

GYDE

Mitigation Measures

Pathways Cremorne
Seniors Housing Project

Submitted to Department of Planning and Environment

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1. MITIGATION MEASURES

A compilation of all the mitigation measures and recommendations as stated within the relevant supporting documentation is provided in Table 1.

The additional mitigation measures arising from the amended design are in **red** text for ease of reference. Any existing mitigation measures that are no longer required are shown with a line through them.

Table 1: Mitigation Measures and Recommendations

Mitigation Measure	Prior to Construction	During Construction	Ongoing Operation
Traffic, Transport and Accessibility			
1. A detailed Construction Traffic Management Plan (CTMP) is to be provided at Construction Certificate Stage. The CTMP will be implemented during the construction phase of the project to ensure: - An appropriate and convenient environment for pedestrians. - Impact on pedestrians is minimised. - Appropriate capacity for pedestrians is maintained at all times on footpaths around the site. - Appropriate public transport access is maintained. - Permanent access to/ from the site is accessible for emergency services. - Construction vehicle activity around the site is controlled. - Construction hours of work will be between 7am and 5pm Mondays to Fridays and 8am to 1pm on Saturdays. - A Works Zone will be required for construction site access during excavation, demolition and the construction of the buildings phases. - Manage construction staff and onsite parking requirements. This may include such things as: - Limiting large vehicle access to Parraween Street (limited to 12.5m length Heavy Rigid Vehicle or truck and dog combinations) - Larger vehicle deliveries can be undertaken from Gerard Street - Limitation imposed on the use of Parraween Street during high pedestrian periods of the nearby shops on the southern side of the street (ie Saturday and	✓	✓	

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Sundays) d. Encourage car pooling and public transport during construction (at least until the basement is certified). e. Minimum 14 days notification to be provided to adjoining property owners prior to the implementation of any temporary traffic control measures.			
2. Pathways to make an application under s.138 of the Roads Act 1993 to amend on-street parking arrangements in Parraween St when the existing driveways have been consolidated.		✓	
3. The initiatives in the Green Travel Plan are to be implemented. This includes actions targeted to: • Reduce private vehicle use (table 6, 10 and 11) • Support public transport use (table 7) • Encourage walking (table 8) • Encourage cycling (table 9)			✓
4. Standard conditions regarding construction work zone required along both Gerard and Parraween Streets and it will be necessary to implement type B hoarding to ensure pedestrian access is maintained along the road frontages.	✓		
5. A minimum 14 days notification must be provided to adjoining property owners prior to the implementation of any temporary traffic control measure. Implementation of the Traffic Guidance Scheme shall be installed by a suitably qualified contractor for the duration of the proposed construction.	✓		
Noise and Vibration			
6. Site Specific Noise Mitigation Measures – a. Noise Monitoring: i. If required, noise monitoring will be performed by an acoustical consultant directly engaged by the contractor. ii. In the event of any complaints, the noise impact at the affected location should be confirmed by conducting attended noise measurements. b. Alternate Equipment or Process: i. Investigate as to whether alternate equipment could be used, or if a different process could be undertaken. c. Acoustic Enclosures/Screening – i. Use an acoustic enclosure/screen to reduce		✓	

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impacts. These can be constructed from fibre cement sheeting or if airflow is required, acoustic attenuators or louvres.			
7. Construction noise and vibration shall be managed by implementing the following strategies: a. Plant and equipment: i. Employ quieter techniques for all high noise activities such as rock breaking, concrete sawing, and using power and pneumatic tools. ii. Use quieter plant and equipment based on the optimal power and size to most efficiently perform the required tasks. iii. Select plant and equipment with low vibration generation characteristics. iv. Operate plant in a quietest and most effective manner. v. Where appropriate, limit the operating noise of equipment. vi. Regularly inspect and maintain plant and equipment to minimise noise and vibration level increases, to ensure that all noise and vibration reduction devices are operating effectively. b. On site noise management: i. Maximise the distance between noise activities and noise sensitive receivers. Strategically locate equipment and plant. ii. Undertake noisy fabrication work off-site where possible. iii. Avoid the use of reversing beeping alarms or provide for alternative systems, such as broadband reversing alarms. iv. Maintain existing fencing on site as long as possible to provide optimum sound propagation control. v. Use temporary site building and material stockpiles as noise barriers. vi. Maintain rock hammer orientated towards the face and enlarge excavation by breaking small wedges off the face. c. Work scheduling: Schedule work during periods when people are least affected i. Provide respite periods, including restricting very noisy activities to daytime, restricting the number of nights that after-hours work is conducted near residences, or by determining any specific requirements, particularly those needed for noise	✓	✓	✓

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sensitive receivers. ii. Schedule activities to minimise impacts by undertaking all possible work during hours that will least adversely affect sensitive receivers and by avoiding conflicts with other scheduled events. iii. Schedule work to coincide with non-sensitive periods, to reduce impact on examinations. iv. Schedule noisy activities to coincide with high levels of neighbourhood noise so that noise from the activities is partially masked and not as intrusive. v. Plan deliveries and access to the site to occur quietly and efficiently and organising parking only within designated areas located away from sensitive receivers. vi. Optimise the number of deliveries to the site by amalgamating loads where possible and scheduling arrivals within designated hours. vii. Include contract conditions that include penalties for non-compliance with reasonable instructions by the principal to minimise noise or arrange suitable scheduling. viii. Dilapidation surveys must be completed prior to demolition works commencing on buildings that lie within 20m of the site boundaries, but restricted to those units closest to the excavation. d. Consultation, notification and complaints handling. i. Provide information to neighbours before and during construction. ii. Maintain good communication between the community and Project staff. iii. Have a documented complaints process and keep register of any complaints. iv. Give complaints a fair hearing and provide for a quick response. v. Implement all feasible and reasonable measures to address the source of complaint. Implementation of all reasonable and feasible mitigation measures for all works will ensure that any adverse noise impacts to surrounding receivers are minimised when noise goals cannot be met due to safety or space constraints.			

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8. Additional Noise and Vibration Control Measures – If, during construction, an item of equipment exceeds either the noise criteria at any location or the equipment noise level limits, the following noise control measures, together with construction best practices, shall be considered to minimise the noise impacts on the neighbourhood. a. Schedule noisy activities to occur outside of the most sensitive times of the day for each nominated receiver. b. Consider implementing equipment-specific screening or other noise control measures recommended in Appendix C of AS 2436:2010. c. Limit the number of trucks on site at the commencement of site activities to the minimum required by the loading facilities on site. d. When loading trucks, adopt best practice noise management strategies to avoid materials being dropped from height into dump trucks. e. Avoid unnecessary idling of trucks and equipment. f. Ensure any miscellaneous equipment (extraction fans, hand tools) not specifically identified in this plan incorporates silencing/shielding equipment as required to meet the noise criteria.			
Heritage			
9. Prior to demolition archival photography is to be undertaken of buildings to be demolished. 10. Salvage, retain and conserve fabric to reinforce the streetscape of Parraween Street and interpretation of the former subdivision pattern. 11. Provide front garden settings appropriate to early 20thC period and provide consistent path finishes to street frontage	✓		
12. Discovery of relics i. NSW Heritage being notified of the relic/s under Section 146 of the Heritage Act 1977 and ii. Avoidance through changing of construction plans; or further archaeological excavation with excavation permit (Section 140) if impacts cannot be avoided.		✓	
13. Archaeological monitoring a. Heritage induction to be provided for all site workers b. Development of an archaeological research design and excavation methodology c. Archaeological monitoring of demolition and excavation works under Section 139(4) of the	✓	✓	

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Heritage Act 1977 "excavation permit exceptions" is to occur for all other areas of the school site. If archaeological resources are found: i. A stop works will be implemented and an archaeologist will determine if the find meets the definition of relics. If not, a relic works may proceed. If a relic works stop and NSW Heritage will be notified of the relic/s under Section 146 of the Heritage Act 1977. ii. The discovery of relics will result in one of two courses of action: avoidance through changing of construction plans; or archaeological excavation if impacts cannot be avoided.			
Contamination and Remediation			
14. Remediation of the site must occur in accordance with the requirements of the RAP and under the direction of the Site Auditor. 15. Specifically in relation to Section 5.3 of the RAP, Table 5-2 of the RAP and Table 9-1 of the RAP. 16. Validation is to occur specifically in accordance with Section 6 of the RAP. 17. A long-term Environmental Management Plan (EMP) is required to be prepared in accordance with Section 6.4 of the RAP.	✓	✓	✓
Aboriginal Cultural Heritage			
18. Aboriginal Cultural Heritage Management Plan a. Implementation of the recommendations in the ACHA including: i. No further archaeological assessment is required in areas of low archaeological potential (subject to below). ii. Continued consultation with the registered Aboriginal parties. iii. Cease works should any aboriginal objects be encountered during works. iv. Cease works should any relics be encountered during works. v. Cease works should any suspected human remains be discovered, notify the NSW Police and Heritage NSW and not recommence work at that location unless authorized.		✓	

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19. Registered Aboriginal Party consultation a. Consultation should be maintained with the Registered Aboriginal Party during the finalisation of the assessment process and throughout the project.	✓	✓	
Built Form and Urban Design			
20. During the detailed design and prior to construction, the requirements as stated within the Access Report are to be incorporated into the design.		✓	
21. In order to ensure faithful re-instatement of the cottages fronting Parraween Street: a. Dismantling works will be carried out under guidance of an engaged heritage consultant b. All dismantled items will be safely stored with weather protection measures c. The cottages will be re-instated to appear the same as historically depicted with guidance provided by the engaged heritage consultant. d. The internal portions of the cottages will be altered as necessary to ensure compliance with the National Construction Code (NCC).		✓	
Trees and Landscaping			
22. Tree works are to be carried out by a qualified tree contractor in accordance with Australian Standard 4373-2007 and in accordance with the Code of Practice Amenity Tree Industry (August 2007). a. The person supervising pruning works should have a minimum qualification of AQF Level 3. Pruning works should be carried out by a person who has the minimum qualification of AQF Level 2. b. Tree removal should be conducted by an Arborist with a minimum (Australian Qualification Framework) AQF level 3.		✓	
23. Tree Protection Measures and Tree Protection Zone Specifications are to be implemented during demolition and construction.	✓	✓	
24. Tunnel boring must be undertaken for the main stormwater line passing within the TPZ of trees within the road reserve along Gerard Street.		✓	
25. Retained trees must be protected to AS4970-2009. Tree protection plan will be provided as the project progresses. No more than 10% canopy is to be removed from any protected tree.		✓	

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26. Tree Protection Measures must comply with Australian Standard 4970 – 2009 Protection of Trees on Development Sites.	✓	✓	
27. Suitably qualified arborist (AQF level 5 or equivalent) with minimum 5 years' experience to be on site to supervise excavation works within an established TPZ.		✓	
28. A landscape maintenance schedule is to be prepared to identify maintenance requirements and practices to be implemented.			✓
29. The Public Open Space Plan of Management shall be implemented			✓
Waste Management			
30. During the construction and demolition phase the requirements of the C&D WMP must be met.		✓	
31. During the operational phase the requirements of the Operational WMP must be met.			✓
Social Impact			
32. Ensure there is a good mix of dwelling sizes and formats to meet the needs of older residents, including catering for the increase in lone person households.	✓		
33. Ensure a proportion of apartments in the future development are built to high Liveable Housing Design standards.	✓	✓	
34. Ensure the development is consistent with the design and service recommendations identified in the Royal Commission into Aged Care Quality and Safety, 2021	✓		
35. Consider the promotion of housing to residents in Cremorne and the broader LGA community to meet the future demographic need for more age appropriate housing options.	✓		
36. Integrate elements including trees for shading and seating in the landscape design to encourage social gatherings with the community, and for new residents to meet and interact, and ensure informal seating and gathering spaces are designed to encourage people to meet and interact.	✓		
37. Promote activities aimed at building connections between residents and the local community.			✓

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38. Provide for pedestrian amenity through creating rest spots and shade in the open space and through site link.	✓		
39. Implement actions identified in the Green Travel Plan (promote sustainable travel choices for employees, residents, guests and visitors, such as connections into existing walking and cycling networks) Provide adequate bicycle parking and high quality end-of-trip facilities.			✓
40. Implement actions identified in the Green Travel Plan (promote sustainable travel choices for employees, residents, guests and visitors, such as connections into existing walking and cycling networks).			✓
41. Ensure information on public transport including timetables and destinations is easily available to residents.			✓
42. Provide a Construction Traffic Management Plan detailing predicted construction vehicle movements, routes and access arrangements.	✓		
43. Mitigate changes on site and contribute to sense of place by including historical documentation of the site's history. Ensure the community are included in ongoing engagement to ensure cultural significance of the cottages is captured if required.			✓
44. Ongoing engagement with stakeholders is encouraged during the construction phase to identify opportunities to strengthen links between the community and the project.		✓	
45. Promote the retention and/or reinstatement of 9 existing cottages and their potential use for the community on hoardings and other collateral.	✓		
46. Highlight historical narratives through storytelling elements and native planting in the landscape design. Engage with Metropolitan Local Aboriginal Land Council to identify cultural elements that could be incorporated on the site, including place names.	✓	✓	
47. Inclusion of an Aboriginal artist and ongoing engagement with the local First Nations community to develop the Connecting with Country narratives in the open space and through site link as well as implement recommendations identified in the Aboriginal Cultural Heritage Assessment.			✓
48. Ensure promotions for the Allied Health Service proposed for the site its availability for the wider community.			✓

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49. Ensure accessibility design features are incorporated throughout the open space and through site link		✓	
50. Incorporate design principles into the development that can meet current infection control guidelines, balancing infection control measures and the needs for social interactions among older residents.	✓		
51. Ensure the design of open spaces and communal spaces consider the abilities and recreation needs of residents.	✓		
52. Develop programs that make use of the new green space and encourage all residents to add activity to their day, including social activities to boost health and wellbeing.			✓
53. Develop a Construction Management Plan (CMP) to minimise the negative impacts associated with construction activity including noise and vibration impacts.	✓		
54. Comply with mitigation measures identified in the Pulse White Noise Acoustic Noise Assessment Impact.		✓	
55. Ensure the implementation of dust suppression measures during construction (primarily during excavation).		✓	
56. Record local amenity complaints and ensure appropriate action is taken to reduce the impact to the immediate surrounds during the construction phase.		✓	
57. Ensure design features and landscaping maximises surveillance and provides clear sight lines throughout the development, including the open space and through site link.	✓		
58. Existing street trees along Gerard and Parraween Street frontages shall be retained and protected.		✓	
59. Provide new canopy trees to respond to the scale of the existing and proposed built form.		✓	
60. Infill current gaps in the streetscape to create a continuous canopy along Parraween Street frontage.		✓	
61. Continue to provide updates to all stakeholders during the construction period advising of progress of construction, upcoming significant events that may impact stakeholders e.g. disruption of services, traffic adjustments, temporary loading zones, and the like.		✓	
62. Develop a Construction Management Plan (CMP) to minimise the negative impacts associated with the visual quality of the environment.	✓		

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63. Display the name and contact details of the Principal Contractor on site or relevant contact information for any issues / queries raised by stakeholders or the community during the construction phase.		✓	
64. Incorporate ESD initiatives to improve the sustainability performance of the development.			✓
65. Develop a Construction Management Plan (CMP) to minimise the negative impacts associated with construction activity, including heavy vehicles.	✓		
66. Investigate incentives or measures to promote the uptake of public transport usage for construction workers to minimise the impacts on parking and the local road network.	✓		
67. The haulage route for construction vehicles will be assessed within the detailed Construction Traffic Management Plan.	✓		
68. Newly developed private open spaces should be clearly delineated from the private, semi-private and public spaces throughout to promote improved perceptions of safety.	✓		
69. Clearly define the access points as part of the development, introduce access controls at appropriate entry / egress points.			✓
70. Ensure signage demarcates public and private spaces at key transition points.			✓
71. Develop and implement recommendations from Crime Prevention Through Environmental Design (CPTED) investigation and report.	✓		
72. Ensure newly developed private open spaces are clearly delineated from the open space and through site link.			✓
73. Prepare and Implement a Public Space Plan of Management.			✓
74. Investigate opportunities to utilise local construction firms and/or employees.	✓		
75. Investigate opportunities to increase Indigenous, youth and local employment.	✓		
76. Consider opportunities to encouraged local business to promote services to the construction workforce.	✓		
77. A comprehensive engagement plan will be prepared to ensure direct and ongoing consultation with impacted	✓		

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property owners and residents on Parraween and Gerard Streets.			
78. Comprehensively address any community concerns raised when the proposal is placed on Public Exhibition.			✓
79. Surveillance measures: • Install adequate lighting at all entry / egress points. • Consider CCTV cameras at key points around the site to provide formal surveillance to increase the perceived risk of capture to potential offenders. • Install signage to clearly distinguish and demarcate entries. • Install lighting throughout the pedestrian through link and the open space.			✓
80. Access Control • Ensure all entry / egress points into the site and internal landscaped areas are access controlled. • Ensure all entry/exit points are aesthetic, inviting and accessible. • Access doors to be built from resistant materials to prevent break-ins and vandalism. • Ensure adequate lighting is provided along pedestrian access points and entry / egress points.			✓
81. Territorial reinforcement: • Ensure the use of good-quality materials to maximise the aesthetic quality. • Include appropriate wayfinding signage to distinguish the use. • Incorporate Connecting with Country elements into the landscape design to create a sense of place.			✓
82. Open Space Management: • Use design methods and techniques to reduce the incidence of vandalism, such as avoidance of blank walls where possible with glazing or suitably maintained landscaping. • All external pedestrian pathways on the subject site, including emergency exits and the like, should be appropriately lit between dusk and dawn.	✓	✓	✓
Wind			
83. The proposed design incorporates effective wind mitigation features such as the overall recessed design for most of the balconies and the inclusion of full height screens/walls. The inclusion of densely foliating vegetation in the form of trees or shrubs/hedges within the proposed deep soil landscape zones as indicated in the architectural drawings and landscaping plans is expected to be effective in wind			✓

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mitigation and enhancing the local wind conditions.			
84. Inclusion of the changes to façades as explained in the Pedestrian Wind Statement prepared by Windtech Consultants.			
Stormwater and Flooding			
85. Mitigation measures for civil stormwater is detailed in Appendix A - Civil Stormwater Management Plan within the Stormwater and Flooding report. In relation to flooding, the site is not within a flood risk zone, however, rainfall runoff generated on the site due to the proposed development will still be controlled to ensure there are no adverse effects on downstream properties due to the development for storms up to and including the 1% Annual Exceedance Probability (AEP). This will be undertaken using On-Site Detention to limit the stormwater runoff to acceptable discharge requirements.			✓
86. Good drainage provisions are to be incorporated into the hydraulic design. 87. Groundwater seepage monitoring should be carried out during bulk excavation prior to finalizing the design of a pump out facility. 88. A condition of consent that requires detailed design of the pump out system is to be prepared by a suitably qualified Hydraulic Engineer and submitted with the Construction Certificate.	✓	✓	
89. A condition of consent requiring the appropriate water access licence to be obtained under the <i>Water Management Act 2000</i> .	✓		
Biodiversity			
90. A condition of consent requiring precautions be applied when undertaking demolition works given the age and modification of the structures on site and the possibility for suitable microchiropteran bat habitat/utilization. Should any habitat be found, works are to cease until the bats and associated habitat can be removed safely and intact by a suitably qualified person.		✓	

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91. A condition of consent requiring the removal process of trees as per the BCS comments and attendance of a wildlife handler during their removal.		✓	