

under: the Resource Management Act 1991

in the matter of: an application by Ryman Healthcare Limited for resource consent to construct, operate and maintain a comprehensive care retirement village at 26 Donald Street and 37 Campbell Street, Karori, Wellington

between: **Ryman Healthcare Limited**
Applicant

and: **Wellington City Council**
Consent Authority

Statement of evidence of **Brady William Cosgrove** on behalf of Ryman Healthcare Limited

Dated: 29 August 2022

Reference: Luke Hinchey (luke.hinchey@chapmantripp.com)
Nicola de Wit (nicola.dewit@chapmantripp.com)

STATEMENT OF EVIDENCE OF BRADY WILLIAM COSGROVE ON BEHALF OF RYMAN HEALTHCARE LIMITED

INTRODUCTION

- 1 My full name is Brady William Cosgrove.
- 2 I am the founding Director, Board Chairman and Principal Fire Engineer at Cosgroves, an engineering consultancy organisation. I have held this role for 26 years.
- 3 I hold a Bachelor of Engineering (Mechanical) from University of Auckland and Master of Engineering (Fire) from the University of Canterbury.
- 4 I am a Chartered Professional Engineer and International Professional Engineer.
- 5 I am a member of the Society of Fire Protection Engineers USA (MSFPE), member of the Institute of Fire Engineers UK (MIFireE), and a Fellow of the Institute of Professional Engineers of New Zealand (FEngNZ).
- 6 I have over 29 years' experience as a Fire Engineer on a wide range of infrastructure projects across New Zealand. My relevant experience includes:
 - 6.1 Remarkables Ski Field Day Facility and Coronet Ski Field Day Facility including design of fire fighting systems to protect the facility suitable for a cold environment;
 - 6.2 Christchurch International Airport Limited Fire Fighting Water Supply reticulation system for Dakota Commercial Park to serve multiple leased commercial site high hazard sprinkler systems, including storage tanks and a pumping network;
 - 6.3 Various Ryman Healthcare Limited (*Ryman*) retirement village sites including James Wattie Village (Havelock North), William Sanders Village (Devonport, Auckland), Murray Halberg Village (Lynfield, Auckland), Northwood Village (Christchurch);
 - 6.4 Peer reviewer for the new Dunedin Hospital project;
 - 6.5 Various Christchurch city centre projects including Otago School of Medicine facility (to commence construction), The Terraces complex, Canterbury District Health Board (*CDHB*) Outpatients building, Hagley Cricket Pavilion, Ballantynes Department Store Expansion, Metro Sports facility (construction phase), Court Theatre (to commence

construction), Catholic Cathedral (in design), Canterbury Museum Redevelopment (in design);

- 6.6 Currently on a committee preparing a Fire Engineering Design Guideline for Public Hospital Facilities on behalf of Te Whatu Ora/Health NZ, alongside FENZ, AC, MBIE, Health NZ and subject matter experts.
- 7 I am familiar with Ryman's resource consent application to construct and operate a comprehensive care retirement village (*Proposed Village*) at 26 Donald Street and 37 Campbell Street, Karori, Wellington (*Site*), and with the Site itself.
- 8 I am aware of the discussions between Ryman and the Fire and Emergency New Zealand (*FENZ*) in relation to its submission on the Proposed Village on 21 June and 23 August 2022. My colleague, Mark Taylor attended those meetings. He and I have worked together closely on advice and design matters to respond to FENZ and he has briefed me fully on the topics discussed at the meetings.

CODE OF CONDUCT

- 9 Although these proceedings are not before the Environment Court, I have read the Code of Conduct for Expert Witnesses in the Environment Court Practice Note (2014), and I agree to comply with it as if these proceedings were before the Court. My qualifications as an expert are set out above. This evidence is within my area of expertise, except where I state that I am relying upon the specified evidence of another person. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

SCOPE OF EVIDENCE

- 10 My evidence sets out the following:
- 10.1 A response to fire engineering matters raised in the FENZ submission;
- 10.2 My response to the fire engineering matters raised in the Council Officer's Report (*Officer's Report*);
- 10.3 My comments on the draft conditions; and
- 10.4 My conclusions.

SUMMARY OF EVIDENCE

- 11 In my capacity as Fire Engineer, I have advised Ryman on fire safety requirements for the Proposed Village buildings and building use with regard to the NZ Building Code requirements.

Building Act process

- 12 In my experience, fire safety matters are usually addressed through the building consent process under the Building Act.
- 13 The focus of the Building Code is on meeting the performance requirements within clauses C1-C6. The fire safety solution for a given building development is not generic. Every design has subtle or distinct differences to address the performance requirements. A holistic solution is needed to address all of the factors that can present a risk within a building relating to a fire event.
- 14 The Building Code can therefore be met through an 'Acceptable Solution' (a gazetted solution for establishing compliance with the Building Code) or an alternative solution can be developed if better suited to the particular building design and use.
- 15 If a new building adopts an Acceptable Solution, the Council does not need to pass the building consent application to FENZ for comment (but may choose to anyway). If a new building relies on an alternative solution, the Council must provide a copy of the building consent application to FENZ who may then provide advice that needs to be considered by Council in granting or refusing the application. Either way, I consider a robust review process occurs as part of the building consent process.
- 16 I consider the building consent process comprehensively regulates fire safety design and access and involves FENZ as appropriate.
- 17 I also note that FENZ regulates the evacuation scheme approval separate to the building consent process. In my experience, FENZ needs to be satisfied that in the event of a fire emergency there are suitable building safeguards and staff response procedures to meet its expectations for an approved evacuation scheme.
- 18 I am satisfied that complying with the NZ Building Code requirements will address FENZ vehicle and personnel attendance requirements for the specific use and risk at Ryman's Karori Retirement Village. I note that Mr Leo Hills for Ryman provides further commentary on emergency vehicle access provisions for the Site.

Design options and status of FENZ discussions

- 19 As is normal practice, the Proposed Village fire safety design is currently at 'concept design' level only. In my experience, the

detailed fire safety design is not prepared until resource consents are obtained and building consents will be sought. To advance the design to a detailed level before obtaining a resource consent is inefficient and unnecessary in my opinion.

- 20 The current concept design involves a number of sub-systems that collectively act to detect a fire, control a fire, internally fight a fire, stop the spread of a fire, and allow occupants to escape away from the fire zone to a place of safety.
- 21 The fire fighting water supply for the Site will need to meet the requirements of SNZ PAS 4509. Mr Ajay Desai for Ryman confirms the Site can achieve necessary water supply for fire fighting and can fully comply with SNZ PAS 4509.
- 22 In my opinion, the current concept fire safety design presents a holistic solution for the Proposed Village which can adhere to the performance requirements of the 'C' clause of the NZ Building Code.
- 23 I understand FENZ's key concern relates to access to the Site for aerial vehicles. In my opinion, a number of design adjustments have been proposed by Ryman that materially address the matters raised by FENZ. There have been recent meetings with FENZ to better understand the concerns. I understand that FENZ remains unsatisfied with the design adjustments, with the specific concerns unclear.

Officer's Report

- 24 I consider the conditions proposed by Council to address fire safety (conditions 21 (bullets 1 and 5) and 81-82) are unnecessary or inappropriate because the relevant matters have been addressed through the design process and/or the conditions will duplicate and potentially complicate other statutory processes.
- 25 I do not agree consider that it is appropriate to require the Village to "comply with" the Designers Guide. This document is intended to be a guide, and does not replace any part of the Building Code.

Conclusion

- 26 I am satisfied that the final fire safety design solution for the Proposed Village will be able to meet the fire safety needs of the staff, residents and visitors, and provide for firefighting attendance requirements through adapting the NZ Building Code 'C' clause requirements.

RESPONSE TO THE FENZ SUBMISSION

FENZ submission

- 27 I understand that the FENZ submission raises the following key issues:

27.1 Access to the Site in the event of an emergency for both standard appliances and aerial vehicles. An aerial vehicle is a specialised emergency Fire Service vehicle that has an aerial device that hydraulically rises to assist in suppressing a fire and/or effect rescue. It has specific access, set down and water demand requirements; and

27.2 Water supply for firefighting.

Engagement on FENZ concerns to date

- 28 Two meetings have been held between Ryman and FENZ to better understand the context to the submission points raised. These meetings have also been attended by Mark Taylor, an experienced fire systems engineer from my office.
- 29 I understand that the predominant FENZ issue remaining from the first meeting was a request from FENZ to provide reassurance of adequate access, set-down and manoeuvrability of attending FENZ appliances, including an aerial vehicle, to a fire emergency at the Proposed Village.
- 30 In response to those discussions, Mr Taylor and I prepared an indicative FENZ attendance scheme drawing (*indicative FENZ attendance scheme*) (these are more detailed plans than the resource consent drawings overlaying the location of hydrants passing bays and the like). This drawing was issued to FENZ by Ryman before the 23 August meeting to show where improvements were proposed, for further discussion.
- 31 The indicative FENZ attendance scheme drawing introduced:
- 31.1 New or improved FENZ attendance locations for Buildings B02 (direct from Campbell Street), B01B, and B03 – B06.
- 31.2 The addition of another in-ground hydrant;
- 31.3 Confirmation that the internal dry riser hydrant network within all main buildings would comply with NZS 4510 with regards to fire hose coverage. That is, a firefighter could run a hose from any of the floor hydrant outlets (FHO's) to reach all parts of that floor within the maximum reach limits stated in NZS 4510;
- 31.4 Confirmation that the vulnerable risk group classified as "SI" by the Building Code were limited to the first three levels only of building B01B facing west;
- 31.5 Adjustment to the roadway widths to provide a 6.5m width for the main access road, a clear set-down area for a

standard FENZ vehicle and a set-down area for an aerial vehicle (with outriggers and level ground); and

31.6 Adjustments to enable these vehicles to manoeuvre with reference to FENZ "Designers Guide to Firefighting Operations Emergency Vehicle Access" F5-02 GD, and NZ Building Code Acceptable Solution C/AS2 Section 6.0.

32 I understand that FENZ remains unsatisfied with this indicative scheme, with the specific concerns unclear.

Building Act process

33 As noted earlier, I have 29 years' experience in fire engineering. In my experience, fire safety matters are usually addressed through the building consent process under the Building Act. My previous involvement in a resource consent process for building developments has been limited to determining whether the Public Advisory Standard for Fire Fighting Water Supplies – SNZ PAS 4509:2008 – has been met. My involvement has always been as an external advisor to the project submitter to work through options for meeting these firefighting water supply requirements.

34 This section of my evidence details how fire safety matters are dealt with through the building consent process. Based on my experience, I consider the building consent process comprehensively regulates fire safety design and access and involves FENZ as appropriate.

35 The Building Code is contained in Schedule 1 of the Building Regulations 1992. Part C of the Building Code relates to fire safety. The objectives of Part C include to "*safeguard people from an unacceptable risk of injury or illness caused by fire*" and "*facilitate firefighting and rescue operations*". Clause C5 in particular is concerned with the design and construction of buildings to provide access and safety for firefighting operations.

36 In my experience, the fire safety solution for a given building development is not generic. Every design has subtle or distinct differences to address the performance requirements of clauses C1-C6 of the NZ Building Code. A holistic solution is needed to address all of the factors that can present a risk within a building relating to a fire event. These solutions can include early fire detection and communication systems, fire suppression systems, internal facilities for fighting a fire, safe routes of escape, way-finding and emergency lighting, firecells and fire separations, low fire risk construction materials and systems.

37 Although performance standards are provided, the Code does not fully prescribe how a holistic fire design solution should be developed. The focus is on meeting the performance requirements within clauses C1-C6. The Building Code can thus be met through an

“Acceptable Solution” or an alternative solution can be developed if better suited to the particular building design and use.

- 38 An Acceptable Solution is a gazetted solution for establishing compliance with the Building Code. Someone who complies with an Acceptable Solution must be treated by the territorial authority and others as having complied with the provisions of the Building Code to which that solution relates.¹
- 39 Within the Acceptable Solution for Fire Safety there is “Part 6: Firefighting”. This explains acceptable design provisions to meet FENZ requirements for access onto a site, providing appropriate information relating to the fire event, information regards any hazardous substances, possible provision of a building fire hydrant system, location and protection of the alarm indicator panel and associated fire fighting equipment, and lift control for FENZ use.
- 40 The Acceptable Solution NZBC C/AS2 does not place any dependence on FENZ attendance with regards to the compliant holistic fire safety solution. The occupants are expected to be able to evacuate to a safe place through the intervention of alarm systems, evacuation management systems and a building design that minimises the risk of exposure to a fire according to the occupant profile, building scale and building use.
- 41 While compliance with an Acceptable Solution demonstrates compliance with the Building Code, it is not mandatory nor the only way to demonstrate compliance with the Building Code.²
- 42 For retirement villages that provide for dependent care and dementia care residents, the NZ Building Code Acceptable Solution C/AS2 can be applied. This solution includes provision for a delayed evacuation requirement - as staff need time to assist these residents to prepare to evacuate. The Acceptable Solution also recognises that care residents do not necessarily need to evacuate to outside but can be taken to an internal place of safety, usually at least two firecells away from the risk area. This provision mitigates any risk from the effects of a fire in the original firecell passing into the adjacent firecell through people movement. This approach allows for a managed evacuation where those most at risk are evacuated to a place of safety and others in remote firecells can remain in place. A progressive evacuation would continue throughout the facility if FENZ on arrival assessed this to be the appropriate action.
- 43 In comparison, most hospital buildings need to adopt an alternative fire safety design approach due to the heightened risk with moving

¹ Building Act, s 22.

² Building Act, s23.

some patients, and the greater need to minimise the scale of patient relocation. Some areas within hospitals such as operating theatres require patients to be held in place unless they absolutely need to be moved due to the risk from effects of a fire. I have experienced this alternative design approach with facilities such as the CDHB Acute Mental Health Facility currently under construction, and the Counties Manukau District Health Board Dialysis + Cath Lab project also currently under construction.

- 44 With either approach there does need to be close consideration of staffing capabilities during the design process, as an approved evacuation scheme is required for occupation. FENZ regulates this evacuation scheme approval separate to the building consent process. In my experience, FENZ needs to be satisfied that in the event of a fire emergency there are suitable building safeguards and staff response procedures to meet FENZ expectations for an approved evacuation scheme. Again, there is no reliance placed on FENZ attendance or intervention in the agreed evacuation procedure. The building management needs to establish that they have the systems and personnel to independently manage an appropriate safe evacuation. Collaboration is expected to occur during the design process between the building management, FENZ, the project fire engineer and the architect to arrive at a workable solution.
- 45 It is noted that FENZ's submission refers extensively to the Designers' guide to firefighting operations Emergency vehicle access F5-02 GD (*Designers' Guide*). In Section 1 of this guideline document it states that, "*this guide **does not** replace any part of the Building Code or Standards or other mandatory building requirements*" (my emphasis). It goes on to state that NZ Building Code, "...Clause C5 is the performance requirement on 'Access and Safety for Firefighting Operations'."

Internal inputs into a Building Consent scheme

- 46 The building design and documentation process requires not only internal quality and assurance reviews, but with Fire Engineering a formal co-ordination review process is undertaken between the various designers. This culminates in Design Co-ordination Statements being issued by those involved (ie. Architect, Structural Engineer, Electrical Engineer, Mechanical Engineer, Fire Engineer) as an attachment to the Building Consent submission. This approach follows the ENZ Practice Note PN22. It is meant to ensure that the requirements of the fire safety design have been fully incorporated into the respective designers' documents. This requirement emphasises the holistic nature of fire safety design solutions, where all parts across the design team are integral to the whole fire safety solution.

Council and FENZ role in Building Consent process

- 47 When a Building Consent is lodged with the Building Consent Authority (the Council) for a large project such as the Proposed Village the Council will usually involve an independent qualified Fire Engineer to fully review the fire design to ensure it meets the performance requirements of the NZ Building Code.
- 48 For a new building with a fire safety solution designed to NZ Building Code C/AS2 the Council does not need to also pass the application to FENZ but may chose to anyway. If the scheme is not an acceptable solution, Council must provide a copy of the application to FENZ. FENZ may then provide advice on:
- 48.1 Provisions for means of escape from fire;
- 48.2 The needs of persons who are authorised by law to enter the building to undertake fire-fighting.³
- 49 In deciding whether to grant or refuse an application for a building consent, the building consent authority must have regard to the FENZ advice.⁴
- 50 Either way a robust review process occurs with usually 2 or 3 rounds of requests for information and responses with discussions with Council, including any feedback received from FENZ to the Council, and usually FENZ in between.
- 51 Council makes the decision on the building consent application. A party can then seek a determination on a building consent decision.⁵ As they relate to fire matters, these processes are rare in my experience, given the generally collaborative process to agree a fire scheme between applicant, Council and FENZ.

Design options

- 52 As is normal practice, the Proposed Village fire safety design is currently at 'concept design' level only. In my experience, the detailed fire safety design is not prepared until resource consents are obtained and building consents will be sought. To advance the design to a detailed level before obtaining a resource consent is inefficient and unnecessary. It would also most likely lead to redesign requirements and inconsistencies later on when all other detailed design matters are considered (building consent approvals, council engineering approvals, detailed construction design etc).

³ Sections 46 and 47 Building Act.

⁴ Section 48(3) Building Act.

⁵ Sections 177-190, Building Act.

- 53 Based on the concept design (in part comprising the indicative FENZ attendance scheme mentioned earlier), I can confirm that the fire safety design for the Village will include the following elements:
- 53.1 Sprinkler coverage throughout to NZS 4541. In addition it is proposed to provide a dual water supply for improved reliability, in the form of a water storage tank and pump as the primary water source, and the towns main as the secondary source. Sprinkler systems designed and installed to NZS 4541 are recognised as having a very high level of reliability. They are independently audited every 2 years to ensure they remain fit for purpose.
 - 53.2 An internal fire hydrant system throughout all main buildings to NZS 4510. This is a critical tool for FENZ in enabling fire fighting activity within the building. For a village such as this where there are many firecells, there is a low risk of needing external fire fighting intervention, as opposed to say a large warehouse with a very high fireload which has been created as a singular firecell.
 - 53.3 A water supply infrastructure network that will serve the firefighting demands of the Site as required by NZS PAS 4509, noting the sprinkler coverage throughout and provision of internal in-ground hydrants. These would charge the internal hydrant network.
 - 53.4 An automatic "Type 4/5" smoke detector system throughout. This provides early warning to the staff, visitors and residents at risk of a fire condition, as well as automatically notifying FENZ in the event of a Type 4 alarm including activation of a manual call point or a sprinkler head.
 - 53.5 Firecells are to be provided throughout. Each apartment, and each group sleeping area (in the Care and Dementia Wings) are firecells. Vertical and horizontal safe paths are firecells. All non-sleeping areas (unless providing direct support activities) are fire separated from sleeping areas. All floors are separate firecells. Special hazards such as transformer rooms, vertical services shafts, some plant rooms are firecells.
 - 53.6 The external cladding system for the buildings will meet current NZ Building Code fire control requirements to address any risk of fire spreading vertically through involvement of the cladding system.
- 54 In my opinion, the fire safety design presents a holistic solution for the Proposed Village which adheres to the performance requirements of the 'C' clause of the NZ Building Code. Through

being a fire engineering designer over many years I have observed the improvements resulting from automatic sprinklers and smoke detectors becoming a mandatory requirement in all Retirement Villages. Since then, I am not aware of a significant failure resulting in injury or death beyond the location of fire origin.

- 55 I am satisfied that the final fire safety design for the Proposed Village will be able to meet the fire safety needs of the staff, residents and visitors. The proposal will have the added benefit from FENZ attendance to judge the fire condition, any evolving risk to occupants, and to direct fire emergency response operations.

Design for FENZ key concerns

Aerial vehicle access

- 56 As set out above, I understand FENZ's key concern relates to access to the Site for aerial vehicles. In my opinion, there are a number of design adjustments that address the matters raised by FENZ:
- 56.1 New and/or improved FENZ attendance locations for buildings B02 (direct from Campbell St), B01B, and B03 – B06;
 - 56.2 Additional in-ground hydrant coverage on site;
 - 56.3 Verifying that the building hydrant riser network will comply with NZS 4510 with regards to coverage and enable FENZ the ability to fight any fire not suppressed by the sprinkler system from within the building;
 - 56.4 Clarification that the vulnerable risk group classified as "SI" is limited to the first three levels only of building B01B facing west (the SI Group is the only group subject to a managed evacuation process). All other sleeping spaces are apartments for residents that have the ability to self-evacuate. These other areas within the buildings on the Site will be evacuated according to the alarm configuration for the buildings in consultation with FENZ;
 - 56.5 Adjusting the roadway widths to provide 6.5m width for the main access road, clear set-down area for a standard FENZ vehicle and set-down area for an aerial vehicle (with outriggers and level ground), and ability to manoeuvre these vehicles with reference to FENZ "Designers Guide to Firefighting Operations Emergency Vehicle Access" F5-02 GD, and NZ Building Code Acceptable Solution C/AS2 Section 6.0;
 - 56.6 Confirmation that the laden weight of a FENZ appliance will be allowed for with the carriageway design for the Site.

Water supply for firefighting

- 57 SNZ PAS 4509:2008 describes the requirements for fire fighting water supplies. The street based hydrant supply reduces to 'FW2' for the Site if a complaint sprinkler system is installed. This equates to 1500lpm within a 270m distance to the FENZ appliance location, with the sprinkler demand (nominally 1500lpm). The water reticulation design for the Site will meet this demand and aim to provide the additional 1100lpm for an aerial appliance as requested by FENZ for this project (these details will need to be worked through). I note that Mr Ajay Desai for Ryman also confirms the Site can achieve necessary water supply for fire fighting and can fully comply with SNZ PAS 4509:2008.

RESPONSE TO COUNCIL OFFICER'S REPORT

- 58 I have read the Transport Assessment of Soon Teck Kong (from paragraph 14.7) and the summary in the Officer's Report (particularly paragraphs 434, 439, 442-443, 456-457 and 585).
- 59 In terms of access for fire fighting vehicles, for the reasons noted, I do not agree it to be appropriate to require the Village to "comply with" the Designers' guide to firefighting operations – Emergency vehicle access F5-02 GD the Guideline. As noted, this document is intended to be a guide. During the design stages, as is usual practice, Cosgroves will continue to work with FENZ to meet the NZ Building Code requirements plus any additional considerations including within F5-02 GD where feasible and necessary.
- 60 In terms of water supply for firefighting, I agree with Ms Brownlie that FENZ does not appear to raise a specific concern with respect to water supply for firefighting purposes. In any case, as noted, I am satisfied that the Site has access to sufficient water for fire-fighting purposes as described in SNZ PAS 4509.

DRAFT CONDITIONS

- 61 Given my above comments, I consider that the proposed conditions to address fire safety proposed in the Council officer report (Conditions 21 (bullets 1 and 5) and 81-82) are either:
- 61.1 Inappropriate, because they will duplicate and potentially complicate other statutory processes; and
- 61.2 Unnecessary, because the concerns raised have been adequately addressed through the design process presented to date.

CONCLUSIONS

- 62 In my opinion, the Proposed Village will be able to achieve a compliant holistic fire safety solution incorporating a variety of reliable fire safety features including active fire fighting systems, through the NZ Building Code design, documentation and approvals process.
- 63 Attention has been given to the operational concerns raised by FENZ in the context of mandatory building development requirements, enhanced support fire safety systems within the buildings, and what is reasonably achievable for this Site to support additional site specific operational requirements for FENZ. Recent considerations and improvements include fire fighting water supplies, fire attendance points, and provision for fire appliance access onto the Site.
- 64 Liaison with FENZ and the Council will need to continue through the detailed design and Building Code approval phases. On project completion consultation will continue with FENZ to enable an approved evacuation scheme.

Brady Cosgrove
29 August 2022