the [authority] must grant a consent (or exemption) for this simple repair proposal.

6.4 On 14 November 2017, the insurer's engineer made a submission. A list of documents contained in the submission is included in Appendix A. In its submission, the insurer's engineer noted the determination arose from an unsettled insurance claim, as the parties could not agree on which is the correct strategy.

6.5 The insurer's engineer commented that questions of scope should be answered by whoever submitted the building consent application, noting the applicants were responsible for managing the repair and defining the scope to the authority. The insurer's engineer's comments included the following:

[the authority] classed the foundation re-level as an "extensive replacement".
[The insurer's engineer] does not believe this is the case.

[The insurer's engineer] believes that the proposed repair works will comply with section 112 of the [Act]...

The reasons that [the authority] gives for the consent not being granted are that the ground conditions are not taken into account. This appears to ignore that [the insurer's engineer] have completed a geotechnical report and investigations and a letter supporting the proposed foundation repair works...

6.6 On 23 November 2017, in response to submissions from the insurer's engineer and the structural engineer, the authority noted the responses from the insurer's engineer make reference to the documents provided for the releveling of the front house only, and that the releveling of the rear house was not resolved. The authority noted its view was the extent of the releveling meant the work was major work, rather than minor releveling work.

6.7 The authority noted that the provisions of section 112 appeared to being used as a reason not to address the presence of water under the front house. The authority stated:

Notwithstanding that section 112(1)(b)(ii) if it did not comply with the other provisions of the [Building Code] immediately before the building work began, continue to comply at least to the same extent as it did then comply. The interpretation of this appears to be taken differently due to the word immediately. It has been noted throughout the correspondence that the presence of water was not identified as a problem before the earthquake events and we consider that this should be the point in time to take consideration of compliance with the other [Building Code] clauses.

- 6.8 On 18 December 2017, the applicants made a submission in response to the expert’s first report and made comments in response to information about the releveling of the rear house requested by the Ministry on 8 December 2017. The applicants explained they were supposedly provided with “a full and compliant solution” to repair the two houses, however, the documentation was lacking and poorly-presented and did not cover the rear house or the issues with the repair work close to the boundary. The applicants stated:
- We believe the [authority] must be satisfied on ‘reasonable grounds’ that the works would comply with the Building Code.... The onus is on the [structural engineer and insurer’s engineer] to demonstrate compliance and they must provide the [authority] with whatever information [it deems] necessary to evaluate the application...
- It is obvious that the [authority] did not have sufficient information to determine that the works complied.
- 6.9 The applicants were also of the view that the expert had been engaged to give an opinion on whether the building consent application provides a repair solution that is likely to be code compliant, and that the expert did not address this, rather concluded that “the releveling strategy is technically viable”, which is different.
- 6.10 On 18 December 2018, the authority noted, in response to a request from the Ministry for information for the releveling of the rear house, that there was limited information contained within the building consent application, and the Ministry had a complete copy of this.
- 6.11 On 21 December 2017, the insurer, as a person with an interest in this determination, noted that:
- ...the application for consent was seeming refused on the basis that the information submitted by [the applicants] was insufficient at the time to support approval.
- 6.12 On 19 January 2018, the insurer’s engineer provided a copy of the Structural Assessment report dated 9 June 2016.
- 6.13 On 22 January 2018, the structural engineer provided the Ministry with a copy of the response to the authority’s request for further information.
- 6.14 On 26 January 2018, the authority provided a copy of the “refused application plans⁹”. A list of the documents contained in this submission is included in Appendix A.
- 6.15 On 26 January 2018, the authority also provided a copy of an email and letter dated 16 March 2017 from the structural engineer to the authority with a response to the authority’s 18 January 2017 request for information.
- 6.16 On 29 January 2018, the applicants made a submission about the repair to the rear house. The applicants, and the agent for the applicants made further submissions on 7 and 8 February 2018; 20 March 2018; 3, 4 and 8 April 2018; and 27 June 2018. In these submissions the applicants commented on the matter to be determined, the determinations process, and the information provided as part of the determinations process.
- 6.17 On 12 February 2018, the authority submitted that its understanding was that the application for determination sought consideration of the authority’s decision to refuse to grant the building consent. The authority noted that if the “designers” want a determination to consider the methodology of the foundation repair, a separate application for a determination on this matter should be made.

⁹ These plans included the re-leveling of the rear building which had not been provided previously despite requests to do so.

6.18 On 9 April 2018, the authority made a submission noting:

The scope of the work was to relevel/repair the foundation to the front dwelling, rebuild the internal back to back fireplaces and relevel the rear house.

6.19 The authority also noted that the Ministry had been unable to ascertain that all the relevant information had been provided, and that this lack of information reflects the information that the authority had available to consider the building consent application.

7. The expert's second report

7.1 General

7.1.1 Having considered the points raised in the parties' responses to the expert's first report and additional information that was provided, I engaged the expert to visit the site and prepare a subsequent report in light of this information.

7.1.2 The expert's brief was to:

- form a view of the applicants' position that the existing foundations are unable to be repaired, considering the evidence provided
- clarify with the applicants' the basis on which the application for a building consent was made
- comment on points raised by the structural engineer, in response to the authority's request for further information and in response to the expert's first report
- comment on technical matters raised by the insurer's engineer, including the insurer's engineer's view of the robustness of the site and potential for future settlement.

7.1.3 The expert visited the site on 16 March 2018 to assess the site conditions and specifically the groundwater at the site. The expert provided a second report ("the expert's second report") on 24 April 2018, which was copied to the parties on the same date.

7.2 The site inspection

7.2.1 At the site the expert observed the following:

Groundwater was observed in numerous locations across the site at a consistently shallow depth. At a number of locations around the main house and back house where shallow excavations had been dug, groundwater was observed to be about 100 to 200mm below the ground surface.

During the site visit, the groundwater elevation at the site was measured by [the applicants] (observed by [the expert]) at approximately 0.6 m [bgl] within the single piezometer on site.

7.2.2 The expert noted that:

It is possible that the discrepancy between the reading of the piezometer at 0.6 m bgl and the visible water near ground surface in numerous locations is due to the near surface water forming a saturated horizon above the low permeability silt layers 'perched water' as well as minor variations in the vertical topography which could lead to differences in groundwater level.

7.3 Review of reasons for refusing to grant the building consent

- 7.3.1 The expert re-considered the statements from the authority's consulting engineer on which the authority based its decision to refuse to grant the building consent.
- 7.3.2 The expert's views and commentary, where amended from the expert's first report (refer to paragraph 5.6), are shown as follows:

| Statement in letter from authority's consulting engineer | Expert's assessment (Additional or amended commentary is underlined) |
|---|--|
| <p>"Good ground to NZS 3604:2011 is not met due to the presence of peat material, which requires specific engineering design."</p> | <p>The expert amended the commentary on this statement and set out their view as follows:</p> <p>We agree that the majority of the consolidation within the thin peat layer at depth would have occurred beneath the buildings at the site (accounted for up to 25 mm over the life of the building). <u>The application does not propose increasing the loads on the two building foundations so that we would expect that any deformations of the foundations that resulted from the re-levelling process could be managed by the supervising engineer's observation of those changes and applying appropriate adjustments.</u> The key statement that [the insurer's engineer] has provided is that:</p> <p style="padding-left: 40px;">"the potential for the relevelled foundation to settle under static loading will be no worse, and likely improved, compared to when the foundation was constructed."</p> <p>We agree with this statement...</p> <p><u>In [the expert's first] report we commented on re-levelling of the front dwelling, due to a discrepancy in advice between the applicants' geotechnical engineer and the insurer's engineer. We recommend that the geotechnical engineer should confirm that there is suitable bearing capacity for the site and will need to consider groundwater levels.</u></p> <p><u>Both parties agree that an unfactored [UBC] of 200kPa would be achieved from a depth of 0.4 m bgl.</u> [The insurer's engineer's report] states that 200 kPa of UBC is to be confirmed by the engineer prior to placement of compacted hardfill and this is generally considered to be appropriate for re-levelling of sites in Christchurch.</p> <p><u>... [We] agree with the geotechnical parameters and methods used for calculation of the bearing capacity for the pads and assessment of consolidation of the soils.</u></p> |
| <p>"There is wide variability in the estimates and measurements of depth to ground water by multiple parties. This again affects the geotechnical conditions under the foundations and should be clarified and impacts accounted for."</p> | <p>The expert provided the following additional commentary on this statement:</p> <p><u>The issue of the groundwater level being above the proposed excavation depth has been addressed by [the structural engineer], who will be undertaking the proposed releveling works. [The structural engineer] states "considerable experience of levelling dwelling units on sites in Christchurch with extremely high water tables demonstrates there are no constructability issues for the proposed levelling... other than the need to control sediment and ground water discharges."</u></p> <p><u>Based on [the expert's] experience working in Christchurch we agree with this statement.</u></p> |
| <p>"The PS1 for the releveling notes that the geotechnical stability of the site is not covered, and there is no guarantee against preventing future settlements. The [insurer's engineer's] geotechnical report does not directly address predicted future</p> | <p>The expert amended the commentary on this statement and set out their views as follows:</p> <p><u>In [the expert's first] report we provided the opinion that there was a "gap" in the design responsibility for a key element of the foundation re—levelling and that the authority's consulting engineer was correct to ask [the insurer's engineer] to include predicted future settlements in their PS1.</u></p> <p>Since then we have reviewed the site specific calculations and</p> |

| Statement in letter from authority's consulting engineer | Expert's assessment (Additional or amended commentary is underlined) |
|---|--|
| settlements for a relevel repair to the foundation. The [insurer's engineer's] letter of 8 September 2016 confirms their view that the proposed repairs are appropriate from a geotechnical point of view." | correspondence from [the insurer's engineer]... stating that " <u>the proposed works will satisfy the requirements of the Building Code to the extent required by the [Act]</u> " for the front house. <u>There does not appear to be a review of the plans for the rear house undertaken by [the insurer's engineer].</u> |
| "The geotechnical engineer has not stated that they have reviewed the repair design (including relevelled design from [the releveling company/the structural engineer]) and confirmed it is in accordance with the geotechnical reporting." | The expert amended the commentary on this statement and set out their views as follows: [The insurer's engineer] should provide confirmation they have reviewed the [structural engineer's] design for the rear house and confirm it is in accordance with their geotechnical reporting to ensure that there is adequate design continuity between the foundation designer and the constructor. <u>The repair method for the front house has been reviewed by [the insurer's engineer].</u> |
| "The amount of moisture viewed under the house may indicate an issue with the amount of subfloor ventilation provided." | The expert amended the commentary on this statement and set out their views as follows: <u>As stated above this is outside our expertise.</u> |

7.4 Assessment of the proposed foundation repair work

- 7.4.1 With respect to the front dwelling, the expert noted that the perimeter foundation is to be 'jacked and packed' and the internal piles and bearer system relevelled or replaced as required, and that this methodology is consistent with the Ministry's foundation repair guidance.
- 7.4.2 The expert's assessment was that although groundwater can rise above the ground level below the house at times:
- this water does not enter the dwelling compromising the requirements of Clause E1 [Surface water] of the Building Code.
- 7.4.3 The expert noted that the reason for the occurrence of high groundwater levels below the house has not been investigated but the expert does not believe it would prevent the authority from granting a building consent for the proposed foundation repair work.
- 7.4.4 With respect to the rear dwelling, the expert noted that the internal concrete slab footings are proposed to be relevelled using a methodology consistent with the Ministry's foundation repair guidance.
- 7.4.5 The expert's assessment was that this method proposed in the building consent application:
- could reasonably be expected to relevel the house and repair the concrete floor to prevent water entry to the requirements of the Building Code.

8. Further submissions and responses to the draft determination

- 8.1 On 14 May 2018, the applicants made a submission about the determination process. The submission consisted of a documents setting out the applicants' views about the process, with copies of a number of documents including reports and previous correspondence. The applicants highlighted key points and added explanatory notes to these documents. A list of the documents submitted is included in Appendix A.

- 8.2 On 21 May 2018, the insurer's engineer made a submission noting general agreement with the expert's second report.
- 8.3 On 21 May 2018, 23 May 2018, 24 May 2018, and 29 May 2018, the applicants made a series of submissions commenting on the transparency of the determinations process, and the information provided.
- 8.4 On 24 May 2018, I wrote to the applicants setting out matters of process and commenting on the matters to be determined, the inclusion of the rear house in the second expert's report, and the process to prepare a draft determination. This letter was copied to the other parties.
- 8.5 On 29 May 2018, the authority submitted two sets of documents; the documents the authority had filed as the building consent application, and the documents the authority had filed as the refused building consent application. A list of the documents provided in this submission is included in Appendix A.
- 8.6 On 27 June 2018, the applicants made a further submission commenting on the determination process.
- 8.7 A draft determination was issued to the parties for comment on 17 July 2018.
- 8.8 On 30 July 2018, the authority accepted the draft determination, noting typographical errors and with respect to the requirements of the Act in respect to repairing earthquake damaged buildings:
- if the work was to comply to the same extent as before the work was carried out then it would not need to be repaired and it is unclear then as to the extent to which the repairs are to be completed when all new work has to comply with the Building Code under section 17
 - if the building did not comply with the Building Code before the work commenced it does not need to comply after the works are then carried out, which would appear to negate the requirement of section 17.
- 8.9 On 31 July 2018, the insurer acknowledged the draft determination, but did not make any comment. The insurer provided a copy of a letter from the structural engineer in response to the draft determination dated 26 July 2018, addressed to the insurer. The letter noted:
- The expert agreed the proposed work of levelling the foundations and floor will satisfy the requirements of the Building Code, to the extent required by the Building Act.
 - The expert raised the issue of high ground water levels and the implications this may have on constructability. These have little, if any relevance to matters involving Code compliance for repairs to an existing building. In addition, the concerns of the authority regarding the ability to level the buildings and comply with geotechnical issues have little relevance as the ground conditions already exist, and the governing issue is whether the repair work complies to the extent required by the Act.
 - The foundation/floor levelling work has been adequately documented. The determination should be more specific and list the issues in which insufficient information has been provided. The conclusion that the releveling work will comply with the requirements of the Building Code to the extent required by the Act is at odds with the conclusion that the documentation was not adequate.

- The geotechnical review suggested in the draft determination is unnecessary.
 - It is not intended to access the adjacent property in order to carry out the levelling works proposed.
- 8.10 On 31 July 2018, the applicants responded to the draft determination. The applicants are of the view that the Ministry’s foundation repair guidance is not a means of establishing compliance with the Building Act or Building Code. The applicants also submitted the following points with respect to particular issues covered in the draft determination:
- The insurer’s engineer, as a company, cannot be a party to the matter. The determination should include the engineer who signed the PS1 (for the wall bracing and chimney design to the front house).
 - There is a wide discrepancy in estimates and measurements of groundwater depths and soil condition and readings provided that are not site-specific.
 - A structural review of the plans for the rear house is required, the repair of the rear house was impracticable with respect to “location, fire wall, sewer and cross lease legalities”.
 - The consent drawings do not demonstrate compliance of the repairs for the front house, and this should be added to the reasons given as to why the drawings do not show how compliance is to be established.
 - The experts are geotechnical engineers and should not comment on structural engineering issues. A structural engineer should be appointed to speak to structural engineering matters.
 - Full construction details and measurements for the two internal fireplaces to the front house are required.
- 8.11 In response to the first bullet point in paragraph 8.10, the determination has been amended to refer to the insurer’s engineer as a person with an interest in the matter. The material produced by the insurer’s engineer, and provided to the Ministry as part of the determination process, included reports and comment from several engineering personnel with the company for work beyond the limited scope of the PS1 noted in paragraph 8.10 above. The author of the PS1 was not included as a party to the matter.
- 8.12 On 3 August 2018 the applicants made a further submission in response a submission by the structural engineer. The applicants noted:
- the Ministry’s foundation repair guidance applies to code compliant concrete only and says it does not contain specific solutions for rubble foundations, and the house does not have a foundation made of code compliant concrete
 - the determination should identify the omission in the structural engineer’s producer statement, as it does not indicate what Verification Method or Acceptable Solution applies to the design, and there is no information about compliance as an alternative solution proposal
 - a structural engineering expert should have been appointed to consider the design as part of the determination, and it should not have been left to the expert, who is a geotechnical engineer, to conclude that the design complies with the Building Code, given the paucity of supporting information

- the PS1 for the wall bracing to the front house provided by the insurer's engineer does not adequately demonstrate compliance as the building work is outside the scope of NZS 3604 and therefore specific engineering design applies¹⁰. The insurer's engineer has not followed the requirements of the plasterboard bracing system that has been specified, and therefore does not meet the requirements of the Building Code.
- 8.13 On 4 and 6 August 2018, the applicants made submissions requesting information about the expert's background and whether the expert had been contracted to the insurer.
- 8.14 On 10 August 2018, I provided the applicant and parties information about the expert's background and previous work, including work for the insurer.
- 8.15 The insurer's engineer did not make a submission in response to the draft determination.

9. Discussion

9.1 General

- 9.1.1 In order to determine whether the authority correctly exercised its power to issue a building consent, I must consider whether there were reasonable grounds for the authority to be satisfied that the provisions of the Building Code to the extent required by the Act would be met if the building work is completed in accordance with the plans and specifications that accompanied the application.
- 9.1.2 Although this determination is about the authority's decision to refuse to grant the building consent for the proposed foundation repair work, it touches on matters related to the adequacy of the proposed foundation repair work in order to assess the authority's reasons for the refusal
- 9.1.3 In that respect, I note that the requirements of the Act in respect to repairing earthquake damaged buildings have been discussed in previous determinations. Determination 2014/058¹¹ stated:

The section 112 provision of the Building Act requires the building "to continue to comply" where it complied before the alterations and, where it didn't comply before the alterations, to comply to "at least the same extent" as it did before the alterations. In the context of repair work to earthquake damaged buildings such as the rebuild and repair work being carried out as a result of the Canterbury earthquakes, I am of the view that section 112 does not require reinstatement of the building to what it was before the earthquake. Section 112 is a provision to ensure buildings comply to the same extent as before the building work is carried out.

The reinstatement of a building to the same condition it was before an event such as an earthquake, or its removal and replacement, is determined by the terms of the owners' insurance policy. I note that section 17 of the Act requires that all building work must comply with the Building Code to the extent required by the Act, whether or not a building consent is required in respect of that building work. This, in combination with section 112, sets the minimum requirements for building work carried out to repair an earthquake-damaged house.

¹⁰ The PS1 says the structural design had been prepared in accordance with a Verification Method for Clause B1 Structure, being B1/VM1. The PS1 does not reference NZS 3604 but the front building generally falls within the scope of buildings that can be designed using that standard.

¹¹ Determination 2014/058 Regarding the issuing of a building consent to repair earthquake damage to concrete foundations and floor slab at 8 Delta Way, Christchurch

9.1.4 However, Determination 2014/058 also considered that:

...in terms of reinstatement, insurers, in effect, appear to use the regulatory processes under the Act as a default means of satisfying their policy obligations to owners. An insurance policy and an owner's expectations may well exceed the minimum performance requirements set out in the Act.

9.1.5 The authority refused to grant the building consent because it was of the view that the building consent application and information provided (in summary, refer also to paragraph 3.20):

- did not demonstrate that due consideration has been made for the ground conditions, and did not address the items raised by the authority's consulting engineer (which related to the geotechnical considerations and groundwater issues), and therefore did not demonstrate compliance with Clause B1 of the Building Code
- the scope of work for the rear house would not be contained within the property boundaries
- the construction details for the internal fire places to the front house were not site specific.

9.1.6 I will therefore consider the adequacy of the plans and specifications and each issue raised by the authority in turn.

9.2 The adequacy of the plans and specifications accompanying the building consent application

9.2.1 I have considered the documentation provided to me by the authority on 29 May 2018, which I understand is a complete copy of the building consent application documentation. I have also considered the plans as provided by the authority on 26 January 2018 which includes the proposed repair work to the foundations of the rear house. I have been provided with no specification for the repair work.

9.2.2 The plans provided on 26 January 2018 show the following:

- the as-built site plan, dimensioned plans and elevations for both buildings (the plans for the front house shows two internal double fireplaces to be replaced)
- plans for both buildings showing post-earthquake floor levels
- wall bracing plans, with notes, for the front house only
- plans for the 'structural repair' of fireplaces (the plans show a fireplace located on an outside wall¹²)
- general and specific notes for 'concrete', 'inspection', 'reinforcement', 'timber' and 'chimney'
- jacking plans and repair details for both front and rear buildings covering perimeter foundations, slab-on-grade, and new and existing piles to timber floors.

¹² In an email to the authority dated 24 May 2017 the insurer's engineer notes that the applicants "knew about the chimney needing to be modified to an internal chimney for the finalized plans" and it was assumed the applicants had "changed their minds about where they wanted the chimney located".

9.2.3 The consent application describes the proposed work as “undertake foundation repair and earthquake repairs for house and rear unit” which I take to be all the repairs required to both buildings. The applicants have stated that the consent application was for the repair of both buildings and that they had been advised by the insurer and others that the drawings were adequate for this purpose. It is noted that the applicants’ agent, in a letter accompanying the application, described the consent application as a “staged consent, one for the main dwelling and one for the rear dwelling” (refer paragraph 3.10). It is not apparent that a staged consent was sought.

9.2.4 I have considered whether the documentation is adequate to provide the authority with reasonable grounds that the proposed foundation repair work would comply with the Building Code if properly completed in accordance with the plans and specifications accompanying the application. I consider the documentation was not adequate because:

- The scope of the proposed repair work was not clearly stated. It appears the plans as submitted to the authority with the original application in December 2016 contained no information about repair work to the rear house. It is noted that the applicants’ agent described the consent application as a “staged consent” but this is not apparent from the information provided – the consent application states it was for the repair of both front and rear buildings.
- A number of reports about the damage to the front and rear buildings and the geotechnical conditions were included in the application documentation. It is not clear what purpose these documents serve and what information was being relied upon to demonstrate code compliance.
- The consent drawings do not show how compliance is to be established in respect of:
 - the repair of the cracked foundations to the front house and how the location of the jacking points was established relative to these defects
 - the repair of defects to the rear house, apart from information about the repair of the foundations provided during the processing of the consent application
 - how the water and/or moisture present under both buildings was going to be managed with respect to compliance with Clause E2 - External moisture
 - the construction details for the two double fireplaces contained within the front house.

9.3 The consideration of the ground conditions and the items raised by the authority’s consulting engineer

9.3.1 The authority is of the view that the building consent application does not adequately demonstrate that due consideration has been made for the ground conditions. The authority’s consulting engineer was of the view that (in summary):

- static settlements are not adequately addressed
- specific engineering design is required as there is not good ground as described in NZS 3604

- there is wide variability in the estimates and measurements of depth to ground water and the groundwater issues affecting the geotechnical conditions under the foundations have not been addressed
- predicted future settlements are not adequately addressed in the PS1 for the proposed foundation repair work
- the geotechnical engineer has not reviewed the repair design.

9.3.2 In respect of each of these issues, I note:

- The expert agrees with the insurer's engineer that the potential for the relevelled foundation to settle under static loading will be no worse (and likely improved) compared to when the foundation was constructed.
- The expert is of the view that the geotechnical parameters and methods used for calculation of the bearing capacity for the foundation pads and assessment of consolidation of the soil are appropriate.
- The expert notes that high groundwater levels, even above ground level, do not preclude compliance with Clause B1 Structure, or the ability to do releveling work provided groundwater would not enter the building or lead to damage to the building. The expert also noted that the water would not enter the dwelling compromising the requirements of Clause E1 Surface water. The expert agreed with the structural engineer that in terms of the groundwater level being above the proposed excavation depth, there are no constructability issues for the proposed foundation repairs (other than the need to control sediment and ground water discharges).
- The expert noted the insurer's engineer has stated that:
 - the proposed works will satisfy the requirements of the Building Code to the extent required by the [Act].
- The expert considers a geotechnical review of the proposed foundation repair work for the rear house should be carried out.

9.3.3 I note that, with respect to the ground underlying the site, the expert was of the view that the repair methodology for the foundation repair work for both the front and rear buildings was consistent with the Ministry's guidance and I accept this position. I also note the expert was of the view that while the reason for the occurrence of high groundwater levels has not been investigated, this would not, of itself, prevent the authority from granting a building consent for the foundation repair work.

9.3.4 The applicants contend that the Ministry's foundation repair guidance applies to code compliant concrete only, and that it does not contain specific solutions for rubble foundations. This is not correct. The guidance can be applied to concrete that might otherwise be considered non-compliant and Ministry advice¹³ has been provided in respect of rubble foundations. This advice says:

Section 1.4.3 Technical Scope of the Residential Guidance states, "The document focuses principally on one- and two-storey timber framed dwellings (ie houses built to NZS 3604 or its predecessor Standards)." This does not mean that every component or element of the house has to comply with current NZS 3604 requirements for the guidance to apply. Rather, it is intended that the scope of buildings covered by the guidance is similar to the scope of those covered by NZS 3604, ie one- and two-storey timber-framed dwellings.

¹³ Refer <https://www.building.govt.nz/building-code-compliance/canterbury-rebuild/updates-clarifications-residential-guidance/issue-10-june-2018/>; No. 63. How does the Residential Guidance apply to 'rubble' concrete foundation walls?

The guidance does not contain specific repair solutions for 'rubble' foundations, and is not mandatory for developing a repair solution. However, information in the guidance will be useful for developing repair solutions to reinstate the original function of a damaged foundation. ... Some of the methods in the guidance to repair cracks and repair or replace perimeter concrete foundations are applicable across the range of existing foundations, (whether they be considered as "rubble foundations", or they comply with NZS 3604) provided that careful consideration is given to the nature and condition of the foundation.

9.3.5 In my view the guidance can be used to develop solutions for rubble foundations but that the solutions proposed need to comply with the Building Code to the extent required by the Act.

9.3.6 Taking account of the expert's reports, I am of the view that the foundation repair methodology proposed for the front and rear buildings is theoretically capable of meeting the requirements the Building Code to the extent required by the Act. For compliance to be achieved account should be taken of:

- my conclusion in paragraph 9.2.4 that the documentation for the repair of the foundation is not adequate in some respects
- a geotechnical review of the proposed foundation repair work for the rear house should be carried out.

9.4 The scope of work for the rear house at the boundary

9.4.1 The authority has cited the proposed foundation repair work for the rear house not being contained within the property boundary as a reason for refusing to grant a building consent.

9.4.2 It is not unusual for building work to be installed up to the boundary of an adjoining neighbour's property, but any such work is required to satisfy the requirements of the Building Code. In respect of the repair work to the foundations, Clause B1.3.6 requires that:

Sitework, where necessary, shall be carried out to:

- (a) provide stability for *construction* on the site, and
- (b) avoid the likelihood of damage to *other property*.

The work on or near the neighbouring boundary will be required to satisfy Clause B1.3.6.

9.4.3 While the authority can seek evidence from the applicants that access to the neighbouring property had been (or will be) obtained prior to the building work being carried out, it is not clear that this constitutes a reason why the consent could not be granted.

9.5 The construction details for the internal fire places

9.5.1 The authority has cited the lack of site specific details for the internal fire places as a reason for refusing to grant a building consent. The plans show the construction of a fire place located on an exterior wall, yet there are two double fireplaces both located on internal walls as noted on the floor plans. The two plans for the fireplace are noted as "Status: Consent" and are labelled for this address. There is a clear discrepancy between the plans and the drawings showing the construction details.

9.5.2 The insurer's engineer contends the owner knew the plans needed to be changed to show internal fireplaces. I do not know whether this is correct, but it is unclear why a consent was sought by the applicants with this obvious discrepancy.

9.6 Conclusion

9.6.1 After examination of the documentation together with the expert's reports, I consider that the documentation provided to the authority in support of the building consent application is inadequate in a number of respects as outlined in paragraph 9.2.4. The authority's decision to decline to grant the consent was therefore correct.

10. The decision

10.1 In accordance with section 188 of the Building Act 2004, I hereby determine that the authority was correct to refuse to grant the building consent for the repair for both residential buildings as the information supplied to the authority with the building consent application was insufficient to establish that the proposed repair work would comply with the Building Code to the extent required by the Act.

Signed for and on behalf of the Chief Executive of the Ministry of Business, Innovation and Employment on 21 November 2018.

Katie Gordon
Manager Determinations

Appendix A: List of submissions

The following table lists submissions relevant to the matter to be determined and the documents provided with the submissions, that have been provided to me during the course of this determination:

| Date received | Source | Description of submission |
|---------------|---------------------|--|
| 28/07/2017 | Applicants' agent | An application for determination, containing copies of: <ul style="list-style-type: none"> • the determination application form • the building consent application form dated 12 December 2016 • a pre-application meeting request form • the Geotechnical Engineering Investigation by the applicants' geotechnical engineer, dated 23 December 2015 • a letter from the authority's consulting engineer to the authority with advice on the building consent application dated 9 March 2017 • a letter from the authority to the applicants refusing the grant the building consent dated 26 May 2017 • the Structural Assessment Report by the insurer's engineer dated 9 June 2016 • the Geotechnical Report from the insurer's engineer dated 9 May 2016 • a PS1 by the structural engineer in respect of 'foundation and floor levelling of dwelling' dated 28 September 2016 • drawings prepared by the structural engineer including the 'house jacking plan' for the front house and standard details dated September 2016 • a PS1 by the Insurer's engineer in respect of 'House bracing and chimney design' for the front house dated 3 October 2016 and a certificate of design work • drawings prepared by the insurer's engineer including the bracing and fireplace details dated 3 October 2016 • architectural drawings dated 28 April 2016 • a report about the state of the foundations for the front house by an inspection company dated 28 April 2016 • a quote from a drainage company for drainage work • a roof report and roof cavity report for the front house by a building consultant dated 29 April 2016. |
| 8/08/2017 | Applicants' agent | An email and a copy of the signed application form appointing the agent to act on behalf of the applicants. |
| 29/08/2017 | Applicants' agent | An email containing photos and video of the water under the front house. |
| 30/08/2017 | Insurer's engineer | An email and a copy of the insurer's engineer's job sheet. |
| 6/11/2017 | Applicants' agent | An email about the expert's brief and report. |
| 7/11/2017 | Authority | An email commenting on the expert's first report. |
| 14/11/2017 | Structural engineer | An email and a letter commenting on the expert's first report. |
| 14/11/2017 | Insurer's engineer | An email and submission dated 8 November 2017 commenting on the expert's first report and providing copies of: <ul style="list-style-type: none"> • a letter dated 21 April 2017 from the insurer's engineer to the |

| Date received | Source | Description of submission |
|---------------|---------------------|---|
| | | <p>insurer about the queries</p> <ul style="list-style-type: none"> • a letter dated 8 September 2016 from the insurer's engineer to the insurer about the applicants' geotechnical engineers' investigation • structural calculations for the foundations and soil prepared by the insurer's engineer • a letter from the authority to the applicants dated 18 May 2017 about the request for information dated 2 May 2017 • emails between the authority and the insurer's engineer and the authority and the applicants' agent and the insurer about the information contained in the building consent application and the scope of the proposed building work. The various emails in this email trail are dated 23 and 24 May 2017 • an email from the authority's consulting engineer dated 20 September 2017 about the engineer's inspection of the property and recommendations about an appropriate repair. This email has subsequently been sent to the applicants, applicants' agent, insurer and insurer's engineer • an email from the authority to the insurer's engineer dated 26 May 2017 providing a copy of the 20 March 2017 peer review to the insurer's engineer • emails between the insurer and insurer's engineer dated 5 July 2016 and 20 June 2016 about a meeting with the applicants and applicants' agent and the insurer • a letter dated 20 March 2017 from the authority to the applicants requesting further information • a letter from the authority's consulting engineer to the authority dated 9 March 2017 with its view of the compliance of the building consent application • a PS1 by the structural engineer in respect of 'foundation and floor levelling of [front] dwelling' dated 28 September 2016 • drawings prepared by the structural engineer including the 'house jacking plan' for the front house and standard details dated September 2016 • an incomplete copy of a letter from the authority to the applicants dated 2 May 2017 regarding information the authority requested about the building consent application. |
| 23/11/2017 | Authority | An email about areas of the building consent documentation the authority considers do not comply. |
| 27/11/2017 | Applicants | An email and submission in response to the expert's first report. |
| 18/12/2017 | Authority | An email about information for the repair of the rear house. |
| 18/12/2017 | Applicants | An email providing additional comments about the response to the expert's report. |
| 21/12/2017 | Insurer | An email commenting on the expert's first report. |
| 19/01/2018 | Insurer's engineer | An email and a copy of the Structural Assessment Report by the insurer's engineer dated 9 June 2016. |
| 22/01/2018 | Structural engineer | An email and a copy of the structural engineer's 16 March 2017 response to the authority's request for information. |
| 26/01/2018 | Authority | An email and a copy of an email and letter dated 16 March 2017 from the structural engineer to the authority with a response to the authority's 18 January 2017 request for information. |

| Date received | Source | Description of submission |
|---------------|-------------------|---|
| 26/01/2018 | Authority | A copy of the "refused application plans" which included the re-leveling work to the rear house. |
| 29/01/2018 | Applicants | An email about the proposed repair for the rear house. |
| 7/02/2018 | Applicants' agent | An email about the determinations process and matters to be determined. |
| 8/02/2018 | Applicants | An email providing information about the building consent application. |
| 20/03/2018 | Applicants | An email about the determinations process and the expert's inspection. |
| 3/04/2018 | Applicants | An email about the information provided and the determinations process. |
| 4/04/2018 | Applicants | An email about the determinations process and the proposed releveling methodology. |
| 8/04/2018 | Applicants | <p>An email about the determinations process which stated:</p> <ul style="list-style-type: none"> • "We had been informed by the insurer and [their engineer] that the documents prepared on their behalf were adequate for the consent to be granted." and, • "we were notified "in writing" that these documents were adequate for a consent to be granted!". |
| 9/04/2018 | Authority | An email about the information provided in the building consent application and the scope of the work. |
| 14/05/2018 | Applicants | <p>An email from the applicants to the Ministry dated 14 May 2018 about the determinations process, a document setting out the applicants' views about the determinations process, and copies of the following documents/parts of documents (with key points highlighted and explanatory notes added):</p> <ul style="list-style-type: none"> • an email from the applicants to the releveling company dated 11 April 2017 regarding the suitability of the releveling solution • an email from the releveling company to the applicants dated 24 April 2017 • an email from the applicants to the Ministry dated 15 December 2017 setting out the applicants' views of the matter for determination and questions raised by the Ministry • an email from the applicants to the Ministry dated 20 March 2018 about the determinations process and the expert's inspection • supplementary Geotechnical comments by the applicants' geotechnical engineer dated 24 August 2016 • a letter from the authority to the applicants refusing the grant the building consent dated 26 May 2017 • an email from the authority dated 7 November 2017 commenting on the expert's report • an email from the authority dated 23 November 2017 about areas of the building consent documentation the authority considers do not comply • an EQC¹⁴ inspection dated 11 November 2011 • an email from the applicants' agent to the insurer dated 5 October 2016 • a letter dated 3 October 2016 from the insurer's engineer for a pre-consent meeting |

¹⁴ The Earthquake Commission

| Date received | Source | Description of submission |
|---------------|--------------------|--|
| | | <ul style="list-style-type: none"> • the geotechnical report by the insurer's engineer • a letter from the insurer's engineer to the insurer about the applicants' supplementary geotechnical comments • a letter from the authority's consulting engineer about the building consent application • information from the insurer about the applicants' policy • the insurer's codes and policies. |
| 21/05/2018 | Insurer's engineer | An email commenting on the expert's second report. |
| 21/05/2018 | Applicants | An email about the determinations process and the information provided. |
| 28/05/2018 | Authority | <p>An email link to the building consent application documentation as refused by the authority, this included:</p> <ul style="list-style-type: none"> • the building consent application form • the certificate of title • a letter from the applicants' agent to the authority, undated, about the background to the building consent application • the Structural Assessment Report by the insurer's engineer dated 9 June 2016 • the Geotechnical Report from the insurer's engineer dated 9 May 2016 • a PS1 by the structural engineer in respect of 'foundation and floor levelling of dwelling' dated 28 September 2016 • drawings prepared by the structural engineer including the 'house jacking plan' and standard details dated September 2016 • a PS1 by the insurer's engineer in respect of 'House bracing and chimney design' dated 3 October 2016 and a certificate of design work • drawings prepared by the insurer's engineer including the bracing and fireplace details dated 3 October 2016 • a report about the state of the foundations by an inspection company dated 28 April 2016 • a quote from a drainage company for drainage work and drainage plans and accompanying report • a roof report and roof cavity report by a building consultant dated 13 April 2016 • the Geotechnical Engineering Investigation by the applicant's geotechnical engineer, dated 23 December 2015 • a report by the applicants' structural engineer dated 16 January 2014 about the structural condition of the house and recommended repairs • a report by the applicants' building consultant about the earthquake damage to the property • copies of pages from documents that appear to be marked up by the applicants consisting of an EQC Scope of Works, architectural plans, the structural engineer's producer statement attachment, letter from the insurer's engineer, email from the applicants' building consultant • supplementary Geotechnical comments by the applicants' geotechnical engineer dated 24 August 2016 • a set of plans consisting architectural drawings, structural |

| Date received | Source | Description of submission |
|---------------|------------|--|
| | | drawings relating to the releveling work and structural drawings relating to the bracing and fireplace details. |
| 23/05/2018 | Applicants | An email about the determinations process and the information provided. |
| 24/05/2018 | Applicants | An email about the determinations process and the information provided. |
| 29/05/2018 | Applicants | An email about the determinations process and the information provided. |
| 27/06/2018 | Applicants | An email about the determinations process. |
| 30/07/2018 | Authority | An email about the draft determination. |
| 31/07/2018 | Insurer | An email about the draft determination, including a letter to the insurer from the structural engineer dated 26/07/2018. |
| 31/07/2018 | Applicants | An email about the draft determination. |
| 01/08/2018 | Applicants | An email about the draft determination and 26/07/2018 letter from the structural engineer. |
| 3/08/2018 | Applicants | An email about the determinations process. |
| 7/08/2018 | Insurer | An email refuting the allegations made against the insurer and its advisers. |
| 17/08/2018 | Applicants | An email about the determinations process. |
| 17/10/2018 | Applicants | An email about the determinations process. |