DRAFT
Ryman Healthcare Limited
78 and 100 - 104 Park Terrace, 20 Dorset Street Christchurch
Construction Management Plan

Prepared for lodgement (DRAFT)

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Ryman Healthcare Limited

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1 Introduction

This Construction Management Plan (CMP) has been prepared by Ryman Healthcare Limited for the proposed construction work at 78 Park Terrace (Peterborough Site) and 100-104 Park Terrace and 20 Dorset Street (Bishopspark Site), Christchurch Central, to develop a comprehensive care retirement village. The CMP has been prepared with the aim of minimising potentially adverse environmental and community impacts as a result of construction activities associated with the construction of the retirement village.

The following resource consents have been applied for from the Christchurch City Council:

- A land use consent for the construction, operation and maintenance of a comprehensive care retirement village

The following resource consents have been applied for from the Canterbury Regional Council:

- A land use consent for earthworks;
- A water permit for the taking of groundwater for the purposes of de-watering during construction of the retirement village;
- A discharge permit for the discharge of dewatering water to the Avon River; and
- A discharge permit for the discharge of contaminants to air from the operation and maintenance of an emergency generator on the site.

Site Plan with Aerial

1.1 Background

Resource consent applications for the retirement village have been lodged with Christchurch City Council. This application is for the construction, operation and maintenance of the retirement village, consisting of assisted living suites, care beds and 1, 2 and 3 bedroom apartments with associated car parking and landscaping. Breakdown below:

- B01 – 44 independent apartments, 54 assisted living suites and 70 care beds, the village centre amenities.
- B02 – 19; 1, 2 and 3 bedroom apartments (Bishopspark)
- B03 – 22; 1, 2 and 3 bedroom apartments (Bishopspark)
- B04 – Village amenities
- 138 Basement parking spaces, and 6 on grade parking spaces (Bishopspark)
- B07 – 69; 1, 2 and 3 bedroom apartments (Peterborough)
- B08 – 11; 1, 2 and 3 bedroom apartments (Peterborough)
- 77 Basement parking spaces, and 6 on grade parking spaces (Peterborough)

1.2 Purpose

The overall purpose of this CMP is to ensure that practical, common-sense and management is applied to the construction program. This approach recognises the character and values of the surrounding area in which the site is located. In accordance with the Resource Consent conditions of the resource consent, this CMP seeks to address the following issues:

- Details of the site or Project Manager, including contact details for 7 days a week 24 hours a day contact.
- The location of large notice boards that clearly identify the name, telephone number and address for service of the site or project manager.
- Measures to be adopted to ensure all materials for the works are stored on the site;
- Measures to be adopted to ensure that pedestrian access past the works is provided where practicable and that such access is safe;
- Location of worker's conveniences (e.g. offices, toilets etc);
- Ingress and egress to the construction site for construction, trade and worker vehicles and machinery during the construction period;
- Numbers and timing of daily truck movements for each stage of the construction process (site clearance, excavation, construction of buildings and fit out) and the proposed routes (including a plan to avoid the use of residential streets to the extent reasonably;
- Procedures for controlling sediment runoff, dust and the removal of soil, debris and demolition and construction materials from public roads or places. Dust mitigation should include use of water sprays to control dust nuisance on dry or windy days. Dust mitigation should also Include the washing of the exterior of houses as determined by the consent holder following consultation with neighbours, to the satisfaction of Team Leader, Compliance Monitoring - Central;
- Means of ensuring the safety of the general public.
- Procedures to be followed in the event that any koiwi or cultural or historic artefacts are discovered, including the provision of information to the public.
- Procedures to be followed to ensure residents in the immediate vicinity of the site are consulted and kept informed of proposed construction activities on a regular and ongoing basis, which shall include but not limited to providing a newsletter every three months to residential property owners within 0.5 km of any external boundary of the subject site.

2 Construction and Supervision Contacts

2.1 Contractor

Main Contractor	Ryman Healthcare	
Earthworks Sub-contractor	TBC	TBC
Drainage Sub-contractor	TBC	TBC

2.2 Sub- Consultants

Civil Engineer	Woods Ltd	TBC
Geotechnical Engineer	Tonkin & Taylor Ltd	TBC
Structural Engineer	Mitchell Vranjes Ltd	TBC
Contamination Consultant	Tonkin & Taylor Ltd	TBC
Traffic Consultant	Commute	TBC
Environmental Consultant	Mitchell Daysh	TBC
Arborist Consultant	APC Consulting	TBC

3 Hours of work

Hours of work for both sites will be:

- Monday to Friday: 7am – 6pm
- Saturday: 7.30am – 6pm

4 Site details

4.1 Location of site office and amenities

Pedestrian gantries will be installed before works commence on site.

Site noticeboards will be located at site entrances.

To limit the impacts on visual amenity, solid security fences will be installed at a height of 2 metres.

Please refer to the Erosion and Sediment Dust Control Plan attached as **Appendix A**.

Please see images below for locations of site offices and amenities.

Bishopspark

Peterborough

4.2 Site ingress and egress

Please refer to the Construction Traffic Management Plan attached as **Appendix B.**

4.3 Daily truck movements

Please refer to the Construction Traffic Management Plan attached as **Appendix B.**

4.4 Accidental discovery protocol

In the event of an accidental discovery of a pre-1900 archaeological feature or human remains, Ryman Healthcare shall:

- Cease work within the immediate vicinity of the find and secure the area.
- Contact Heritage New Zealand (and New Zealand Police if there is any suggestion that the human remains are involved).
- Follow directions of Heritage New Zealand regarding the further assessment / excavation / disturbance within the immediate vicinity of the find.
- Works within the immediate vicinity of the find shall not resume until written confirmation is provided by Heritage New Zealand, and all necessary approvals have been approved.

4.5 Erosion and sediment control plan

Please refer to the Erosion and Sediment Dust Control Plan attached as **Appendix A.**

4.6 Notification of residents

Adjacent neighbours will be notified of upcoming works on site by the following:

- Monthly newsletters from the Project Manager dropped in mailboxes of adjacent neighbours. The newsletters will contain information about the upcoming works on site. We will request email contact details on the first letter drop in order to email residents in the future if they wish.
- Specific notifications in regard to significant events on site such as concrete pours and crane erections.
- We will contact individual neighbours when appropriate regarding specific works that may affect them.

5 Approximate Construction and Staging Dates

Proposed construction programme for Bishopspark site

Stage	Activity	Approximate Duration (weeks)
1	Initial site works	4 weeks
2	Earthworks / foundations	108 weeks spread over three earthworks seasons (worst case operating for only 786 weeks)
3	Construction and Fitting out	Staged over 98 weeks
4	Vehicle Crossings / road upgrade fence	6 weeks

Proposed construction programme for Peterborough site

Stage	Activity	Approximate Duration (weeks)
1	Initial site works	4 weeks
2	Earthworks / foundations	108 weeks spread over three earthworks seasons (worst case operating for only 786 weeks)
3	Construction and Fitting out	Staged over 98 weeks
4	Vehicle Crossings/ road upgrade fence	6 weeks

6 Health and Safety

Ryman have a very strict and comprehensive Health and Safety policy which must be adhered to by all Ryman staff, sub-contractors, sub-consultants, compliance officers and visitors when onsite.

All staff, sub-contractors, sub-consultants, compliance officers and visitors will be inducted onto the site by the Ryman project manager or the nominated Health and Safety supervisor for the site.

Safety of general public
The site will be fully fenced with permitted entry only to site, gates will be locked or manned at all times.

A copy of the Site-Specific Health and Safety plan can be made available on request to Ryman.

7 Construction

7.1 Construction Phasing and Methodology

Bishopspark Site
During site establishment, the installation of the basement retention system and as much of the excavation as possible the entry and exit to the site will be via Park Terrace with a secondary exit during part of the earthworks via Dorset Street.

The draft sequence of construction will be:

- Install construction fencing with the entry and exit ways
- Remove the existing ground floor slabs
- Set up internal erosion and sediment controls
- Install the pedestrian walkway containers public safety system on Park Terrace (and Dorset St if required)
- Install the gantry and site facilities on top of the pedestrian containers if required.
- Installation of the basement retention walls.
- Install the CFA piling under the basement slab
- Excavate the middle portion of the basement slab. (Approx. 7M back from the basement walls)
- Construct the middle portion of the basement slab
- Prop the basement retaining wall back to the central slab
- Excavate next to the basement walls
- Pour infill basement slab
- Construct the podium slab
- Construct the buildings above the podium slab which includes both the structure and fitout in the following order, B03, B04, B01A, B01B and B02. (The structure of a block will overlap with the fitout of the previous block)
- Services will be brought into the project during the construction of the B03 building.

We intend to open the B03 building first, so all the permanent entry and exit to the village will need to be constructed before we open B03.

There will be staged handovers throughout the development.

Peterborough Site
During site establishment, the installation of the basement retention system and as much of the excavation as possible the entry and exit to the site will be via Salisbury Street with a secondary exit during part of the earthworks via Park Terrace.

The draft sequence of construction will be:

- Install construction fencing with the entry and exit ways
- Set up internal erosion and sediment controls
- Install the pedestrian walkway containers public safety system on Salisbury Street. (And Park Terrace if required)
- Install the gantry and site facilities on top of the pedestrian containers if required.
- Installation of the basement retention walls.
- Install the CFA piling under the basement slab
- Excavate the middle portion of the basement slab. (Approx. 7M back from the basement walls)
- Construct the middle portion of the basement slab
- Prop the basement retaining wall back to the central slab
- Excavate next to the basement walls
- Pour infill basement slab
- Construct the podium slab
- Construct the buildings above the podium slab which includes both the structure and fitout in the following order, B08, B07 (East) and B07 (West). (The structure of a block will overlap with the fitout of the previous block)
- Services will be brought into the project during the construction of the B08 building.

We intend to open the B08 building first up, so all the permanent entry and exit to the village will need to be constructed before we open B08.

Peterborough Street site parking for workers and subcontractors will be on the Bishopspark site up until work starts on the Bishopspark site.

7.2 Ryman 24 Hour Contact

Ryman Healthcare's 24-hour contact number is 0800 4Ryman as displayed on all our communications and construction site signage.

7.3 Street Tree Protection Procedure

Construction traffic will avoid running into any street trees, if any street trees cause any issues, we will request to council that they can be pruned back to avoid any damage.

8 Construction Traffic Management Plan

Please refer to the Draft Construction Traffic Management Plan attached as **Appendix B.**

9 Construction Noise and Vibration Management Plan

The construction methodology for this Project is summarised as follows:

- Basement retaining piling ≈ 80 days Bishopspark, 45 days Peterborough
- Basement excavation ≈ 12–14 months Bishopspark, 9–12 months Peterborough
- Building construction & landscaping ≈ 28–30 months Bishopspark, 24–27 months Peterborough

Of the activities proposed on site, the noisiest would be the piling rig installing the clutch piles around the site perimeters. The piling rig will move along at approximately 5 metres/day. This means that highest noise levels would only be experienced by each building for around 4 days, before the noise levels reduce again to compliant levels.

9.1 Mitigation and Management

Training
All staff will participate in an induction training session prior to the start of construction, with attention given to the following matters:

- Construction noise and vibration limits
- Activities with the potential to generate high levels of noise and/or vibration
- Noise and vibration mitigation and management procedures
- The sensitivity of receivers and any operational requirements and constraints identified through communication and consultation

Awareness of current noise and vibration matters on, or near active worksites, will be addressed during regular site meetings and/or 'toolbox' training sessions.

Equipment Selection
When selecting construction equipment, where practicable:

- Prioritise quieter construction methodologies (e.g. bored piling instead of drop hammer piling)
- Prioritise electric motors over diesel engines
- Prioritise rubber tracked equipment over steel tracked equipment
- Equipment should be suitably sized for the proposed task
- Equipment should be maintained and fitted with exhaust silencers and engine covers

- Avoid tonal reversing or warning alarms (suitable alternatives may include flashing lights, broadband audible alarms or reversing cameras inside vehicles)

General Measures

Complaints can arise whether or not noise and vibration levels comply with the Project limits. To avoid complaints, general mitigation and management measures include, but are not be limited to, the following:

- Avoid unnecessary noise, such as shouting, the use of horns, loud site radios, rough handling of material and equipment, and banging or shaking excavator buckets
- Avoid steel on steel contact such as during the loading of scaffolding on trucks
- Avoid high engine revs through appropriate equipment selection and turn engines off when idle
- Maintain site accessways to avoid potholes and corrugations
- Mitigate track squeal from tracked equipment, such as excavators (may include tensioning and watering or lubricating the tracks regularly)
- Minimise construction duration near sensitive receivers
- Stationary equipment (e.g. generators) should be located away from noise sensitive receivers and site buildings and material stores used to screen them
- Orient mobile machinery to maximise the distance between the engine exhaust and the nearest sensitive building façade (e.g. drill rig, excavators)
- Utilise noise barriers and enclosures where appropriate
- Implement specialised mitigation measures for concrete cutting and piling
- Ensure advanced communication is complete prior to commencing activities that are predicted to exceed the noise and vibration performance standards
- Undertake monitoring as appropriate

9.2 Noise Barriers and Enclosures

Temporary Noise Barriers

Temporary noise barriers should be used where a construction noise limit is predicted to be exceeded and the barriers would noticeably reduce the construction noise level. They should be installed prior to works commencing and maintained throughout the works. Effective noise barriers typically reduce the received noise level by 10 decibels.

Where practicable, the following guidelines should be incorporated in the design and utilisation of temporary noise barriers:

- The panels should be constructed from materials with a minimum surface mass of 6.5 kg/m2. Suitable panels include 12 mm plywood or the following proprietary ‘noise curtains’:
  - Duraflex ‘Noise Control Barrier - Performance Series’ (www.duraflex.co.nz)
  - Soundex ‘Acoustic Curtain - Performance Series' (www.ultimate-solutions.co.nz)
  - Flexshield ‘Sonic Curtain with 4 kg/m2 mass loaded vinyl backing’ (www.flexshield.co.nz)
  - EchoBarrier ‘H2 Acoustic Barrier’ (https://www.echobarrier.com/)
- Alternatives should be approved by a suitably qualified acoustic specialist because some proprietary noise curtains have insufficient surface mass for general use
- The panels should be a minimum height of 2.4m, and higher if practicable to block line-of-sight
- The panels should be abutted or overlapped to provide a continuous screen without gaps at the bottom or sides of the panels
- The panels should be positioned as close as practicable to the noisy construction activity to block line-of-sight between the activity and noise sensitive receivers

Where positioned on the site boundary, additional local barriers should be considered near the activity to ensure effective mitigation for sensitive receivers on upper floor levels.

Permanent Noise Barriers
Permanent boundary fences may be constructed, or existing fences upgraded, to provide effective noise mitigation during construction. However, where required for mitigating noise from future activities (post construction), the panels must be constructed from materials with a minimum surface mass of 10kg/m2, such as 18mm plywood or 20mm pine.

9.3 Engagement

Communication
Written communication (e.g. newsletter) should be provided to occupiers of buildings within 50 m of the site at least 1 week prior to the Project commencing. It should acknowledge that some activities are predicted to generate high noise and/or vibration levels that may result in disturbance for short periods. It should include details of the overall works, its timing, duration and contact details where complaints and enquiries should be directed.

Written communication during the works:

- Public site signage should include contact details
- Regular project updates should include details of impending activities that may result in disturbance, including concrete cutting and piling. It should include scheduled timing and duration of these activities and contact details where complaints and enquiries should be directed.
- Occupants of buildings predicted to receive vibration levels exceeding 1mm/s PPV for more than three days should be advised at least 3 days prior to the works commencing.

Consultation
The below table identifies sensitive receivers where noise and/or vibration is predicted to exceed the performance standards.

Address	Building Type[1]	Occupancy	Noise	Vibration Amenity
13 Peterborough Street	Residential	Dwelling	X	X
76 Park Terrace	Residential	Dwelling	X	-
108 Park Terrace	Residential	Dwelling	X	-
110C Park Terrace	Residential	Dwelling	X	X
131 Victoria Street	Commercial	Recruitment Agency	X	X
145 Victoria Street	Commercial	Shop	X	X
149 Victoria Street	Commercial	Accountancy	X	-

Consultation should be undertaken to address reasonable concerns about noise and vibration on a case-by-case basis. The Project Manager should address any concerns and complaints in accordance with the complaints reporting procedure. When discussing vibration concerns, it is important to convey that vibration can be felt at levels well below those that pose a risk of cosmetic building damage. A copy of all correspondence should be made available to Council upon request.

[1] Classifications with respect to Tables 1 and 3 of DIN 4150-3:1999 *"Structural Vibration - Effects of Vibration on Structures"* (i.e. historic/sensitive, residential or commercial/industrial)

9.4 Noise Monitoring

Construction noise levels should be monitored:

- During the first occurrence of piling activities that are predicted to exceed the noise limits, and
- In response to a reasonable noise complaint
- At 1m from the most affected building façade, or proxy position and adjusted for distance and façade reflections where appropriate
- By a suitably qualified and experienced specialist (e.g. Member of the Acoustical Society of New Zealand) in accordance with the requirements of New Zealand Standard NZS 6803: 1999 "Acoustics - Construction Noise"
- For a representative duration, reported with the measured level (e.g. 65dB LAeq (30min))
- The results should be used to update the predicted noise levels if appropriate

10 Pre and Post Construction Building Condition Surveys

We will carry out building pre and post construction condition surveys to the required immediately adjoining neighbouring buildings.

11 Specific Consent Conditions (TBC)

All physical works shall comply with the Consent Conditions prescribed in the applicable Resource Consents in Section 1. (TO BE CONFIRMED)

11.1 Specific Consent Conditions – XXX

XXX		

Appendix A

Erosion and Sediment Dust Control Plan

Appendix B

Construction Traffic Management Plan