MATTHEW PALAVIDIS
VICTOR FATTORETTO
MATTHEW SHIELDS

Shoalhaven Hospital Redevelopment

Construction Noise, Dust and Vibration Management Sub Plan

SYDNEY
9 Sarah St
MASCOT NSW 2020
(02) 8339 8000

ABN 98 145 324 714
www.acousticlogic.com.au

Project ID	20230220.1
Document Title	Construction Noise, Dust and Vibration
Attention To	John Holland Group Pty Ltd

Revision	Date	Document Reference	Prepared By	Checked By	Approved By
0	2/05/2023	20230220.1/0205A/R0/VF	HD		VF
1	5/06/2023	20230220.1/0506A/R1/VF	HD		VF

TABLE OF CONTENTS

1 INTRODUCTION 5
2 REFERENCED DOCUMENTS 6
2.1 BACKGROUND INFORMATION USED 6
2.2 GUIDELINES 6
3 DEVELOPMENT CONSENT CONDITIONS 7
3.1 CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN 7
3.2 CONSTRUCTION HOURS 7
3.3 CONSTRUCTION TRAFFIC 8
3.4 CONSTRUCTION NOISE LIMITS 8
3.5 VIBRATION CRITERIA 9
4 SITE DESCRIPTION AND THE PROPOSAL 10
4.1 SENSITIVE RECEIVERS 10
5 SUMMARISED AMBIENT NOISE SUMMARY 13
6 COMMUNITY ENGAGEMENT 15
7 CONSTRUCTION NOISE, DUST AND VIBRATION ASSESSMENT 17
7.1 GENERAL 17
7.2 CONSTRUCTION NOISE MANAGEMENT LEVELS 17
7.2.1 Residential Receivers 17
7.2.2 Other Land Uses 18
7.3 CONSTRUCTION DUST MANAGEMENT LEVELS 21
7.3.1 Respirable Dust 21
7.3.2 Nuisance Dust 21
7.3.3 Typical Equipment and Potential Dust Generation 22
7.4 CONSTRUCTION VIBRATION MANAGEMENT LEVELS 23
7.4.1 Amenity Management 23
7.4.2 Structure Damage Risk Criteria 24
7.4.3 Recommended Vibration Limits 25
7.5 PROPOSED WORKS 26
7.6 PROPOSED CONSTRUCTION HOURS 26
7.7 NOISE AND VIBRATION SOURCES 27
7.7.1 Phase 1 – Demolition 27
7.7.2 Phase 2 – Excavation and Early Works 27
7.7.3 Phase 3 – Construction 28
7.8 CONSTRUCTION NOISE ASSESSMENT 28
7.8.1 Predictions 28
7.8.2 Predicted Noise Impacts 29
7.8.3 Discussion 30
7.9 CONSTRUCTION VIBRATION 31
7.9.1 Vibration Sources 31
7.9.2 Assessment of Vibration 31
8 NOISE, DUST AND VIBRATION MANAGEMENT AND CONTROL 32
8.1 GENERAL NOISE CONTROL METHODS AND MANAGEMENT 32
8.1.1 Selection of Alternate Appliance or Process 32
8.1.2 Acoustic Barriers 32
8.1.3 Silencing Devices 33
8.1.4 Treatment of Specific Equipment 33
8.1.5 Establishment of Site Practices 33

8.2 DUST MANAGEMENT 33
8.3 VIBRATION MANAGEMENT 34
8.4 NOISE AND VIBRATION MONITORING, REPORTING AND RESPONSE PROCEDURES 35
8.4.1 Reporting Requirements 35
8.4.2 Response Procedures 35
8.4.3 Notification 36
8.5 COMMUNITY ENGAGEMENT 36
8.6 SUMMARY OF SITE-SPECIFIC MITIGATION 38
8.6.1 Physical Controls 38
8.6.2 Recommended Monitoring 39
8.6.3 Ongoing Assessment and Advice 39
9 CONCLUSION 41
APPENDIX A CONSTRUCTION PLANT NOISE AND VIBRATION EMISSION LEVELS 42
B.1 NOISE 42
APPENDIX B – REFERENCED DOCUMENTATION 46

1 INTRODUCTION

Acoustic Logic have been engaged to provide a project construction noise, dust and vibration management sub-plan ("**CNDVMSP**" or the "**Plan**") that will be used to manage noise, dust and vibration emissions associated with the proposed works at the Shoalhaven Hospital Redevelopment Project.

The Plan:

- Identifies sensitive receivers that are likely to be potentially impacted by the proposed works.
- Develops project specific noise, dust and vibration management levels. These will be used to indicate whether additional impact mitigation, beyond normal "good practice", is indicated.
- Identifies the major noise, dust and vibration sources that will be present on the construction site, and additional construction-related traffic generated by the development.
- Predicts the likely noise and vibration levels during the phases of construction and assesses these against the established management levels. Where the predicted impacts exceed the management levels, the Plan identifies and assesses potential measures to minimise these impacts.
- Provides specific and general recommendations for the ongoing monitoring, assessment and management of noise, dust and vibration emissions as the works progress in response to additional information and site conditions, and the updating of the Plan to reflect additional information obtained during the construction period.

Where the term "construction" is used in this Plan, it includes demolition, excavation and any other site activity related to the construction of the development being assessed.

This Plan has been prepared for the sole purpose as stated above and should not be used or relied on for any other purpose.

2 REFERENCED DOCUMENTS

2.1 BACKGROUND INFORMATION USED

The assessment is based on the following information:

- Development Consent Conditions (SSD-35999468)
- Site Plans and Markups provided by John Holland (Refer Appendices)
- SSDA Engagement Report (Version 1, dated 15/06/2022)
- Main Works Noise Impact Assessment prepared by Acoustic Logic (20211249.1/0209A/R1/VF dated 2 September 2022).
- Advice provided to us by John Holland regarding likely activities to be caried out.

2.2 GUIDELINES

The primary guideline that will be used to formulate the Plan is the NSW EPA – 'Interim Construction Noise Guideline' ("**IGNG**") July 2009.

The ICNG recognises that development occurs close to sensitive receivers and the nature of construction means that it is not possible to prevent noise impacts. The ICNG is focused *"on applying a range of work practices most suited to minimise construction noise impacts, rather than focusing only on achieving numeric noise levels. While some noise from construction sites is inevitable, the aim of the Guideline is to protect the majority of residences and other sensitive land uses from noise pollution most of the time."*

The ICNG requires the identification of activities likely to exceed the noise/vibration management levels, and the implementation of feasible and reasonable mitigation strategies to minimise emissions. Strategies include physical and management controls, liaising with the public and stakeholders, monitoring, etc. The ICNG recognises that each site will have a particular set of circumstances to be addressed, and that it is typically not possible to fully mitigate impacts. The guideline is intended as a pathway to determining a realistic compromise between construction sites and the surrounding receivers.

The following additional planning instruments and guidelines have also been used in the assessment:

- NSW Department of Environment and Conservation Assessing Vibration: A Technical Guideline" (Feb, 2006)
- NSW EPA – 'Noise Policy for Industry' ("**NPfI**") October 2017
- NSW Transport (RMS) Construction Noise and Vibration Guideline ("CNVG") (2016)
- Transport for NSW Construction Noise and Vibration Strategy ("CNVS") (2018)
- German Standard DIN-4150-3 (2016-12)

3 DEVELOPMENT CONSENT CONDITIONS

The Plan has been prepared with reference to the Main Works Noise Impact Assessment prepared by this office and in accordance with development conditions which are available below:

3.1 CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

B17. *Prior to the commencement of construction, the Applicant must submit a Construction Environmental Management Plan (CEMP) to the Certifier and must be published on the Applicant's website in accordance with condition A23- The CEMP must include, but not be limited to, the following:*

…

(e) Construction Noise and Vibration Management Sub-Plan (see condition B19)

B19. *The Construction Noise and Vibration Management Sub-Plan must address, but not be limited to, the following:*

(a) be prepared by a suitably qualified and experienced noise expert;

(b) describe procedures for achieving the noise management levels in EPA's Interim Construction Noise Guideline (DECC, 2009);

(c) describe the measures to be implemented to manage high noise generating works such as piling, in close proximity to sensitive receivers;

(d) include strategies that have been developed with the community for managing high noise generating works;

(e) describe the community consultation undertaken to develop the strategies in condition B19(d); and

(f) include a complaints management system that would be implemented for the duration of the construction; and

(g) include a program to monitor and report on the impacts and environmental performance of the development and the effectiveness of the implemented management measures in accordance with the requirements of condition B16.

3.2 CONSTRUCTION HOURS

C4. *Construction, including the delivery of materials to and from the site, may only be carried out between the following hours:*

(a) between 7am and 6pm, Mondays to Fridays inclusive; and

(b) between 8am and 1pm, Saturdays.

No work may be carried out on Sundays or public holidays.

C5. *Notwithstanding condition C4, provided noise levels do not exceed the existing background noise level plus 5dB, works may also be undertaken during the following hours:*

(a) between 6pm and 7pm, Mondays to Fridays inclusive; and

(b) between 1 pm and 4pm, Saturdays.

C6. *Construction activities may be undertaken outside of the hours in condition C4 and C5 if required:*

(a) by the Police or a public authority for the delivery of vehicles, plant or materials; or

(b) in an emergency to avoid the loss of life, damage to property or to prevent environmental harm; or

(c) where the works are inaudible at the nearest sensitive receivers; or

(d) where a variation is approved in advance in writing by the Planning Secretary or her nominee if appropriate justification is provided for the works.

C7. *Notification of such construction activities as referenced in condition C6 must be given to affected residents before undertaking the activities or as soon as is practical afterwards.*

C8. *Rock breaking, rock hammering, sheet piling, pile driving and similar activities may only be carried out between the following hours:*

(a) 9am to 12pm, Monday to Friday;

(b) 2pm to 5pm Monday to Friday; and

(c) 9am to 12pm, Saturday.

3.3 CONSTRUCTION TRAFFIC

C10*. All construction vehicles (excluding site personnel vehicles) are to be contained wholly within the site, except if located in an approved on-street work zone, and vehicles must enter the site or an approved on-street work zone before stopping.*

3.4 CONSTRUCTION NOISE LIMITS

C13. *The development must be constructed to achieve the construction noise management levels detailed in the Interim Construction Noise Guideline (DECC, 2009). All feasible and reasonable noise mitigation measures must be implemented and any activities that could exceed the construction noise management levels must be identified and managed in accordance with the management and mitigation measures identified in the approved Construction Noise and Vibration Management Plan.*

C14. *The Applicant must ensure construction vehicles (including concrete agitator trucks) do not arrive at the site or surrounding residential precincts outside of the construction hours of work outlined under condition C4.*

C15. *The Applicant must implement, where practicable and without compromising the safety of construction staff or members of the public, the use of 'quackers' to ensure noise impacts on surrounding noise sensitive receivers are minimised.*

3.5 VIBRATION CRITERIA

C16. *Vibration caused by construction at any residence or structure outside the site must be limited to:*

(a) *for structural damage, the latest version of DIN 4150-3 (1992-02) Structural vibration - Effects of vibration on structures (German Institute for Standardisation, 1999); and*

* Note: regarding (a) of C16, the latest structural damage standard is DIN-4150-3 (2016-12)

(b) *for human exposure, the acceptable vibration values set out in the Environmental Noise Management Assessing Vibration: a technical guideline (DEC, 2006) (as may be updated or replaced from time to time).*

C17. *Vibratory compactors must not be used closer than 30 metres from residential buildings unless vibration monitoring confirms compliance with the vibration criteria specified in condition C 16.*

C18. *The limits in conditions C16 and C17 apply unless otherwise outlined in a Construction Noise and Vibration Management Plan, approved as part of the CEMP required by condition B17 of this consent.*

4 SITE DESCRIPTION AND THE PROPOSAL

The site is identified as Shoalhaven Hospital and Nowra Park. The current site is a vacant plot within the hospital grounds.

The DA stage report sought consent for the construction and use of the redeveloped hospital which comprises:

- Construction of an 8 level acute services building (ASB) including helipad (HLS).
- External services works and landscaping of the development site;
- Earthworks and other civil engineering works; and
- Subdivision of the site from the balance of Nowra Park.

The site's general context is that of a civic precinct bounded by low-rise residential land uses. The mix of existing civic-related use includes Nowra Park (now in the ownership of HAC with the Crown Land Reserve designation extinguished) to the north and east of the development site, the existing Shoalhaven Hospital campus, associated health services facilities to the west of the development site in particular the Shoalhaven Cancer Care Centre and GP Super Clinic, and professional consulting rooms in converted dwelling houses. To the east of the park along North Street is St Michael's Roman Catholic Church and St Michael's Catholic Parish Primary School. The future Shoalhaven Community Pre-School forms a further civic component of this general precinct.

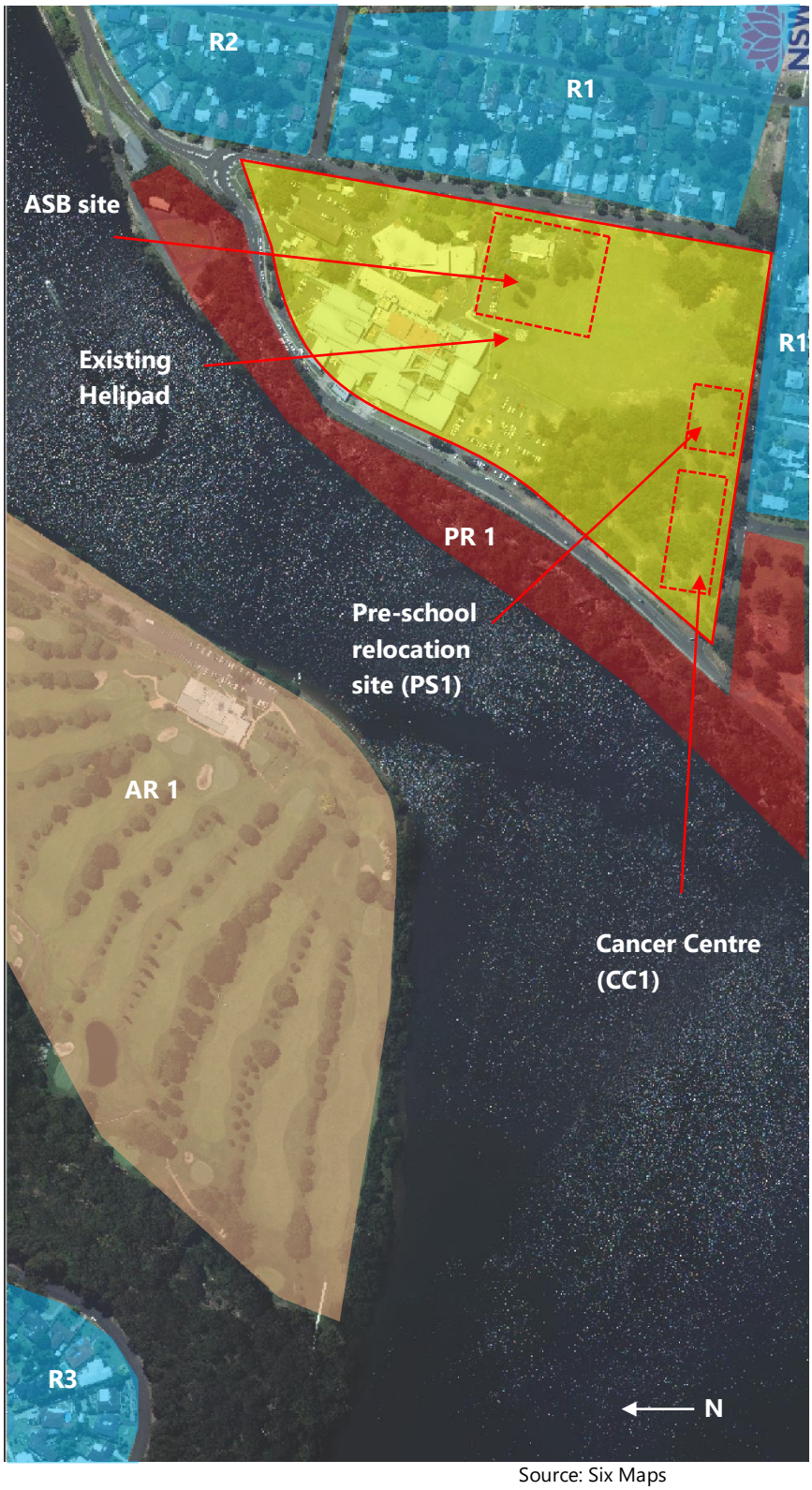
4.1 SENSITIVE RECEIVERS

The nearest/potentially most impacted sensitive receivers surrounding the site representative of noise catchments have been identified and as summarised in the following table. An aerial photo of the site indicating nearby noise sensitive receivers and the catchment areas, and the ambient noise measurement locations is presented in Figure 1 below.

Table 1 – Sensitive Receivers

Receiver (Refer Figure 1)	Receiver Type	Comment
R1	Residential	Detached dwellings to south of North Street, and residences and St Michaels Catholic Church and school to the east.
R2	Residential	Detached dwellings to north east, opposite Shoalhaven Street with some health and commercial and recreational uses.
R3	Residential	Residential detached dwellings to west.
AR1	Active Recreation	Golf course
PR1	Passive Recreation	Scenic Drive Picnic Area and Bens Walk.
PS	School	Shoalhaven Community Pre-School (future relocated site).
CC	Hospital	Cancer Centre overnight accommodation (part of the greater hospital site).

The remaining receivers surrounding the site will not be adversely impacted if the receivers identified above are not impacted.



Source: Six Maps

Hospital Site

Residential Receivers

Passive Recreation

Active Recreation

Figure 1 – Project Site and Context

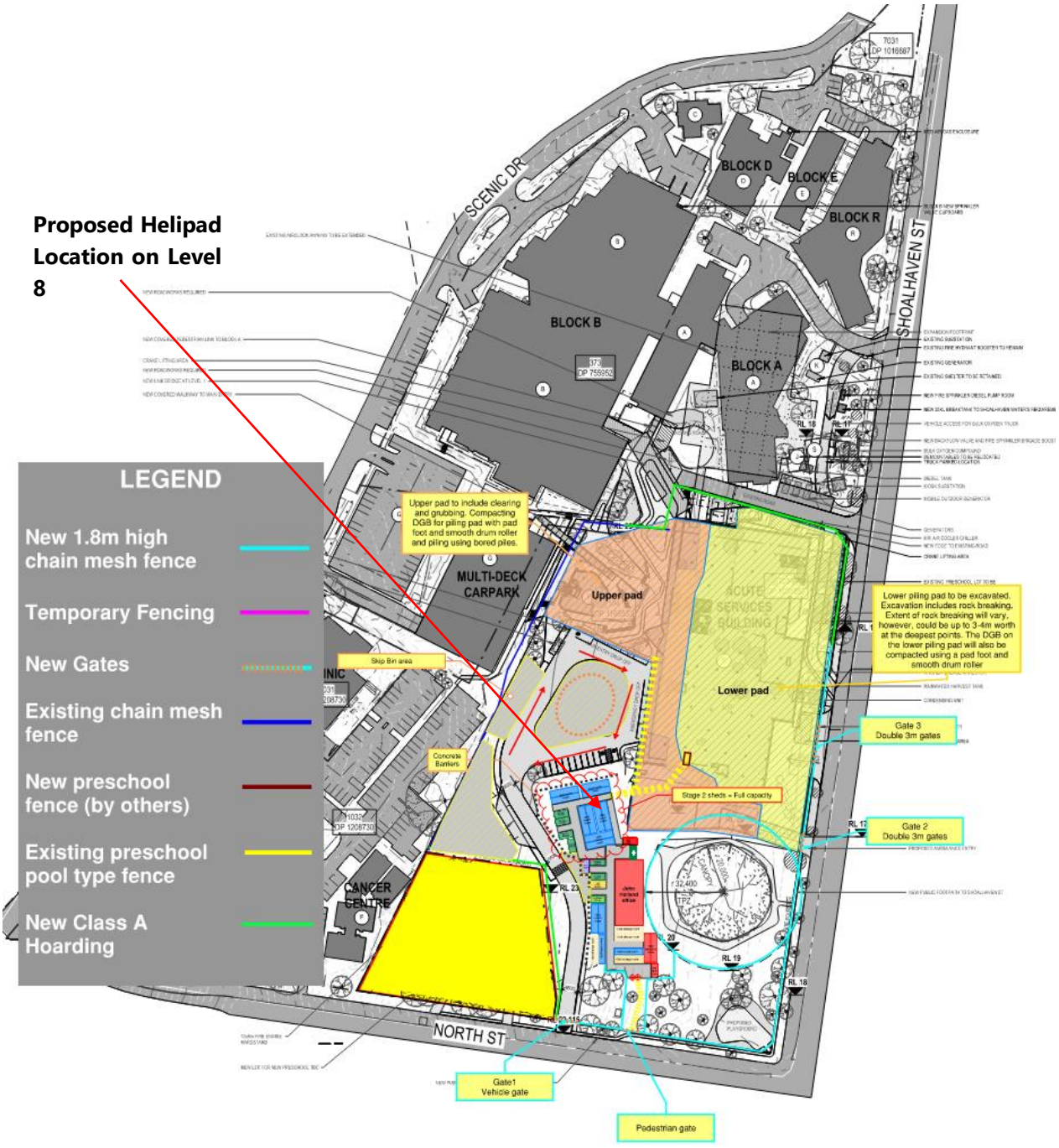


Figure 2 –Site Plan of Proposed Development (Refer also – Appendix B)

5 SUMMARISED AMBIENT NOISE SUMMARY

Rating background levels have been adopted from the approved Main Works Noise Impact Assessment prepared by this office (ref: 20211249.1/0209A/R1/VF, dated 2/9/2022).

Monitoring locations and associated rating background noise levels are summarised below:

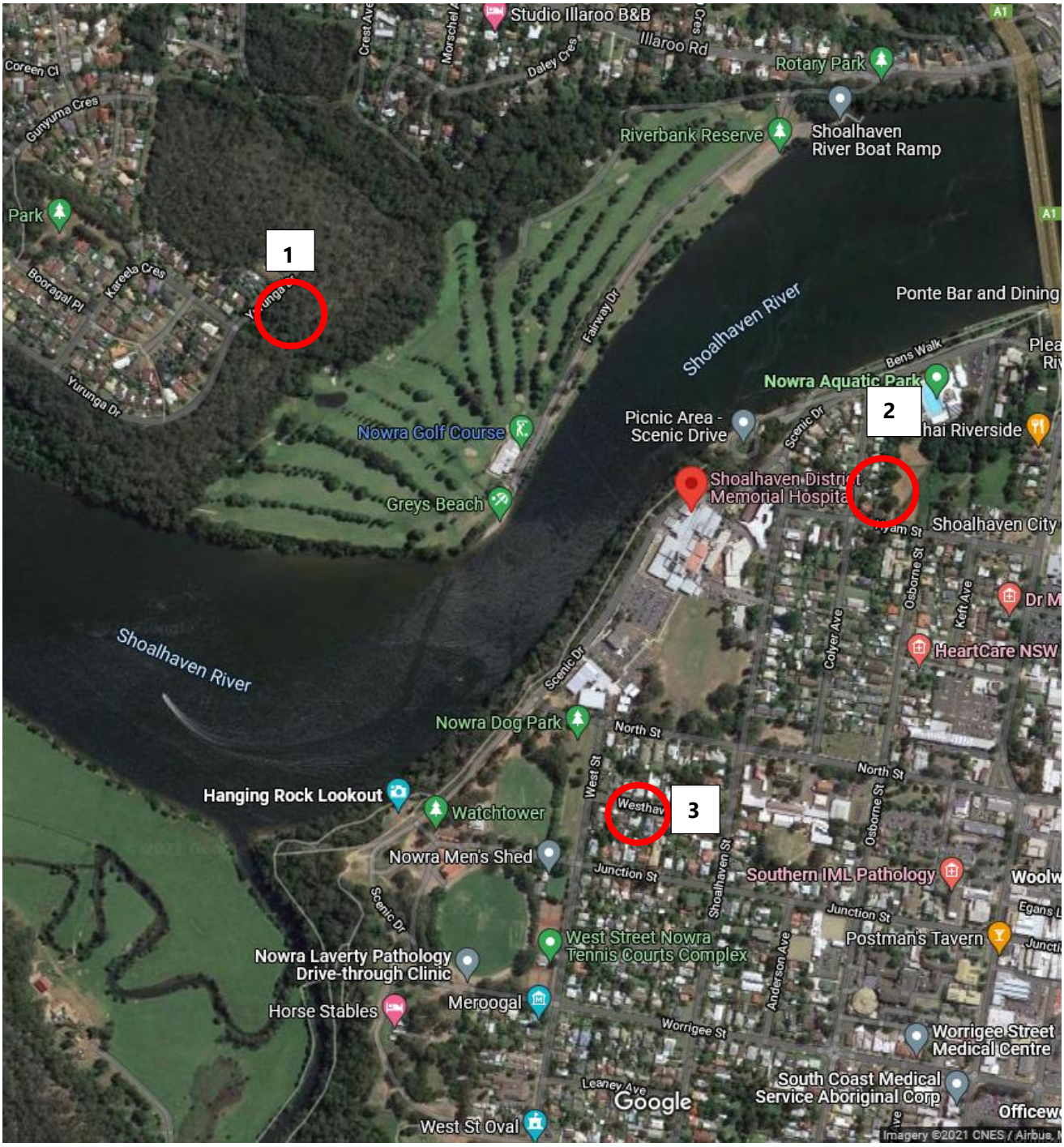


Figure 3 –Unattended Noise Logging Locations (Source: Google Maps)

Table 2 – Rating Background Noise Level Summary

Location	Time of day	Rating Background Noise Level $dB(A)_{L90(Period)}$
R1 Residential Receivers (East and South)	Day (7am – 6pm)	35
	Evening (6pm – 10pm)	35* (38)
	Night (10pm – 7am)	31
R2 Residential Receivers (North East)	Day (7am – 6pm)	37
	Evening (6pm – 10pm)	37*(38)
	Night (10pm – 7am)	31
R3 Residential Receivers (West)	Day (7am – 6pm)	35** (33)
	Evening (6pm – 10pm)	33* (34)
	Night (10pm – 7am)	30** (29)

* In accordance with NPfI guidelines where the evening rating background noise level is higher than the day level, the lower daytime level has been adopted. Measured background in parentheses.

** In accordance with NPfI guidelines where the measured evening or night RBL is less than 30 dB(A), 30 dB(A) can be adopted, and where the daytime background is less than 35 dB(A) then 35 dB(A) can be adopted. Measured background in parentheses.

The background noise levels measured at logger location 3 has been adopted for the residential catchment R1. Catchment R1 includes the residences to the east and south of the proposed ASB. The residences immediately to the east of the proposed ASB was included in R1 as logger location 3 was marginally quieter than logger location 2, and therefore represents a more conservative approach.

6 COMMUNITY ENGAGEMENT

Extensive community consultation has occurred throughout the duration of the SSDA process. This included a dedicated community drop-in session for local residents at the hospital in April 2022, during the preparation of the SSDA, in addition to a number of community wide drop-in sessions. Residents were notified by a letterbox drop.

During the formal exhibition period (September 2022) the project team held a number of drop-in sessions to provide the community with an update on the project, including construction impacts.

In response to consent condition 19 (e) the community consultation included:

- Media releases to the general community in August 2021.
- Workshop with aboriginal community in December 2021.
- Letters to various local stakeholders including Berry Chamber of Commerce and Tourism (and attached to this sub-plan) in March 2022..
- Letterbox drop to local residents in March 2022.
- Master Plan was released to the public for comment in September 2021.
- Informal drop-in session on 30th March 2022.
- Pop up stalls at 5 locations between 31 March and 2nd April 2022 at various locations (Stockland Nowra, Ulladulla Shopping Centre, Vincentia Shopping Centre, Bunnings Nowra and Berry.

The consultation and outcomes are provided in Appendix C, which summarises general community concerns and how they are proposed to be addressed.

While construction noise was not raised at the pre-commencement community sessions, the general outcomes of the consultation have informed the construction noise, dust and vibration sub-plan by identifying general community concerns and the sensitive receivers and sensitive stakeholders around the site for assessment and ongoing engagement.

In response to consent condition 19 (d), the outcomes of community consultation have been addressed in the sub-plan which have resulted in the following strategies to manage impacts with the local community which have been incorporated into this sub-plan:

- Works identified as noisy will have additional time restriction to provide respite. The initial periods proposed for these works are:

  (a) 9am to 12pm, Monday to Friday;

  (b) 2pm to 5pm Monday to Friday; and

  (c) 9am to 12pm, Saturday.

- Barriers will be erected to screen the works from the most impacted receivers to the east of the Hospital.
- Monitoring of noise/vibration levels at nearest sensitive receivers.
- Regular and ongoing community engagement including a 24 hour contact number to the site. The purpose of this engagement is to:

- *inform the local community of the works progress*
- *to provide the community a chance to feedback on any non-urgent issues and to highlight to the construction team any potential issues so that they can be addressed in advance*
- *to provide a direct contact to the site to provide the team with more urgent feedback or community feedback outside the regular meetings.*

These strategies are addressed in this sub-plan (refer Section 8).

Ongoing community engagement is proposed (which is also a recommendation of this Sub-plan, refer below). The following engagement is proposed to be undertaken by John Holland to address the consent conditions relating to community engagement:

- The project team has procedures in place to advise the community of all construction activities where there will be extended periods of time with high levels of noise. Regular project newsletters, emails and notifications in the local newspaper will occur throughout the construction of the new hospital. In addition, local residents will be notified of any out of hours works.
- A dedicated project email address and 1800 number have been established, and provide the community 24/7 access to the team.

7 CONSTRUCTION NOISE, DUST AND VIBRATION ASSESSMENT

7.1 GENERAL

A quantitative evaluation of the proposed works has been undertaken to identify those activities that have the potential to adversely impact nearby properties. The outcomes of the assessment have been used to develop a management sub-plan to minimise adverse noise, dust and vibration impacts.

The assessment uses site specific noise and vibration management levels developed using the EPA ICNG. The predicted receiver noise and vibration levels will be compared to the management levels to identify those activities that are likely to require additional management, above what is considered to be normal good practice.

7.2 CONSTRUCTION NOISE MANAGEMENT LEVELS

7.2.1 Residential Receivers

Residential noise management levels are based on the "rating background noise level" ("**RBL**") applicable to the receivers. RBL's are typically determined by measuring the ambient noise environment using the methodology in the EPA NPfI. The measurements, analysis and RBL's determined for this project are summarised in Appendix A.

The ICNG construction noise management levels are summarised in the following table, along with how they should be used to manage impacts.

Table 3 – Construction Noise Management Levels

Management Level $L_{Aeq,(15min)}$*	**How to Apply**
Noise affected Management Level ("**NML**") RBL + 10dB	The noise affected level represents the point above which there may be some community reaction to noise. Where the predicted or measured $L_{Aeq\ (15\ min)}$ is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level. The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.
Highly noise affected 75 dB(A)	The highly noise affected level represents the point above which there may be strong community reaction to noise. Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur.

*** Noise levels apply at the property boundary that is most exposed to construction noise, and at a height of 1.5 m above ground level. If the property boundary is more than 30 m from the residence, the location for measuring or predicting noise levels is at the most noise-affected point within 30 m of the residence. Noise levels may be higher at upper floors of the noise affected residence.**

7.2.2 Other Land Uses

For other land uses, the management levels are absolute noise levels, independent of the prevailing noise environment, so monitoring of the prevailing environment is not generally required for these uses. The ICNG construction noise management levels for uses other than residential dwellings are summarised in the following table.

Table 4 – Construction Noise Management Levels – Non Residential Uses

Land Use	**Management Level, $L_{Aeq\ (15min)}$ (applies for times when properties are being used)**
Commercial and Retail Outlets	70 (external)*
Industrial Premises	75 (external)*
Other Businesses	Project by project basis, consider maximum noise level recommended in AS 2107 for similar occupancies.*
Classrooms at schools and other educational institutions	45 (Internal noise level)
Hospital wards and operating theatres	45 (Internal noise level)
Places of worship	45 (Internal noise level)
Active recreation areas (characterised by sporting activities and activities which generate their own noise or focus for participants, making them less sensitive to external noise intrusion)	65 (External noise level)
Passive recreation areas (characterised by contemplative activities that generate little noise and where benefits are compromised by external noise intrusion, for example, reading, meditation)	External noise level 60 dB(A)
Community centres	Depends on the intended use of the centre. Refer to the recommended 'maximum' internal levels in AS2107 for specific uses.

*** Noise levels apply at the most affected occupied point of the premises. For other occupancies, noise levels are applied at the most affected point within 50m of the area boundary. Internal noise levels are assessed at the centre of an occupied room. Where internal noise levels cannot be measured, external noise levels may be used, with the equivalent external noise level determined using an appropriate external to internal noise reduction.**

The project specific NML's for the most impacted receivers are summarised in the following table using the objectives tabled above and the adopted RBL's.

Table 5 – Noise Management Levels for Most Impacted Receivers

Location/Receiver	RBL dB(A) L_{90}	NML dB(A) L_{eq}	HANML dB(A) L_{eq}
R1 – R3 All Residents Surrounding the Project Site	35	45 (Standard Construction Hours) 40 (OOSH)	75
Cancer Centre Overnight Stay	N/A	65	N/A
Shoalhaven Community Pre-School	N/A	45 internal* 65 external in play area	N/A
AR1	N/A	55	N/A

* An external noise level of 65 dB(A) would result in an internal noise level of 45 dB(A) assuming a typical 20 dB(A) reduction for a standard façade. Therefore, compliance with the external NML will also result in compliance with the internal NML.

7.2.2.1 Noise Within Shoalhaven Hospital Grounds

Section 4.1.2 of the ICGN recommends the following construction noise management levels for hospital receivers:

Table 6 – Interim Construction Noise Guideline – Noise Trigger Levels – Internal Areas

Land Use	Noise Management Level – dB(A)$L_{eq(15\ min)}$
Hospital Wards and Operating Theatres	Internal noise level – 45dB(A)

The ICGN does not have construction noise management levels (**NMLs**) for other noise sensitive areas within hospital receivers such as offices and consulting rooms.

Australian Standard AS2107:2016/ ESG are commonly used standards for the assessment of noise impacted to internal areas.

Given that construction noise is a temporary, not a permanent noise source, it is reasonable that a more relaxed acoustic criteria is adopted as opposed to a straight application to the AS2107/ESG recommended internal noise levels. In our experience, in the assessment of construction noise, it is common to adopt a noise target which is 5dB(A) to 10dB(A) more relaxed than the strict application of AS2107/ESG noise levels for permanent noise. This being the case, management noise levels for spaces other than wards and operating theatres is as follows:

Table 7 – Construction Noise Goals for Typical Internal Areas

Room Use	ESG Noise Level dB(A)	Proposed Construction NML – dB(A)$L_{eq,15min}$
Consulting Room, Treatment Room	45	50
Open Plan Office	45	55
Private Office	40	50
Hospital Ward Rooms	40	45
Laboratories and work rooms	50	60
ICU	45	50

Construction noise impacts within the hospital site would be directly managed between the contractor and the hospital management.

7.3 CONSTRUCTION DUST MANAGEMENT LEVELS

There are dust emissions criteria for respirable dust and for nuisance dust which make up the total suspended particulates (TSP). For respirable dust the PM2.5 and PM10 particulate matter sizes which are linked to adverse health effects are typically monitored in real-time and electronic warnings issued when hourly levels are excessive. Nuisance dust is measured by dust deposition gauges (bottles). These are collected in monthly intervals and post processed by a laboratory before the results are reported.

7.3.1 Respirable Dust

Dust monitoring is conducted to measure mechanically generated respirable PM_{10} dust particles (< 10µm) and $PM_{2.5}$ dust particles (< 2.5µm), which are generally understood to be the main health concern in airborne dust. The air quality limits are based on the standards outlined in Department of the Environment's *National Environment Protection (Ambient Air Quality) Measure* and NSW EPA's air quality categories.

It should be noted that the dust monitoring results can be influenced by events such as fires and dust storms, thus the PM_{10} limit has an allowance of 5 days per year to account for the effects of these two effects.

The PM_{10} and $PM_{2.5}$ goals are summarised below.

Table 8 – PM_{10} and $PM_{2.5}$ Goals (24-Hour Average)

Pollutant	Averaging Time	Maximum Concentration
Particulate Matter PM_{10}	24 hours	50 µg/m^3
Particulate Matter $PM_{2.5}$	24 hours	25 µg/m^3

The EPA has air quality categories based on particle concentration over a one-hour average. Typically, a project target of 'Poor' category as a reference. **However, the assessment level is based on the 24-hour average**.

Table 9 – PM_{10} and $PM_{2.5}$ Goals (1-Hour Average)

Pollutant	Air Quality Category (AQC)				
	Good	Fair	Poor	Very Poor	Extremely Poor
Particulate Matter PM_{10} (µg/m^3)	< 50	50-100	**100-200**	200-600	600 and above
Particulate Matter $PM_{2.5}$ (µg/m^3)	< 25	25-50	**50-100**	100-300	300 and above

7.3.2 Nuisance Dust

Unlike the smaller PM2.5 and PM10 dust particles the larger and heavier particles fall out of suspension and are deposited on the surfaces such as on cars, windows and on the ground. This nuisance dust is measured not in concentration but as mass over area (g/m^2) and are averaged over a year, however monthly monitoring is carried out and the following limits presented in Table 10 apply. If the existing dust deposition rate is unknown, then the maximum rate is used.

Table 10 - EPA Dust Deposition Rates

Criterion	Rate
Increment above existing rate	2g/m^2/month
Maximum rate	4g/m^2/month

7.3.3 Typical Equipment and Potential Dust Generation

The potential for dust generation from a range of typical site activities are presented below in Table 11. It would be expected that the greatest potential for airborne dust will be during the demolition and excavation stages. Some potential dust generation may occur during the concrete floor preparation stages before the façade is installed.

Table 11 – Typical Proposed Equipment

Equipment/Process	Airborne Dust Potential
Excavator w/ muncher	low*
Excavator w/ Bucket loading dump trucks/trailer	high
Excavator w/ Bucket stockpiling	medium
Excavator w/ Hydraulic Hammer	high
Uncovered dry stockpile	high
Dump trucks leaving site	medium
Excavator w/ Rock Saw	high
Piling (Auger)	minimal
Dump trucks leaving site	medium
Formwork removal, jump form movement	low
Drilling concrete slabs	medium
Jackhammering of concrete slabs	high
Grinding of concrete surfaces	high
Wet concrete cutting and coring	low**

Table Notes:

*potential for dust generated by falling elements

** Slurry must be cleaned or washed away so it doesn't form dry dust

7.4 CONSTRUCTION VIBRATION MANAGEMENT LEVELS

7.4.1 Amenity Management

Vibration goals for the amenity of nearby land users are those recommended by the EPA document *Assessing Vibration: A technical guideline.* These levels (extracted from Tables 2.2 and 2.4 of the guideline) are presented below for various types of vibration:

Table 12 -(Table 2.2 Assessing Vibration: A Technical Guideline) – Preferred and Maximum Weighted RMS Values for Continuous and Impulsive Vibration Acceleration (m/s2) 1-80Hz

Location	Assessment Period [1]	Preferred values		Maximum Values	
		z-axis	x- and y-axes	z-axis	x- and y-axes
Continuous Vibration					
Critical areas[2]	Day or night-time	0.0050	0.0036	0.010	0.0072
Residences	Daytime	0.010	0.0071	0.02	0.014
	Night-time	0.007	0.005	0.014	0.010
Offices, schools, educational institutions and places of worship	Day or night-time	0.020	0.014	0.040	0.028
Workshops	Day or night-time	0.04	0.029	0.080	0.058
Impulsive Vibration					
Critical areas[2]	Day or night-time	0.0050	0.0036	0.010	0.0072
Residences	Daytime	0.30	0.21	0.60	0.42
	Night-time	0.10	0.071	0.20	0.14
Offices, schools, educational institutions and places of worship	Day or night-time	0.64	0.46	1.28	0.92
Workshops	Day or night-time	0.64	0.46	1.28	0.92

1 Daytime is 7:00am to 10:00pm and night-time is 10:00pm to 7:00am.

2 Examples include hospital operating theatres and precision laboratories where sensitive operations are occurring. There may be cases where sensitive equipment or delicate task require more stringent criteria than the human comfort criteria specified above. Stipulation of such criteria is outside the scope of this policy, and other guidance documents (e.g. relevant standards) should be referred to. Source: BS6472-1992.

Table 13 -(Table 2.4 Assessing Vibration: A technical guideline) – Acceptable Vibration Dose Values for Intermittent Vibration (m/s1.75)

Location	Daytime[1]		Night-time[1]	
	Preferred value	Maximum Value	Preferred value	Maximum Value
Critical areas[2]	0.10	0.20	0.10	0.20
Residences	0.20	0.40	0.13	0.26
Offices, schools, educational institutions and places of worship	0.40	0.80	0.40	0.80
Workshops	0.80	1.60	0.80	1.60

1 Daytime is 7:00am to 10:00pm and night-time is 10:00pm to 7:00am.

2 Examples include hospital operating theatres and precision laboratories where sensitive operations are occurring. These criteria are only indicative, and there may be a need to assess intermittent values against the continuous or impulsive criteria for critical areas. Source: BS6472-1992.

7.4.2 Structure Damage Risk Criteria

7.4.2.1 Generally

German Standard DIN 4150-3 (2016) provides a guideline for acceptable levels of vibration velocity in building foundations, to assess the effects of vibration on structures. The table give guidance on the maximum accepted values of velocity at the foundation and in the plane of the highest floor of various types of buildings, to prevent any structural damage.

The table below lists the peak particle velocity, which is the maximum absolute value of the velocity signals for the three orthogonal components. This is measured as a maximum value of any of the three orthogonal component particle velocities when measured at the foundation, and the maximum levels measured in the x- and y-horizontal directions in the plane of the floor of the uppermost storey.

It is noted that if measured vibration levels are below the guidelines listed below, damage that will reduce the serviceability of the building will not occur and if damage to the building does occur, it is assumed that the damage is related to other activities or sources. Furthermore, the DIN4150-3 guideline states the following regarding the limits presented in Table 1 of the standard:

"Exceeding the guideline values does not necessarily lead to damage. Should they be exceeded, however, further investigations may be necessary, such as determining and evaluating the stresses as detailed in 4.3 and 4.4.".

Table 14 -(Table 1 – DIN 4150-3 (2016)) – Guideline Values for Vibration Velocity, $v_{i,max}$, for Evaluating the Effects of Short-Term Vibration on Structures

	TYPE OF STRUCTURE	Guideline values for $v_{i,max}$ in mm/s				
		Foundation, all directions, i = x, y, z, at a frequency of			Topmost floor, horizontal direction, i = x, y	Floor slabs, vertical direction, i = z
		1Hz to 10Hz	10Hz to 50Hz	50Hz to 100Hz [a]	All Frequencies	All Frequencies
L/C	1	2	3	4	5	6
1	Buildings used for commercial purposes, industrial buildings, and buildings of similar design	20	20 to 40	40 to 50	40	20
2	Residential buildings and buildings of similar design and/or occupancy	5	5 to 15	15 to 20	15	20
3	Structures that, because of their particular sensitivity to vibration, cannot be classified under lines 1 and 2 **and** are of great intrinsic value (e.g. listed buildings) buildings that are under a preservation order)	3	3 to 8	8 to 10	8	20[b]

NOTE Even if guideline values as in line 1, columns 2 to 5, are complied with, minor damage cannot be excluded.

a At frequencies above 100 Hz, the guideline values for 100 Hz can be applied as minimum values.

b It may be necessary to lower the guideline value markedly to prevent minor damage

7.4.3 Recommended Vibration Limits

The table below presents the recommended vibration limit at the nearest vibration sensitive receivers.

Table 15 – Recommended Vibration Limits

Receiver	Recommended Vibration Limit PPV (mm/s)
Residents Surrounding the Project Site R1 – R2	≤ 5mm/s PPV
Shoalhaven Community Pre-School & Cancer Overnight Stay	≤ 20mm/s PPV

7.5 PROPOSED WORKS

Construction of the proposed development includes:

Table 16 – Proposed Works Timeline

Phase	General Description of Works	Period of Works	Projected Timeline
Demolition	demolition and removal from site of existing structures	2 months	August to September 2023
Excavation	excavation of the site to allow construction of the basements and footings of the proposed structures, and excavation and installation of in-ground services	2 months	September to October 2023
Piling	installation of piles for the proposed structures	1.5 months	October to November 2023
Construction	erection of structure, façade, internal fit out and landscape works	2 years, 7 months	May 2023 to November 2025.

7.6 PROPOSED CONSTRUCTION HOURS

Construction of the works is proposed to occur during EPA ICNG "standard" work hours, these being Monday to Friday 7 am to 6 pm and Saturday 8 am to 1 pm, as outlined in the consent conditions above (refer to Section 3.2).

Work outside these hours may also occur under the following circumstances:

- by the Police or a public authority for the delivery of vehicles, plant or materials; or
- in an emergency to avoid the loss of life, damage to property or to prevent environmental harm; or
- where the works are inaudible at the nearest sensitive receivers; or
- where a variation is approved in advance in writing by the Planning Secretary or her nominee if appropriate justification is provided for the works.

7.7 NOISE AND VIBRATION SOURCES

The main noise and vibration sources relevant to each phase of the works have been identified, and are summarised below.

7.7.1 Phase 1 – Demolition

The main noise/vibration producing plant items likely to be used in this phase are summarised in the following table.

Table 17 – Primary Demolition Noise Sources

Phase/Activity	Plant	Sound Power Level dB(A)
Services strip out	Electric Hand Tools	104
	Bobcat	105
	Truck	105
Structure Demolition	20t Excavator mounted hydraulic hammer	122
	Excavator with bucket loading truck	107
	Truck@ 20 km/hr	110
	Truck Idling	105
	Pneumatic Jack Hammer	113
	Electric Hand Tools	104

7.7.2 Phase 2 – Excavation and Early Works

The main noise/vibration producing plant items likely to be used in this phase are summarised in the following table.

Table 18 – Excavation and Piling Noise Sources

Phase/Activity	Plant	Sound Power Level dB(A)
Piling	Piling Rig (Auger)	112
	Excavator loading truck	107
	Pneumatic Jack Hammer	113
	Truck@ 20 km/hr	110
	Truck	105
Excavation	Excavator	107
	20t Excavator mounted hydraulic hammer	122
	Rock Saw	118
	Truck@ 20 km/hr	110
	Truck Idling	105
	Hand tools	104
	Dewater pump (Truck water cart)	107

7.7.3 Phase 3 – Construction

The main noise/vibration producing plant items likely to be used in this phase are summarised in the following table.

Table 19 – Primary Construction Noise Sources

Phase/Activity	Plant	Sound Power Level dB(A)
Construction	Hand Tools	104
	Truck	105
	Elevated work platforms	97
	Forklifts/Materials handling	85
	Concrete Pump	109
	Concrete Truck	109
	Concrete Vibrator	113
	Tower Crane (Electric)	105
	Hoist	100

7.8 CONSTRUCTION NOISE ASSESSMENT

7.8.1 Predictions

Construction noise emissions to nearby development depend on the activities being undertaken at the time, and where on the site the activities occur.

Construction noise levels at the surrounding receivers have been predicted based on the following inputs.

- The plant sound power levels indicated in APPENDIX A. These have been corrected for estimated typical operation duty indicated in the table using 10 x log(% duty/100).
- Corrections for source to receiver distance attenuation including air absorption (20^{o}C , 70% RH, neutral wind conditions).
- Predictions assume there are no barriers (hoardings or natural).
- Source heights – 1.5m above the ground/building level of the noise source location, unless noted otherwise.

7.8.2 Predicted Noise Impacts

The predicted noise levels for each phase are summarised in the following tables below.

Table 20 – Predicted Noise Impacts – Demolition, Excavation and Piling

Location/Receiver	Highest Predicted Level dB(A) L_{eq}	NML dB(A) L_{eq}	HANML dB(A) L_{eq}	Requires Assessment of Additional Management
R1	54-81	45 (Standard Construction Hours) 40 (OOSH)	75	Yes
R2	45-67			Yes
R3	35-45			Yes
Cancer Centre Overnight Stay	48-71	65	-	Yes
Shoalhaven Community Pre-School (South-West)	≤45 internal 48-70 external	45 internal* 65 external in play area	-	No
AR1	37-62	55	-	Yes
Hospital Wards and Operating Theatres	≤54 47-79 external	45 Internal	-	Yes

* Assessed at 1.5m above ground level.

The predictions indicate that the NML's at the most impacted residences in R1 and R2 as well as internal hospital receivers will be exceeded most of the time, and the HANML's will be exceeded when louder plant is operating closer to the receivers. The NML will also be exceeded at the Cancer Care Centre and AR1, but the exceedances are smaller. Noise levels at the residential receivers at R3 and the Pre-school are not predicted to exceed the NML's.

Table 21 – Predicted Noise Impacts – Construction Phase

Location/Receiver	Highest Predicted Level dB(A) L_{eq}	NML dB(A) L_{eq}	HANML dB(A) L_{eq}	Requires Assessment of Additional Management
R1	50-72	45 (Standard Construction Hours) 40 (OOSH)	75	Yes
R2	30-58			Yes
R3	20-45			No for Std Hours
Cancer Centre Overnight Stay	29-62	65	75	No
Shoalhaven Community Pre-School (South-West)	≤40 Internal 29-65 external	45 internal* 65 external in play area	75	No
AR1	18-53	55	-	No
Hospital Wards and Operating Theatres	≤45 internal 28-70 external	45 Internal	-	No

* Assessed at 1.5m above ground level.

The predictions indicate that the NML's at the most impacted residences at R1 will be exceeded most of the time, but the HANML's will not be exceeded. Noise at the most impacted residences at R2 will receive noise levels exceeding the NML's during louder activities. Noise levels at the remaining receiver groups are not predicted to exceed the NML's.

7.8.3 Discussion

For internal hospital and R1 and R2 residences, this assessment indicates that feasible and reasonable noise mitigation would need to be investigated to by the contractor to minimise noise impacts, based on the procedures and methods in Section 9 and the ICNG. Additional measures are also required to address activities likely to exceed the HANMLs.

It is proposed to construct a Class A hoarding around part of the site (see Figure 2) (which would be a largely imperforate hoarding). The proposed hoardings would minimise noise emissions to the north and to the child care centre from the works and truck access, however the residences to the east and south east would not be protected. For this reason, it is recommended that the hoarding be extended as indicated in Figure 4.

Part of the boundary fencing is required to be gates for site access. These should be made of an imperforate material if possible (or a mesh with loaded vinyl facing fixed to the gates). The gates should be closed when practical to do so.

The proposed barriers would also not reduce noise to the upper levels of the hospital. For this receiver, management of noise and vibration will require the careful selection of equipment and processes to minimise emissions, and time management of activities determined in consultation with the Hospital.

A barrier is not proposed on the western side of the site (noise levels at the golf course will remain higher than the NML's) for the following reasons:

- Most of the activities producing noise levels exceeding the NML's will occur at the eastern end of the site, so the predicted highest noise levels exceeding the NML's will only occur for a limited period.
- The predictions do not take any barrier effects which will occur as work progresses within the excavation with rock occurring at lower levels.
- Only the eastern side of the golf course will be impacted.

The proposed barrier would reduce the predicted noise levels by 5 to 15 dB(A) depending on the location of the plant on the site, and the depth of the excavation at the time. This would minimise any exceedances above the NML's and prevent exceedances of the HANML. Notwithstanding, the consent requires that additional time restrictions be applied to highly intrusive plant which, in this case, would include:

- Demolition and rock excavation using excavator mounted hydraulic hammers.
- Use of rock saws

Other mitigation strategies (refer below) should be employed with the goal of minimising and exceedances of the NML's to the extent that it is feasible and reasonable.

7.9 CONSTRUCTION VIBRATION

7.9.1 Vibration Sources

The following sources in general have been identified as potentially producing significant ground vibration:

- Vibratory rollers
- Vibratory plate compactor
- Bore piling (in rock)
- Impacts from falling rocks/rubble
- Ripping (excavator with claw)
- Pneumatic jack hammer
- Hydraulic hammer (rock)

The remaining activities are not expected to produce significant ground vibration and/or are sufficiently separated from sensitive receivers. Vibration from these other activities are expected to be significantly below amenity or damage risk management levels at all receivers.

7.9.2 Assessment of Vibration

A precise assessment of vibration emissions from the proposed works is not possible due to the large number of unknowns including the actual equipment employed, how it is operated, site conditions, location on the site, etc.

In the absence of any specific equipment the generic minimum safe working distances are presented in Table 22 – Recommended Base Minimum Working Distances for Vibration Intensive Plant from Sensitive Receivers should be used with caution for guidance.

Vibration levels from machinery and processes should be verified on site prior to each stage of works as soil conditions may be different from the basis sources, particularly in respect of the hospital as this is the receiver most likely to be impacted by vibration. The site testing would verify the safe working distances and inform any management measures that may be required to mitigate any adverse impacts.

8 NOISE, DUST AND VIBRATION MANAGEMENT AND CONTROL

Project specific mitigation should be implemented to manage noise, dust and vibration impacts. These measures should be revised as the works proceed in response to changing or latent conditions and to incorporate the results of additional analysis, monitoring or modified work practices implemented to minimise impacts.

Management includes:

- Identification of sensitive receivers and applicable noise, dust and vibration management levels
- A description of the main noise or vibration producing activities, processes and equipment that will be employed and an indicative construction programme.
- Proposed construction hours.
- A prediction of likely noise/vibration levels at the most impacted receivers.
- The assessment and recommendation of mitigation methods to be applied where the predicted levels exceed the management levels, as indicated below.
- A monitoring plan including the type and extent of monitoring, reporting procedures.
- Recommended management procedures including complaints handling, response to monitoring exceedances, reporting, site training, etc.
- Community engagement/liaison.

The flow chart that follows illustrates the process followed to assess construction activities prior to the start of work on site, and for the ongoing investigation of noise, dust and vibration impacts during the construction period.

8.1 GENERAL NOISE CONTROL METHODS AND MANAGEMENT

The determination of appropriate additional noise control measures will be dependent on the particular activities and the construction equipment and plant identified as requiring future acoustic treatments to those already identified in this report. This section provides an outline of available methods which have previously been used on similar construction sites and may be possible on this site.

8.1.1 Selection of Alternate Appliance or Process

Where a particular activity or plant and equipment is found to generate noise levels that exceed the management levels, it may be possible to select an alternative approach or plant and equipment. For example; the use of excavator mounted hydraulic hammers of the site may potentially generate high levels of noise. By carrying this activity by using concrete saws or smaller plant here practical, construction noise levels and/or length of exposure to construction noise levels may be reduced.

8.1.2 Acoustic Barriers

The placement of barriers at the source is generally only effective for static plant. Placing barriers at the source cannot effectively attenuate equipment which is on the move or working in rough or undulating terrain.

The degree of noise reduction provided by barriers is dependent on the amount by which the line of sight can be blocked by the barrier. If the receiver is totally shielded from the noise source reductions of up to 15 dB(A) can be effected. Where only partial obstruction of line of sight occurs, noise reductions of 5 to 8 dB(A) may be achieved. Where the barrier does not obstruct line of sight, generally no noise reduction will occur.

Barriers are used to provide shielding and do not act as an enclosure. The material they are constructed from should have a noise reduction performance which is approximately 10dB(A) greater than the maximum reduction provided by the barrier screening. In this case, the use of a material such as 15mm plywood (or equivalent material) would be acceptable for the barriers.

8.1.3 Silencing Devices

Where construction methodologies or plant and equipment permit, investigate the use of silencing devices. These may take the form of engine shrouding, or special industrial silencers fitted to exhausts, for example.

8.1.4 Treatment of Specific Equipment

In certain cases it may be possible to specially treat a piece of equipment to dramatically reduce the sound levels emitted.

8.1.5 Establishment of Site Practices

This involves the formulation of work practices to reduce noise generation. This includes, for example, investigating the possibility of locating fixed plant items as far as possible from residents, rotating plant and activities to provide respite to receivers, scheduling activities after the construction of buildings that will screen receivers, avoiding noise sensitive periods for receivers, identify "safe" working distances, etc.

8.2 DUST MANAGEMENT

The following principles should be considered to manage adverse dust impacts:

- Reduce or cease work if any dust plumes are observed offsite in the direction of any sensitive receivers.
- Weekly inspections for dust build-up on surfaces within the surrounding hospital precinct.
- Regular dust suppression using water sprayers and/or perimeter sprinkler systems

8.3 VIBRATION MANAGEMENT

The following principles should be considered to manage adverse vibration impacts identified:

- Obtaining separate structural or specialist advice for critical or fragile structures as to the level of damage risk.
- Selection of processes that minimise structure and ground vibration – generally avoiding percussive methods.
- Use smallest plant that is able to efficiently undertake the work activity.
- Lay vibration absorbing mats to cushion impacts from falling debris.
- Application of vibration dampening pads to metal surfaces subject to impacts.
- When demolishing, cut control joints in structures to form vibration "breaks", or work away from sensitive receiver locations to form natural vibration breaks in propagation path.
- Monitoring of structures using attended and/or unattended monitors with alarms.
- Time scheduling works to minimise amenity impacts.
- Communicating with affected receivers.
- Identify "safe" working distances to sensitive receivers/structures for various activities by conducting site simulation tests, and limiting activities within those distances to those that are not likely to exceed vibration goals. Vary locations/equipment/techniques used as determined by the simulation testing. The following table provides an initial guide to working distances that should be confirmed by site measurement.

8.4 NOISE AND VIBRATION MONITORING, REPORTING AND RESPONSE PROCEDURES

Noise and vibration monitoring may either consist of manned and/or unmanned measurements. Active monitoring may be undertaken during the construction work phase of the project if required in the event complaints are received from neighbours.

In the event that complaints are received from neighbours the following process should be considered:

1. Assessing impacts and determining the offending plant/equipment/process and.
2. Locating the plant/equipment/process further away from the affected receiver(s) if possible.
3. Implementing additional acoustic treatment in the form of localised barriers, silencers etc.
4. Selecting alternative equipment/processes

Where monitoring is required and indicates exceedances of the predicted noise impacts immediate action should be taken to identify any further controls as required to reduce noise emissions so that the noise limits are complied with. Monitoring of the activities following the implementation of these additional controls will be undertaken to confirm compliance.

Refer below for site specific recommendations for this project.

8.4.1 Reporting Requirements

The following is an example of reporting which may be kept on site:

1. A register of complaints received/communication with the local community shall be maintained and kept on site with information as detailed below.
2. Where noise/vibration complaints require noise/vibration monitoring, results from monitoring shall be retained on site at all times.
3. Any noise exceedances occurring including, the actions taken and results of follow up monitoring.
4. A report detailing complaints received and actions taken shall be presented.
5. All monitoring and reporting shall be conducted in conjunction with the conditions of consent.

8.4.2 Response Procedures

Complaints associated with noise and vibration generated by site activities shall be recorded on a Noise Complaint Form. The person(s) responsible for complaint handling and contact details for receiving of complaints shall be established on site prior to construction works commencing. A sign shall be displayed at the site indicating the Site Manager and the general public and their contact telephone number.

If a noise complaint is received the complaint should be recorded on a Noise Complaint Form. The complaint form may list:

- The name and address of the complainant (if provided).
- The time and date the complaint was received.
- The nature of the complaint and the time and date the noise was heard.
- The name of the employee who received the complaint.
- Actions taken to investigate the complaint, and a summary of the results of the investigation.
- Indicate what operations were occurring on site at the time of the complaint.
- Required remedial action, if required
- Validation of the remedial action.
- Summary of feedback to the complainant.

8.4.3 Notification

Notification of affected receivers of the progress of works, particularly when short-term activities likely to create higher noise levels occur, can in many cases minimise community reaction.

8.5 COMMUNITY ENGAGEMENT

Community engagement is an important aspect of construction noise, dust and vibration management to:

- Identify stakeholders, sensitive receivers and their particular concerns.
- Assist in co-ordinating construction activities to address concerns and avoid sensitive periods (during school exams, for example).
- Provide ongoing information to the community about the progress of works, timing of "noisy" works, etc so that feedback can be obtained. In many cases, community concerns can be minimised by providing advance knowledge of construction activities and the period over which those activities will occur.
- Obtaining feedback and suggestions from the community.

The following measures are recommended:

- Have procedures in place to advise the community of all construction activities where there will be extended periods of time with high levels of noise.
- Provide regular project newsletters, emails and notifications in the local newspaper throughout the construction of the new hospital in addition to notifying local residents of any out of hours works.
- Establish a dedicated project email address and 1800 number to provide the community 24/7 access to the team.
- Engagement with Hospital management, given that it is unlikely that noise emissions can be fully ameliorated by minimising noise emissions by adopting the recommended noise management and control methods mentioned above, and to determine locations to be monitored during construction for noise and/or vibration.

Table 22 – Recommended Base Minimum Working Distances for Vibration Intensive Plant from Sensitive Receivers

Plant item	Rating / Description	Minimum Working Distance			
		Cosmetic Damage			Human Response
		Light-Framed Structure (BS 7385)	Residential Structures (DIN 4150)	Heritage and Other Sensitive Structures (DIN 4150)	NSW EPA's Vibration Guideline
Vibratory Roller	< 50 kN (Typically 1-2 tonnes)	5 m	18.5	14 m	15m
	< 100 kN (Typically 2-4 tonnes)	6 m	17.8	16 m	20 m
	< 200 kN (Typically 4-6 tonnes)	12 m	43	33 m	40 m
	< 300 kN (Typically 7-13 tonnes)	15 m	51.5	41 m	100 m
	> 300 kN (Typically 13-18 tonnes)	20 m	-	54 m	100 m
	> 300 kN (> 18 tonnes)	25 m	-	68 m	100 m
Small Hydraulic Hammer	(300 kg - 5 to 12t excavator)	2 m	-	5 m	7 m
Medium Hydraulic Hammer	(900 kg – 12 to 18t excavator)	7 m	-	19 m	23 m
Large Hydraulic Hammer	(1600 kg – 18 to 34t excavator)	22 m	-	60 m	73 m
Vibratory Pile Driver	Sheet piles	20 m	-	50 m	100 m
Pile Boring	≤ 800 mm	2 m (nominal)	-	5 m	7 m
Jackhammer	Hand held	1 m (nominal)	-	2 m	3 m
Profiler	Wirtgen W210	4 m	-	-	-
Asphalt Paver	Vogele Super 1800-3	1 m	-	-	-
Steel Drum Roller	Hamm HD70 (Oscillating Mode)	2 m	-	-	-
Steel Drum Roller	Hamm HD70 (Static Mode)	1 m	-	-	-

8.6 SUMMARY OF SITE-SPECIFIC MITIGATION

In addition to the general strategies nominated above, and the additional time management of activities required by the consent, the project specific mitigation and management recommended to be adopted are summarised below.

8.6.1 Physical Controls

To mitigate noise emissions to surrounding R1 residences, Class A hoarding is recommended to be installed to the extent outlined within the figure below, noting that where site access gates are proposed, these should be made of an imperforate material if possible (or a mesh with loaded vinyl facing fixed to the gates). The gates should be closed when practical to do so.

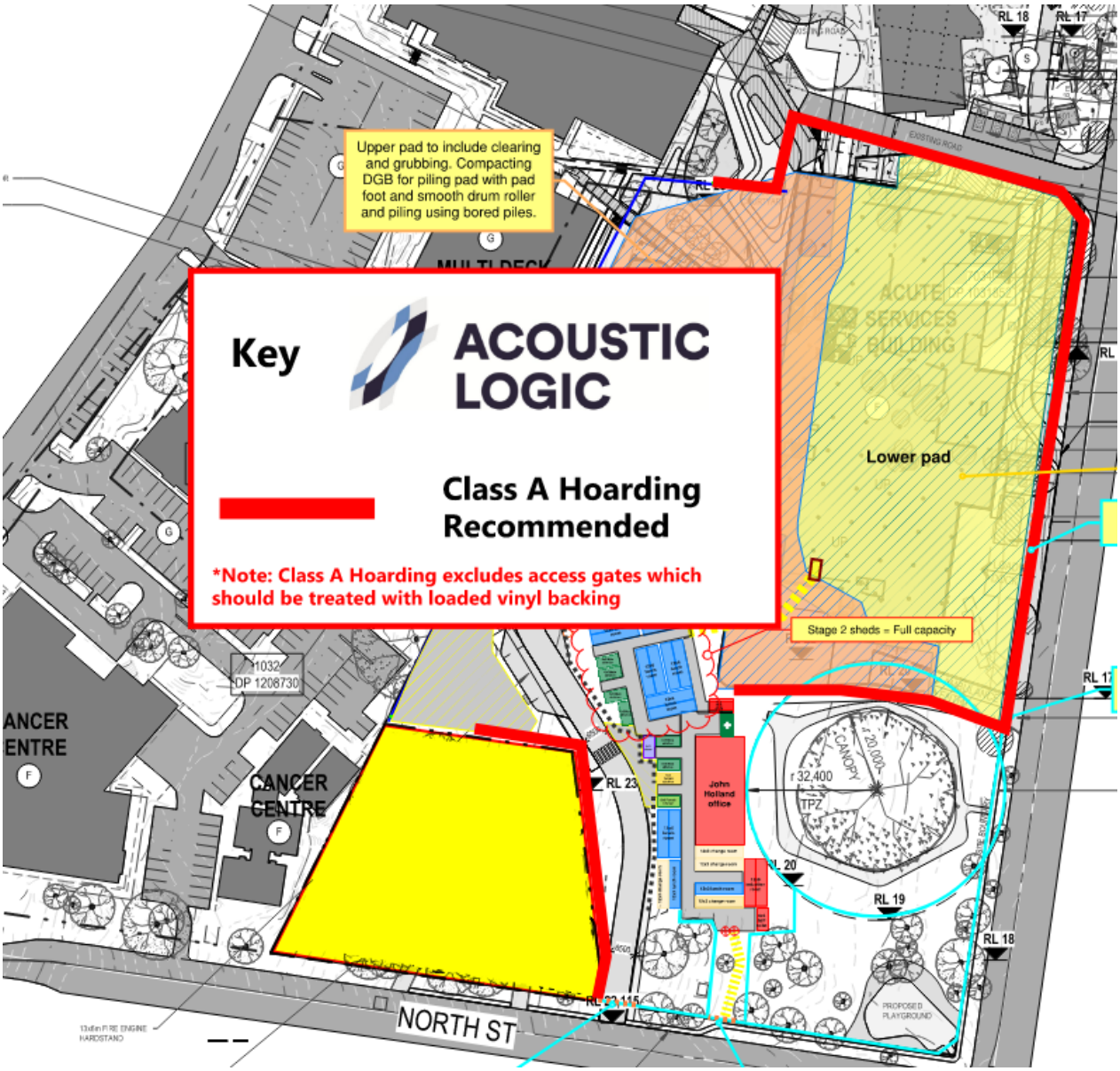


Figure 4 – Recommended Hoarding Markup

8.6.2 Recommended Monitoring

Preliminary recommended long-term monitoring locations are outlined below and are subject to preliminary measurements, complaints and staging. Additional monitoring may be required in response to complaints, location of sensitive areas within the hospital (e.g., operating theatres, MRI scanning rooms, etc.), site conditions, etc.

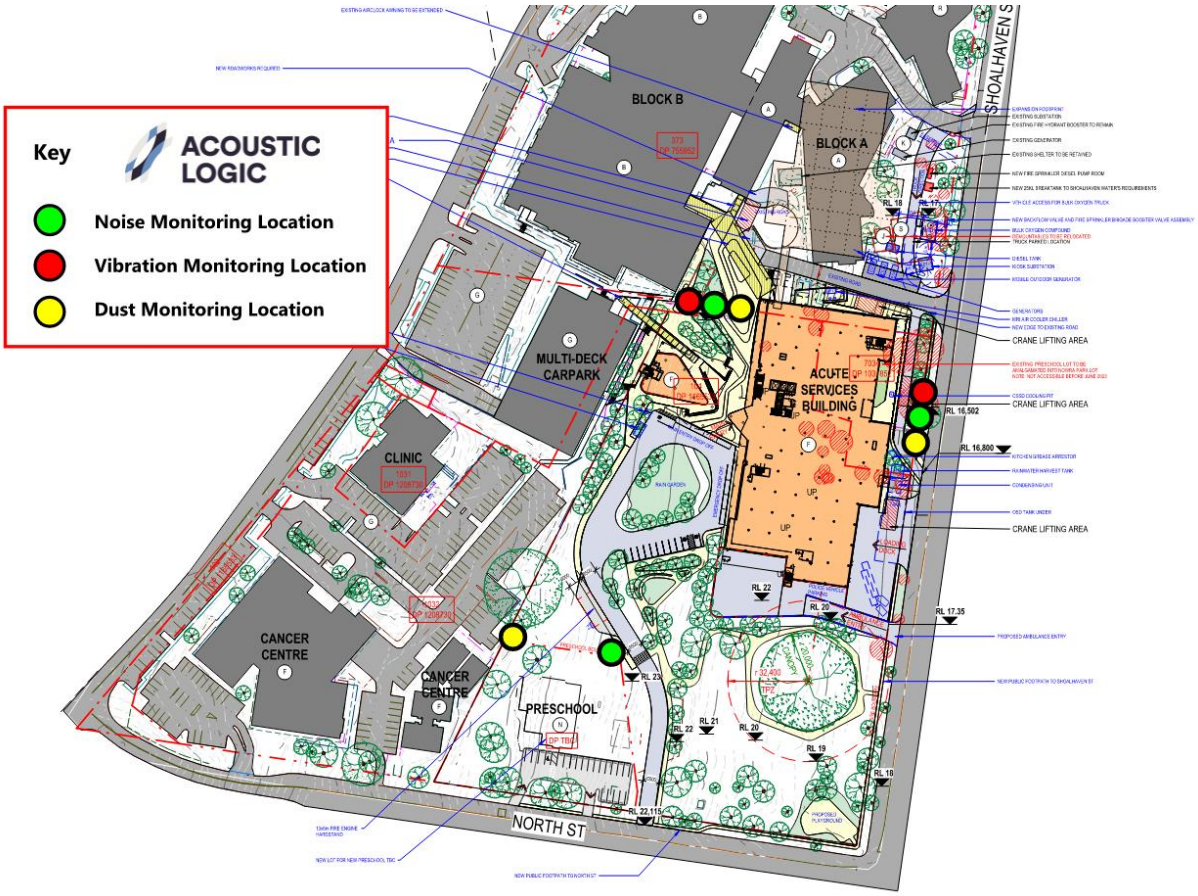


Figure 5 – Recommended Noise, Dust and Vibration Monitoring Locations (Preliminary)

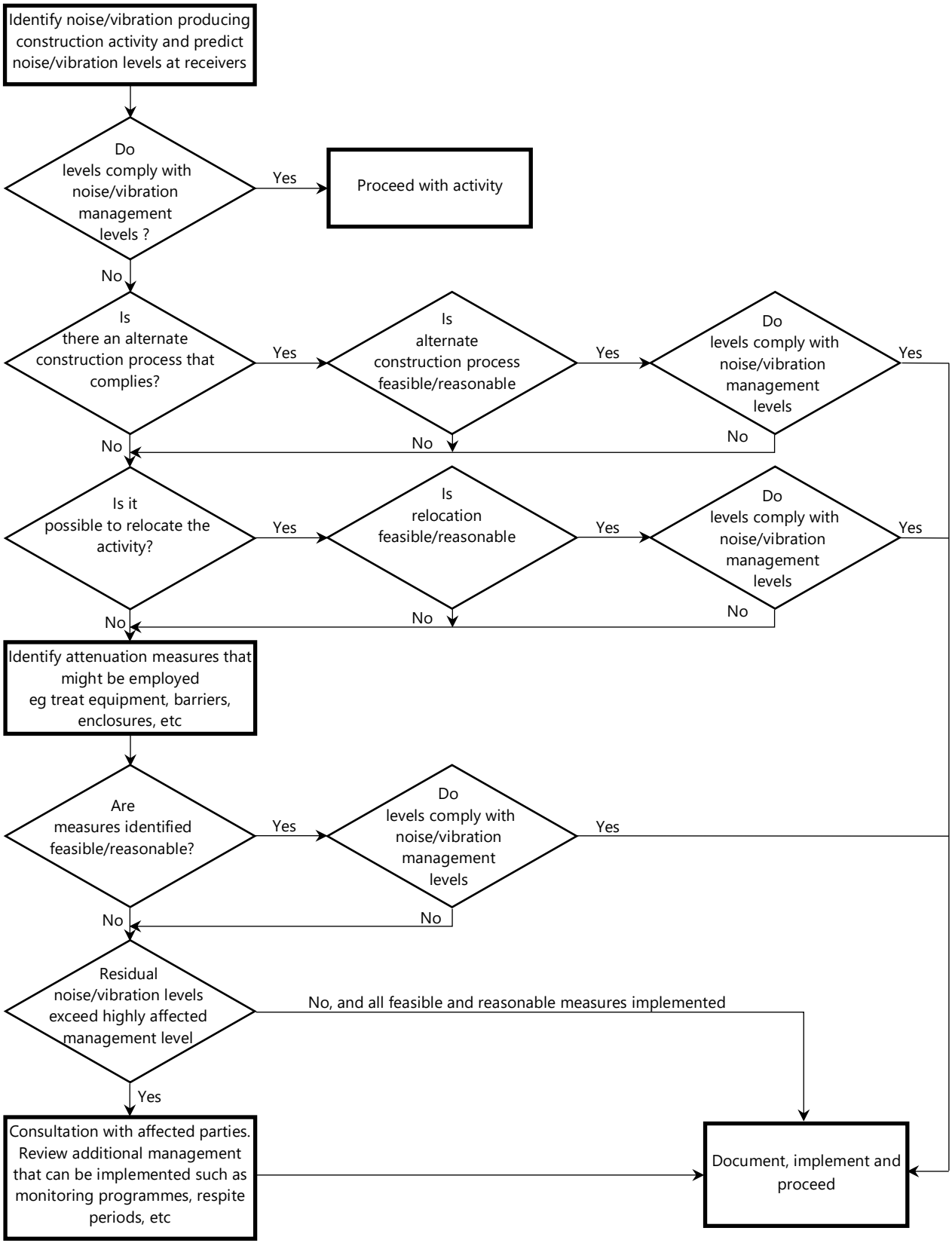
As a minimum, long – term monitoring is expected to be conducted along the site boundary opposite R1 as well as externally adjacent to Blocks A and B.

8.6.3 Ongoing Assessment and Advice

Ongoing assessment and advice is recommended in response to:

- Changes in work methods and equipment in response to site conditions, staging of works.
- Response to complaints.
- Additional site investigations including vibration safe work distance confirmations, mitigation treatment investigations, etc.

These investigations may result in changes to the plan which should be implemented as additional site information becomes available.



Noise and Vibration Management Flow Chart

9 CONCLUSION

This report assesses potential noise, dust and vibration impacts from the construction of the proposed development at the Shoalhaven Hospital Redevelopment Project. The assessment uses the methodology contained in the EPA IGNG to determine appropriate noise, dust and vibration management levels and identify those activities that are likely to impact nearby receivers.

The outcomes of the assessment have been used to prepare a management plan that should be adopted and refined as works proceed to minimise impacts to the extent that it is feasible and reasonable.

The assessment indicates that:

- There will be receivers around the site (as identified in the assessment) that will be exposed to noise levels exceeding using IGNG management levels and mitigation of these impacts has been recommended in the Plan.
- There will be receivers around the site that will be exposed to vibration levels exceeding the relevant vibration management levels for amenity, but not likely to exceed the damage risk vibration limits. Accordingly, as required by the ICNG, mitigation of these impacts has been recommended.

It is concluded that with the implementation of the mitigation and ongoing assessment recommended in Section 8, construction noise, dust and vibration emissions from the proposed development will be minimised in accordance with the IGNG.

We trust this information is satisfactory. Please contact us should you have any further queries.

Yours faithfully,

Acoustic Logic Pty Ltd
Victor Fattoretto
MAAS

APPENDIX A CONSTRUCTION PLANT NOISE AND VIBRATION EMISSION LEVELS

This section provides the plant noise and vibration emission levels adopted in the assessment.

B.1 NOISE

The following table presents typical sound power levels for construction plant used in this assessment.

The following have been considered to establish typical plant A-weighted sound power levels:

- Transport for NSW Construction Noise and Vibration Strategy (April 2018).
- Previous measurements undertaken by Acoustic Logic.
- AS 2436-2010 "Guide to noise and vibration control on construction, demolition and maintenance sites (Appendix A).

The equipment sound power spectra are based on information in the DEFRA database, and when not available from that source, from manufacturer's data or from measured spectra taken by this office of similar machinery.

Items identified as having annoying characteristics have been penalised by adding 5dB to the levels in the Transport for NSW's noise data base.

The emission levels in the table assume that machinery operates continuously (i.e. 100% duty), which is not always be the case. For example, excavators may load trucks intermittently for 5 minutes in every 15-minute assessment period so their duty would be 33%. The duty correction used in the assessment is indicated in the table.

Construction, Demolition and Civil works Machinery Effective Sound Power Levels based on Continuous operation (100% duty)

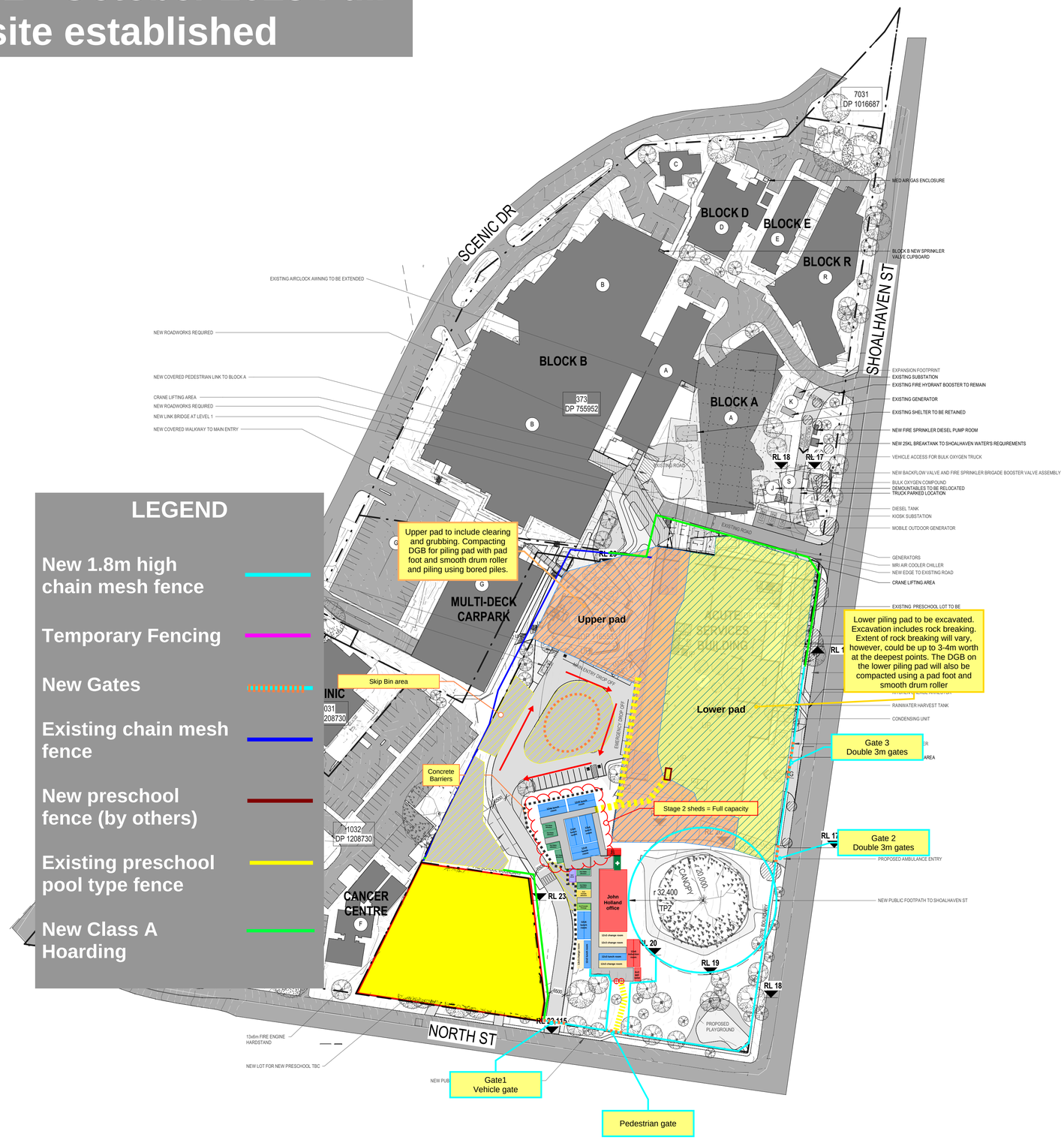
Equipment	Approx. Size/ Weight/Model	Sound Power Level (dBA) 100% Duty (inc Penalties)	Duty	Unweighted Octave Band Sound Power Levels, dB (includes Applicable Penalties)							
				63	125	250	500	1000	2000	4000	8000
Asphalt - Truck & Sprayer	-	106	100%	112	110	104	102	99	97	100	92
Backhoe	-	111	66%	113	107	103	111	104	103	98	94
Chainsaw – petrol*	4-5hp	114	50%	92	106	103	111	113	114	112	109
Compactor	-	106	100%	99	101	97	100	100	100	96	93
Compressor	-	109	25%	127	116	107	102	100	98	101	90
Crane - Fixed	-	113	50%	120	115	116	112	106	99	93	87
Crane - Franna	20 tonne	98	50%	108	104	99	91	92	91	84	78
Crane - Mobile	-	113	25%	115	114	108	109	108	108	99	90
Crane - Truck mounted	20 to 60 tonne	108	25%	112	109	107	105	103	100	95	87
Crusher – Rock*	-	118	100%	135	128	121	123	117	113	108	101
Dozer	CAT D9	116	75%	112	116	114	114	111	108	102	94
Dozer	CAT D10	121	75%	130	131	122	114	115	111	109	105
Elevated work platform - scissor lift	-	98	10%	100	97	94	94	94	91	85	83
Elevated work platform	-	97	10%	108	106	92	93	90	89	88	79
Excavator - tracked	3 tonne	90	75%	101	91	88	88	85	83	78	72
Excavator - tracked	6 tonne	95	75%	102	104	95	89	89	87	82	77
As above + hydraulic hammer*	6 tonne	115	75%	110	113	110	114	117	113	111	106
Excavator - tracked	10 tonne	100	100%	104	100	99	97	95	92	86	81
As above + hydraulic hammer*	10 tonne	118	75%	124	124	121	116	118	116	114	109
Excavator - tracked	20 tonne	105	75%	107	114	106	101	98	97	93	90
Excavator - tracked	30 tonne	110	75%	113	113	107	107	105	102	97	91
As above + hydraulic hammer*	-	122	75%	125	123	119	123	121	121	118	114
Excavator - tracked	40 tonne	115	75%	111	114	113	110	110	109	104	97
Grader	-	113	100%	114	113	109	105	110	104	100	91
Generator - diesel/petrol	6kW	103	100%	115	110	102	98	97	95	92	80

Generator - attenuated	30kW	92	100%	95	95	93	86	85	86	82	79
Grinder*	-	105	50%	86	80	81	89	99	106	102	102
Jackhammer	-	113	75%	108	97	93	96	96	101	109	110
Lighting Tower	-	80	100%	73	73	73	73	73	73	73	73
Lighting - Daymakers	-	98	100%	110	105	97	93	92	90	87	75
Light Vehicle - 4WD	-	103	10%	96	96	96	96	96	96	96	96
Line Marking Truck	-	108	100%	114	112	106	104	101	99	102	94
Loader - Front-end (wheeled)	23 tonne	112	75%	118	118	107	109	105	103	102	94
Loader - Skidsteer	1/2 tonne	107	75%	112	115	104	106	101	98	92	92
Loaders - Skidsteer	1 tonne	110	75%	113	104	108	108	104	103	97	91
Loader - Tracked	0 to 50 kW	115	75%	108	108	108	108	108	108	108	108
Loaders- Tracked	200 to 300 kW	121	75%	114	114	114	114	114	114	114	114
Pavement Laying Machine	-	114	100%	117	114	111	110	109	106	104	95
Pavement Profiler	-	117	100%	116	122	114	112	112	109	105	102
Pile Driver – Vibratory*	-	121	50%	121	120	117	120	122	120	115	105
Piling Rig - Bored	-	112	100%	112	120	109	108	106	104	96	89
Piling Rig Lmax – Impact*	-	151	n/a	137	138	143	152	152	148	143	138
Piling Rig Leq- Impact*	-	134	100%	124	125	128	135	135	132	127	121
Pump - Concrete	-	109	100%	115	107	101	102	104	104	97	89
Rattle gun (hand held)	-	104	50%	82	81	81	87	96	98	98	98
Roller - smooth drum	-	107	100%	114	112	102	100	102	100	96	90
Roller - large pad foot	-	109	100%	120	111	103	107	105	98	95	89
Roller – Vibratory*	10 tonne	109	100%	125	116	108	112	110	103	100	94
Saw – Concrete*	-	118	75%	120	122	114	114	113	114	118	116
Scraper/Grader	-	113	100%	120	122	113	107	107	105	100	95
Truck - Concrete	-	109	100%	112	103	95	98	99	107	89	84
Truck - Dump	15 tonne	110	10%	114	111	111	107	104	103	97	90
Truck - Medium rigid	20 tonne	103	10%	109	107	101	99	96	94	97	89
Truck - road truck/ truck and dog	30 tonne	108	10%	123	109	101	100	104	99	98	91

Truck - Vacuum (NDD or non-destructive digger)	-	109	75%	111	112	97	102	101	104	103	96
Tub Grinder/Mulcher	40-50hp	116	100%	105	106	110	110	112	111	105	96
Vibrator – Concrete*	-	113	100%	122	120	120	113	109	112	110	105
Water Cart	-	107	100%	106	107	101	105	99	100	96	91
Welding equipment	-	110	50%	104	105	106	105	106	103	98	93
Wrench - Impact	-	111	50%	81	84	89	91	95	101	107	107

APPENDIX B – REFERENCED DOCUMENTATION

Site Establishment plan Phase 2 - October 2023 Full site established



LEGEND

- New 1.8m high chain mesh fence
- Temporary Fencing
- New Gates
- Existing chain mesh fence
- New preschool fence (by others)
- Existing preschool pool type fence
- New Class A Hoarding

JOHN HOLLAND

Conrad Gargett

Legend

- NEW BUILD
- EXISTING BUILDINGS
- BUILDING LINKS
- LANDSCAPING
- EXISTING ROADS
- NEW ROADS / HARDSTAND
- PAVED AREAS

ALL EXTERNAL PLINTHS FOR SERVICES SHOWN INDICATIVELY, SIZE AND LOCATION TO BE CONFIRMED WITH SPECIFIC CONSULTANT

Revision

REV	DESCRIPTION	DATE	INT.
6	ISSUED FOR INFORMATION	18.02.22	CL
7	ISSUED FOR INFORMATION	25.02.22	JZ
8	ISSUED FOR INFORMATION	04.03.22	CL
9	ISSUED FOR INFORMATION	01.04.22	JZ
10	ISSUED FOR INFORMATION	14.04.22	JZ
11	50% ARCHITECTURAL ISSUE	16.06.22	JZ
12	70% ARCHITECTURAL ISSUE	21.07.22	JZ
13	ISSUED FOR DA APPROVAL	28.07.22	JZ
14	80% ARCHITECTURAL ISSUE	08.08.22	JZ
15	ISSUED FOR TENDER	26.08.22	JZ

KEY PLAN

Project

SDMH Shoalhaven District Memorial Hospital
Scenic Dr, Nowra NSW 2541

Client

NSW GOVERNMENT Health Illawarra Shoalhaven Local Health District

NSW GOVERNMENT Health Infrastructure

Project Manager / Contract Administrator

JOHNSTAFF

Managing Contractor

Building
PRJ

Drawing
SITE PLAN

A1 Scale 1 : 1000
Project No. 20278
Issue 15

Drawing No.
PRJ-TD-DR-AR-00004

FOR TENDER

Details

10 0 10 20 30 40 50 60 70
SCALE 1: 1000 m
Scale at A1

TOTAL TREES REMOVED FROM DEVELOPMENT SITE: 31

Conrad Gargett

Legend

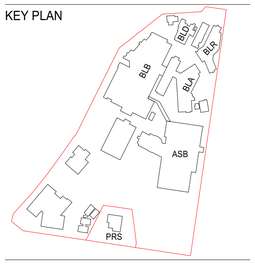
- NEW BUILD
- EXISTING BUILDINGS
- BUILDING LINKS
- LANDSCAPING
- EXISTING ROADS
- NEW ROADS / HARDSTAND
- PAVED AREAS

ALL EXTERNAL PLINTHS FOR SERVICES SHOWN INDICATIVELY, SIZE AND LOCATION TO BE CONFIRMED WITH SPECIFIC CONSULTANT

Revision

REV	DESCRIPTION	DATE	INT.
7	ISSUED FOR INFORMATION	25.02.22	JZ
8	ISSUED FOR INFORMATION	04.03.22	CL
9	ISSUED FOR INFORMATION	01.04.22	JZ
10	ISSUED FOR INFORMATION	14.04.22	JZ
11	50% ARCHITECTURAL ISSUE	16.06.22	JZ
12	70% ARCHITECTURAL ISSUE	21.07.22	JZ
13	ISSUED FOR DA APPROVAL	28.07.22	JZ
14	80% ARCHITECTURAL ISSUE	08.08.22	JZ
15	ISSUED FOR TENDER	26.08.22	JZ
16	ISSUED FOR TENDER UPDATE	27.09.22	JZ

KEY PLAN



Project

SDMH Shoalhaven District Memorial Hospital
Scenic Dr, Nowra NSW 2541

Client

NSW GOVERNMENT Health Illawarra Shoalhaven Local Health District

NSW GOVERNMENT Health Infrastructure

Project Manager / Contract Administrator

JOHNSTAFF

Managing Contractor

Building
PRJ
Drawing
SITE PLAN

FOR TENDER

A1 Scale 1 : 1000
Project No. 20278
Issue 16

Drawing No.
PRJ-TD-DR-AR-00004

Details

10 0 10 20 30 40 50 60 70
SCALE 1 : 1000 m
Scale at A1

HEALTH INFRASTRUCTURE

Shoalhaven Hospital Redevelopment Project

State Significant Development Application Engagement Report

15/06/2022

Version 1

NSW GOVERNMENT

Contents

Contents 2
Executive Summary 3
Secretary's Environmental Assessment Requirements 3
Background 5
Purpose 5
Project description 6
Scope of works 7
The Site 8
Project milestones 8
Engagement 9
Objectives 9
Engagement Approach 10
Engagement undertaken 12
Internal stakeholder engagement 12
External engagement 13
Key project issues and outcomes 16
Next steps 20

Executive Summary

Health Infrastructure NSW (HI) is the applicant for the proposed Shoalhaven District Memorial Hospital Redevelopment (Shoalhaven Hospital) at Scenic Drive, Nowra in the City of Shoalhaven Local Government Area (LGA).

The proposal is State Significant Development (SSD) for the purposes of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and section 14(a) of Schedule 1 of the *State Environmental Planning Policy (Planning Systems) 2021* (Planning Systems SEPP) as it involves development for the purposes of a hospital with a capital investment value in excess of $30 million.

The Shoalhaven Hospital Redevelopment seeks to deliver significantly enhanced acute services, as well as a new campus main entry and drop-off area.

The proposed Acute Services Building will be located south and east of the hospital's existing cluster of buildings and will address Shoalhaven Street to the hospital's east. The development is proposed to be located on the site of the existing Shoalhaven Community Preschool (which will be separately relocated) and part of the former Nowra Park.

The proposed Shoalhaven Hospital Redevelopment under this SSD relates primarily to the development of a new hospital building and its ancillary works. The scope includes a new seven-level building of about 31,000m2 GFA, with rooftop plant and helipad, generally accommodating the following:

Level	Detail
Level 00	Back of House (BOH), loading dock, kitchen, plant, pharmacy, staff amenities, mortuary and plant
Level 01	Front of House (FOH), emergency department (ED), medical imaging and cafe
Level 02	Operating suites and endoscopy, central sterile supply department (CSSD) and linkway to Block B
Level 03	Coronary care unit (CCU), close observation unit (COI), intensive care unit (ICU), cultural centre and plant
Level 04	In-patient unit (IPU), mental health and plant
Level 05	IPU
Level 06	IPU
Level 07	Rooftop plant
Level 08	Helipad

This generally results in 279 new beds and treatment spaces across a range of departments, eight new operating theatres, and two new endoscopy theatres. The works include a new ambulance entry from Shoalhaven Street, new public and servicing accessway off North Street, and separate loading dock entry and mortuary parking off Shoalhaven Street.

A range of infrastructure and civil engineering works are proposed as well as demolition of existing structures within the footprint of the new building and/or on the existing hospital campus where a new linkway connection is proposed. Earthworks will be necessitated within the building's footprint and immediate environs.

Subdivision of the balance of Lot 104 (the former Nowra Park) remaining and consolidation of the existing pre-school lot into the hospital lot is also proposed.

A number of selected trees will require removal. Other significant trees will be retained and protected. Replacement planting at a minimum rate of 1:1 is proposed.

Secretary's Environmental Assessment Requirements

This Engagement Report supports a State Significant Development Application (SSDA) for the proposed Shoalhaven Hospital Redevelopment (reference SSD-35999468) at land identified as 2 Scenic Drive, Nowra, NSW. The applicant is Johnstaff, on behalf of NSW Health Infrastructure.

The proposal is for the detailed design and construction of the redevelopment of the Shoalhaven Hospital. The redevelopment seeks to provide additional services, including a new Emergency Department and Emergency short-stay unit, Intensive Care Unit and operating theatres, among others.

This report addresses the requirement for community and stakeholder engagement specified in the Department of Planning and Environment's Secretary's Environmental Assessment Requirements (SEARs) for the project, issued on 23 February 2022. It follows the principles set out in the *Undertaking Engagement Guidelines for State Significant Projects.*

SEARs	Section or Report
Detail engagement undertaken and demonstrate how it was consistent with the *Undertaking Engagement Guidelines for State Significant Projects*. Detail how issues raised, and feedback provided have been considered and responded to in the project. In particular, applicants must consult with:	This report
The relevant Department assessment team	Environmental Impact Statement (EIS)
Any relevant local councils	EIS
Any relevant agencies	EIS and specific technical reports
The community	This report

Shoalhaven Hospital staff pop-up stall

Background

Purpose

This Engagement Report, developed specifically for the Shoalhaven Hospital Redevelopment project, outlines the engagement activity that has been undertaken during the preparation of the State Significant Development Application (SSDA) to meet the Secretary's Environmental Assessment Requirements (SEARs). The Shoalhaven Hospital Redevelopment project is considered a State Significant Development (SSD) and recognises the need for meaningful, proportionate and tailored engagement.

The aim of this report is to:

- Demonstrate a clearly planned and timely approach to engagement
- Outline the community and stakeholder engagement undertaken that has informed the development of the proposal and contributed to better outcomes
- Report on how engagement has shaped the project under assessment.

Consistent, transparent and proactive communications and engagement are essential to delivering a successful project outcome. Engaging with the right people at the right time informs project planning, design and delivery, as well as links the community, stakeholders and consumers at all levels of the health system to the project

The Shoalhaven Hospital Redevelopment project engagement has helped the project team understand and identify potential issues and develop mitigation measures to address them.

Artists' impression of the new hospital

Project description

The NSW Government has committed $438 million for the redevelopment of Shoalhaven Hospital, which will strengthen its position as the health hub for the region, providing the majority of emergency, critical care, acute, sub-acute and non-admitted services locally, reducing the need to transfer patients to Wollongong and Sydney.

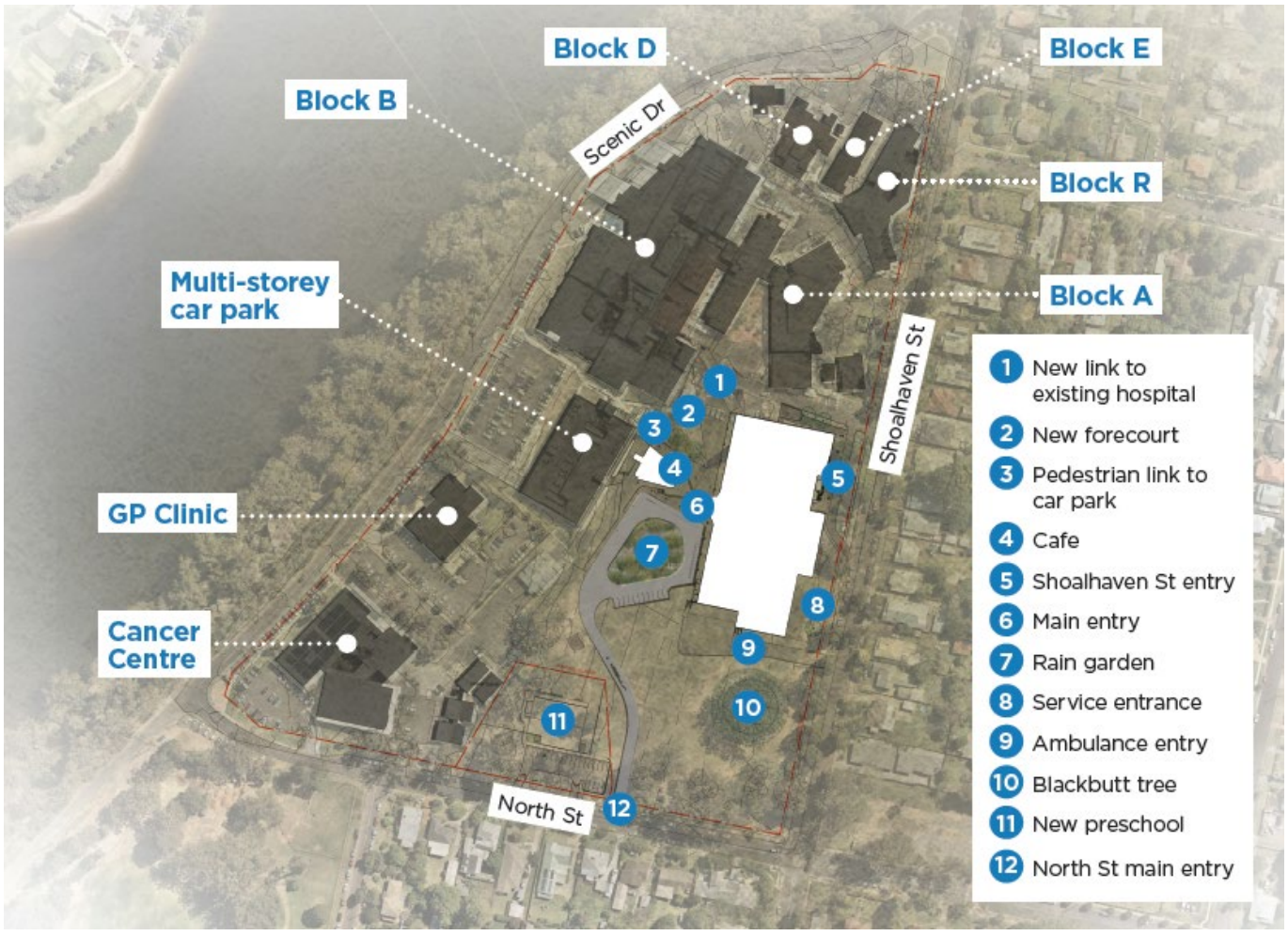
The redeveloped Shoalhaven Hospital will deliver state-of-the-art medical care for residents, including a new emergency department, medical wards, dedicated Mental Health ward, cardiology ward and diagnostic suite and double the number of operating theatres and expanded surgical services. A new building for acute care services will be directly connected to the existing hospital, which will undergo varying levels of refurbishment.

These new and expanded services will mean more capacity for emergency and elective surgery and access to more specialised staff, equipment and technology. Health services in the region will be more self-sufficient, giving residents access to more services locally so they don't have to leave the region for treatment.

The Hospital will continue to be linked with Wollongong Hospital and the new Shellharbour Hospital as part of a District-wide network.

The new and expanded hospital will address:

- Current capacity constraints
- Issues of access and equity, and the need for patients to travel out of the region for care
- Increases in acute activity and response to ageing population and increasing demand for medical and surgical services.



Site map

Scope of works

The redevelopment will deliver:

- A new emergency department (ED) and emergency short-stay unit to improve patient flow and reduce wait times
- New state-of-the-art intensive care unit (ICU)
- Theatres and endoscopy procedure rooms which will double in number
- A dedicated cardiology inpatient unit (IPU), coronary care unit and catheterisation lab
- A new vascular surgery service and expanded orthopaedic, general surgery and urology services
- Overnight surgical IPUs and a dedicated day surgery unit
- New medical IPUs for specialties including gastroenterology, respiratory, oncology, endocrinology, and general medicine
- A new acute mental health IPU
- A psychiatric emergency care centre for emergency and crisis response adjacent to the ED
- An expanded acute stroke unit collocated with a dedicated rehabilitation service to ensure early access to rehabilitation and minimise functional loss
- A new nuclear medicine department to support expanded clinical services including cancer, cardiology and respiratory care
- A new MRI service to provide improved diagnostic capacity
- Expanded medical imaging including CT, X-ray, ultrasound and mammography to support clinical services
- Significant increase in aged care capacity in a dedicated acute aged care ward
- A sub-acute geriatric evaluation and management service
- A dedicated palliative care facility
- A new paediatric assessment unit which will provide additional capacity for day presentations and short stay admissions
- A specialist rehabilitation unit for a range of conditions including stroke, orthopaedics, brain and spine injuries
- Expanded outpatient departments for follow up and management of admitted and non-admitted services
- Helipad on top of the new building with direct access to ICU and ED.

The Site

The site is located at 2 Scenic Drive, Nowra, in the Shoalhaven region and the Shoalhaven Local Government Area. It has a frontage to Scenic Drive to the north and west, Shoalhaven Street to the east and North Street to the south.

The Shoalhaven region is located on the South Coast of NSW, which spans from Berry to Kangaroo Valley to the north, to North Durras in the South, and west across the Morton National Park. The regional city of Nowra is the major population hub of the Shoalhaven region and the gateway to a large number of south coast towns.

The site shape is defined by Shoalhaven River to the north and west, with predominately residential land to the south and east. Surrounding land uses are generally low density residential with significant vegetation.

The site in its surrounding context.

Source: Shoalhaven Hospital Concept Design Traffic Report, TTW

Project milestones

Date/ Timeframe	Activity Milestone
2020	Clinical Services Plan Development
2020	Function design brief/ scope finalised
Early 2022	Preliminary Business Case
Mid 2022	Schematic Design
Mid 2022	Final Business Case
Mid 2022	State Significant Development Application lodged
Late 2022	Detail design complete
Late 2022	Early works
2023	Main works
2026	Construction completion

Engagement

Objectives

The communications and engagement objectives for this project are to:

- Keep stakeholders informed of the project's progress
- Deliver targeted and timely communications and engagement activities
- Engage stakeholders in discussions about design and function
- Provide the community with an opportunity to meet the project team
- Inform the public about the updated designs
- Seek feedback prior to lodgement of the SSDA.

Artist's impression of the new hospital

Engagement Approach

The communications and engagement approach for the Shoalhaven Hospital Redevelopment project focuses on early, proactive, transparent and regular communications and engagement throughout all stages of the project. This helps to develop community and stakeholder understanding for the project, ensure opportunities for stakeholder and community input and feedback, identify and manage issues early and help achieve better outcomes for the project and community.

The approach follows the Department of Planning and Environment's *Undertaking Engagement Guidelines for State Significant Projects, July 2021* by undertaking planned and early engagement with stakeholders and the community.

Ongoing and thorough consultation has occurred with key stakeholders, including clinicians, Shoalhaven City Council and relevant government agencies. Stakeholders were identified early and a range of engagement techniques were used to ensure broad reach of all stakeholders.

This report outlines how stakeholders have been engaged, the outcomes of the engagement activities, the feedback received and how the project team has addressed such feedback.

The level of public participation required for this project is informed by the IAP2 spectrum and based on the level of public impact from the project and the scope for community and stakeholder input to the Shoalhaven Hospital Redevelopment.

Based on the IAP2 Spectrum, the project team listed its key stakeholders (internal and external) and the most suitable approach for engagement as shown in the table below. (For reference: **IAP2 Public Participation Spectrum**.)

Inform	Consult	Involve	Collaborate
We will keep you informed	**We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision**	**We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision**	**We will look to you for advice and innovation in formulating solutions and incorporate your advice and recommendations into the decision to the maximum extent possible**

Inform	Consult	Involve	Collaborate
• NSW Treasury / Finance • State Member for South Coast • State Member for Kiama • Federal Member for Gilmour • Local and metro media	• Local residents and community members • Patients • LHD staff not directly involved in project user groups • ISLHD Board • Shoalhaven Business Chamber • Shoalhaven Professional Business Association • Regional Development Australia, Far South Coast • Milton Ulladulla Business Chamber • Berry Chamber of Commerce • Sussex Inlet District Chamber of Commerce • Shoalhaven Historical Society • Callala Bay Community Association • Shoalhaven Neighbourhood Services • Vincentia Matters • Bay and Basin Community Resources • South Coast Aboriginal Medical Services • Illaroo Aboriginal Corporation • Waminda Aboriginal Women's Corporation • Ulladulla Local Aboriginal Land Council • Nowra Local Aboriginal Land Council • Cullunghutti Aboriginal Child and Family Centre • Children of the Bomaderry Aboriginal Children's Home Incorporation • Oolong Aboriginal House • Nowra Shoalhaven Hospital Auxiliary • Green Point Hospital Auxiliary • David Berry Hospital Auxiliary • Shoalhaven Women's Health Centre	• Local Council • NSW Ministry of Health • Transport for NSW • NSW Ambulance • Roads and Maritime Services • NSW Water • NSW Police • NSW Communities and Justice • NSW Office of Environment and Heritage • NSW Department of Planning, Industry and Environment	• Redevelopment Consumer Committee • Aboriginal Health Unit • Project User Groups • ISLHD Heads of Departments • ISLHD Nurse Managers • ISHLD Allied Health Managers

Engagement undertaken

This section outlines how the Shoalhaven Hospital Redevelopment project has strategically and proactively engaged with the community and key stakeholders including staff, health providers, Government agencies, patients, neighbours and surrounding communities.

Internal stakeholder engagement

At the core of the planning and design process are project user groups and working groups which are established to inform the functional design brief and schematic and detailed design of the project. A snapshot of this engagement is provided below. Meetings are led by the Shoalhaven Hospital Redevelopment Lead Design team and are attended by hospital and LHD staff.

Further detail can be found in the Shoalhaven Hospital Schematic Design Report, prepared by Conrad Gargett.

External engagement

In addition to the project user groups and working groups, the project team also actively engages with the various external stakeholders within the Shoalhaven region to ensure we are building a facility that meets their health needs and is designed to make everyone feel safe, welcome, and comfortable. These engagement activities are done in alignment with the various design stages. Below is the list of external engagement activities that occurred prior to lodgement of the SSDA.

Engagement Tracker

Date	Stakeholder	No. reached	Activity	Purpose
08/2021	• General Community	• N/A	• Media Release	• Announce Master Plan
1/12/2021	• Aboriginal Community	• 35	• Face-to-face workshop	• Design Jam Workshop
25/03/22	• Stakeholder letters **(Appendix A)**	• 60	• Email letter	• To provide a project update to all stakeholders and invite them to either attend an information session or have their own personalised briefing
	• Immediate neighbours **(Appendix B)**	• 180	• Letterbox drop	• To provide a project update and invite all immediate neighbours to the drop-in sessions, specifically the one at the hospital
29/03/22	• All stakeholders	• N/A	• Media release **(Appendix C)**	• To inform all stakeholders and residents about the upcoming engagement sessions
30/03/22	• All stakeholders	• N/A	• Advert in South Coast Register and Nowra News **(Appendix D)**	• Chief Executive update inviting residents to attend a pop-up session
	• Clinicians and hospital staff	• 250	• Staff BBQ and information session	• To present the updated plans to all staff and seek feedback prior to lodging the SSDA
	• Immediate neighbours	• 12	• Information session **(Display boards can be found in Appendix E)**	• To present the updated plans and seek feedback prior to lodging the SSDA
31/03/22	• Passers-by at Stockland Nowra	• 60		
	• Passers-by in Berry	• 8		
1/04/22	• Passers-by at Ulladulla Shopping Centre	• 35		
	• Passers-by at Vincentia Shopping Village	• 10		
2/04/22	• Passers-by at Bunnings Nowra	• 72		
14/04/22	• Passers-by in Berry	• 10		
	• David Berry Hospital Staff	• 20		


MOE & Co.
Shoalhaven Hospital Redevelopment


3Gringos
mexican restaurant
Shoalhaven Hospital Redevelopment


PHARMACY
Shoalhaven Hospital Redevelopment
NSW GOVERNMENT


Shoalhaven Hospital Redevelopment


Shoalhaven Hospital Redevelopment
better care.
Landscaping
Open space
Street drop-off
Entry raingardens
Forecourt
Shoalhaven Hospital Redevelopment
The NSW Government has committed $438 million in the redevelopment of Shoalhaven District Memorial Hospital. It will be the health hub for the region, providing the majority of emergency, critical care, acute and sub-acute and non-admitted services locally, reducing the need to transfer patients to Wollongong and Sydney.
For more information visit:
shoalhavenredevelopment.health.nsw.gov.au
NSW GOVERNMENT


Shoalhaven Hospital Redevelopment

Agency Engagement

Prior to lodging the SSDA and to satisfy the SEARs, the table below provides an outline of the key agency meetings. More information on each meeting can be found in the EIS and supporting technical reports.

Agency	Meeting	Date
State Design Review Panel	SDRP 1	5 May 2021
	SDRP 2	14 July 2021
	SDRP 3	3 November 2021
	SDRP 4	9 March 2022
	SDRP (informal meeting)	26 May 2022
Transport for NSW	Transport Working Group 1	18 May 2021
	Transport Working Group 2	18 May 2022
Shoalhaven City Council	Ongoing monthly meetings with Council Working Group	Ongoing
	Council Briefing: Civil Design and Infrastructure	23 May 2022
	Council Briefing: Traffic and Parking	25 May 2022
	Council Briefing: General Design Update and Town Planning	26 May 2022
Shoalhaven Water and Council	Meeting 1	8 March 2022
	Meeting 2	29 March 2022
	Meeting 3	3 May 2022
	Meeting 4	17 May 2022
Jemena	Meeting 1	Late 2021

Artist's impression of the new hospital

Key project issues and outcomes

The Shoalhaven Hospital Redevelopment team has worked proactively throughout the project to identify potential and emerging issues and develop mitigation measures, which are outlined in the below table. A strategic and early engagement approach has enabled the project team to respond in a timely matter and achieve outcomes that meet the needs of the project, its community and stakeholders.

Topic	Key issue	Project Response
Parking	Hospital staff and visitors using the surrounding streets to park instead of the new car park. Concern that a bigger hospital will only exasperate the parking issue.	NSW Health is working closely with Shoalhaven City Council and ISLHD to address current parking issues.
	Would like to see restricted parking in the surrounding streets which would hopefully address some parking issues.	Street parking falls outside the remit of this project and should be addressed with Shoalhaven City Council.
	Would like to see only one side of Shoalhaven and North Streets able to be parked on.	Street parking falls outside the remit of this project and should be addressed with Shoalhaven City Council.
	Would like to know where all the construction workers will park.	Construction workers will be encouraged to use public transport and not park in surrounding streets.
	Residents struggle to enter/exit driveways safely in surrounding streets because the streets are filled with parking from hospital workers/visitors.	Staff and visitors are encouraged to park on site, in the recently completed multi-storey car park. We understand there is resistance to parking in the car park and we are working with staff to try and resolve these issues.
	Would like to understand exactly how the parking issues will be addressed before the new hospital is built and operational.	NSW Health is working closely with Shoalhaven City Council and ISLHD to address current parking issues.
	The car spaces in the multi-storey car park are too small and it's difficult to manoeuvre car around the car park.	The car park is compliant with applicable standards and guidelines.
	The multi-storey car park has improved the visitor experience exponentially.	Noted.
	The car park should be free.	The fees associated with the car park are in line with NSW Health parking policy.
Traffic	Concern about existing traffic along Shoalhaven Street.	NSW Health is working closely with Shoalhaven City Council and ISLHD to address current traffic issues.
	Concern about the location of the new driveway and the impacts to immediate neighbours, particularly regarding headlights of the cars entering and exiting the hospital.	Noted.
Public transport	Need to find a solution to the limited public transport options for both workers and hospital visitors. Virtually impossible to travel to the hospital via public transport.	As part of this SSDA, we are undertaking detailed discussions with Transport for NSW and transport providers to investigate improving public transport to and from the hospital precinct.
Nowra Park	Concern that too much of the existing Nowra Park is being taken over by the redevelopment.	Although Nowra Park was acquired to allow the project to go ahead, the project team is committed to providing extensive landscaping to the remainder of the greenspace, including a new children's playground. This will ensure the parkland will be much more practical and able to be better utilised by the community.
	Would like assurances that the blackbutt tree will be protected.	The blackbutt tree will remain in place and will be a focal point of landscaping designs.
	Concern about loss of trees in the open space area.	The redevelopment will require the removal of a small number of trees. In addition, the project team is committed to replanting at least the same number of trees that will be removed.

Topic	Key issue	Project Response
Preschool	Question about the new location of the preschool – why it had to be moved and why it will be moved to this specific spot.	To accommodate the new hospital building the preschool will be relocated to the southern end of the hospital campus. This follows extensive consultation with the preschool operators and Shoalhaven City Council. The new building will include a dedicated parking zone for carers and staff, including a drop-off zone.
Wayfinding and signage	Would like to see better signage and wayfinding from the centre of town directing people to the hospital. Currently people get very lost driving from the Princes Highway to the hospital.	Noted. A wayfinding strategy is being prepared and will include ideas on how to improve the signage from the Princes Highway to the hospital.
Location of the new hospital	Would like to see the new hospital on a different greenfield site, further south than the existing hospital.	In 2012 the then Health Minister Jillian Skinner announced plans for a health precinct around the hospital and Cancer Care Centre. Conversations have continued since then about the acquisition of Nowra Park to enable the future creation of a health precinct. In November 2020, the NSW Government provided an additional $4 million to fast track the expansion of the hospital campus, including acquiring the park and undertaking site investigations. As part of the long-term planning for the site, almost $65 million worth of upgrades have been undertaken: • Shoalhaven Cancer Care Centre • Multi-storey car park • Sub-acute mental health unit • Emergency Department refurbishment and endoscopy unit • GP super clinic A site option review was undertaken based on criteria including population growth, local demographics, health services, transport and other services. Relocating the hospital to a new site outside of Nowra would significantly increase the cost of the project due to additional land acquisition and development costs, on-site services (utilities) and the need to re-establish clinical services from the current site.
	The hospital should be built on a bigger site that isn't in the town centre.	Once the preschool has been relocated, there is ample room to build a new hospital at the existing health precinct.
	The site should be sold off for private development and apartments/town houses should be built. The views to the river and mountains would be excellent, and the government could make a lot of money to re-invest into a new hospital site, further south.	The new building has been designed to be sympathetic with its surrounds and the original hospital precinct. The building steps down towards the greenspace to minimise the impacts on the public parkland. During previous consultation sessions, the community had been very clear about maintaining as much public open space as possible and the hospital has been built with this in mind.
	The building is too high and out of character.	The new building has been designed to be sympathetic with its surrounds and the original hospital precinct. The building steps down towards the greenspace to minimise the impacts on the public parkland. During previous consultation sessions, the community had been very clear about maintaining as much public open space as possible and the hospital has been built with this in mind.
Hospital services	Concern about existing emergency wait times. This should be a priority.	A new and improved emergency department will assist with the current emergency wait times.
	Would like to know if there will be a 24hr GP service.	The scope of this project does not include a 24hr GP service.
	Would like to know if the ambulatory care services are being expanded.	Yes, ambulatory care services are being expanded.

Topic	Key issue	Project Response
	Concern that there won't be enough staff to be able to service the hospital. The existing hospital is already seemingly understaffed.	NSW Health together with ISLHD will undertake a thorough recruitment process prior to the new hospital becoming operational.
	Pleased to see the extensive list of new and improved services, meaning less travel to Wollongong Hospital.	Noted.
Positive feedback	Looks like an excellent design.	Noted.
	Excited for the redevelopment to occur.	Noted.
	The community is in desperate need for a new hospital, and this plan looks fantastic.	Noted.
	Pleased to see the expansion of mental health facilities.	Noted.
Consultation process	Pleased to see the project team out and about around the whole region.	Noted.
	Keen to hear more from the project team at more frequent intervals.	Noted. The project team is committed to keeping all stakeholders informed and will continue to do so. More frequent communications will occur and may include monthly newsletters, additional pop-up stalls or other initiatives.
	Would like a session to be held in Bomaderry in the future.	Noted. During the next round of consultation, the project team will hold a session in Bomaderry.
	The Vincentia session should have been held at the new shopping centre.	Noted. During the next round of consultation, the project team will hold a session at the new shopping centre.
	It seems there has not been any consultation with the ambulance services and if there has, it's only been at an executive level and not at the grassroots level.	Ambulance representatives have provided feedback and contributed to the development of the SSDA
Miscellaneous	Questions about building an adjoining private hospital next to the public hospital.	This project does not include the development of a private hospital.
	Would like to see details about the stormwater runoff plan.	More details about the stormwater runoff plan can be found in the Stormwater Report.
	Would like to know where the demountable buildings will be relocated to.	Demountable buildings on Shoalhaven Street are being relocated to make way for electrical infrastructure. They will be relocated to another part of the hospital site.
	Milton-Ulladulla Hospital is in desperate need for an upgrade. Would like to know when this will occur.	Milton-Ulladulla Hospital services are not under review as part of this project. However, this feedback has been given to the ISLHD.
	Would like to know when birthing services will be brought back to Milton-Ulladulla Hospital.	Birthing services at Milton-Ulladulla Hospital are not under review as part of this project. However, this feedback has been given to the ISLHD.
	Concern that new doctors and healthcare workers who move to the area will not be able to afford to buy/rent and therefore won't come to Nowra.	Noted.
	Would like to know where the helipad will be located during construction.	The project team is looking at a number of locations for the temporary helipad and more information will be provided during the public exhibition. Patient transport is an essential service and will continue to be provided during the redevelopment.

Topic	Key issue	Project Response
	Would like to know what kind of environmental considerations will be included in the redevelopment?	The new hospital will be a sustainable and environmentally friendly facility with more efficient building systems and renewable energy strategies. A broad range of initiatives to reduce greenhouse gas emissions will be introduced. The design will reduce energy consumption and will include plenty of natural light, access to outdoor courtyards and spaces to relax and socialise. Examples of the project's sustainability initiatives include: • Prioritising northern orientation to optimise solar control in summer and winter • Providing solar panels on available roof space • Minimising the need for use of fossil fuels in powering the hospital by using electrical heating instead of gas heating.

Shoalhaven River

Next steps

This Engagement Report demonstrates how planned and transparent communication and engagement activity has met the consultation requirements prescribed by the SEARs. It demonstrates how these consultations have led to changed outcomes for the project design and construction.

The Shoalhaven Hospital Redevelopment team will consider and respond to any issues raised with this submission and continue to engage with the community, health service staff and relevant agencies during future stages of the planning, development, and approvals process.

The project team will also actively engage with our stakeholders after the SSD approvals phase through to the delivery and operational commissioning phases.

The Shoalhaven Hospital Redevelopment team will continue to update project webpages and produce regular content to keep all stakeholders informed and engaged throughout the lifecycle of the project. A Communications and Engagement Plan has been developed and is regularly updated to guide the project's proactive engagement approach during the planning, design, construction and operational commissioning of the project.

Participants at the Design Jam workshop

Berry Chamber of Commerce and Tourism

info@berry.org.au

Dear Jean,

We are pleased to provide an update on the Shoalhaven Hospital Redevelopment and invite you to view the latest designs at one of our upcoming community information sessions or via our new dedicated website.

The NSW Government has committed $438 million to redevelop and expand the existing Shoalhaven District Memorial Hospital to meet the needs of the growing Shoalhaven community. The region is growing and ageing and people are living longer, many with chronic and complex conditions. The Shoalhaven catchment is forecast to grow 12% by 2031, with significantly faster population growth in the 70+ age groups.

The release of the updated designs follows extensive consultation with staff, our consumer representatives and other community groups and is the next significant step in the delivery of the redevelopment. We're now encouraging the local community to provide feedback which will inform the design of the project.

The state-of-the-art facility will feature a new building for acute care services including a new emergency department, intensive care, operating theatres, medical and surgical wards and mental health units. It is being designed to directly connect to the existing hospital which will undergo varying levels of refurbishment.

Access to the hospital will be improved with alternate entry and drop off areas and there will be a new dedicated entrance for ambulances.

The southern end of Nowra Park will be retained as greenspace for the local community to enjoy and landscaped areas will be established on the hospital's ground to create a welcoming space for patients, staff and visitors.

We invite you to visit our new website **www.shoalhavenredevelopment.health.nsw.gov.au** to find out more information about the updated designs and provide feedback, prior to lodgement of the State Significant Development Application later this year. We will continue to provide opportunities for consultation and updates as the project progresses.

We are holding a number of pop-up information stalls around the region to provide people with an opportunity to meet the project team and provide feedback. We would love to see you at one of our sessions:

- Thursday 31 March from 10am – noon at Stockland Nowra, 32 East Street, Nowra
- Thursday 31 March from 2pm – 4pm at Berry Square (next to Berry Pharmacy) 113 Queen Street, Berry
- Friday 1 April from 10am – noon at Ulladulla Shopping Centre, 199 Princes Highway, Ulladulla
- Friday 1 April from 2pm – 4pm at Vincentia Shopping Village, 5 Burton Street, Vincentia
- Saturday 2 April from 10am – noon at Bunnings Nowra, 147 Princes Highway, Nowra

If you would like further information, please contact the project team at **HI-shoalhavenredevelopment@health.nsw.gov.au**

We look forward to continuing to work with you as we progress and build a new state-of-the-art hospital for our region.

Kind regards

Margot Mains
Chief Executive, Illawarra Shoalhaven Local Health District

Michael Bellman
Senior Project Director, Health Infrastructure

Dear neighbour,

I am pleased to provide an update on the Shoalhaven Hospital Redevelopment. The designs for the hospital have progressed, and we now invite you to visit our new website **www.shoalhavenredevelopment.health.nsw.gov.au** to find out more information about the updated designs. We also invite you to provide valuable feedback prior to lodgement of the State Significant Development Application later this year.

The NSW Government has committed $438 million to redevelop and expand the existing Shoalhaven District Memorial Hospital to meet the needs of the growing Shoalhaven community. The region is growing and ageing and people are living longer, many with chronic and complex conditions. The Shoalhaven catchment is forecast to grow 12% by 2031, with significantly faster population growth in the 70+ age groups.

A new building for acute care services including a new emergency department, intensive care, operating theatres, medical and surgical wards and mental health units is being designed to directly connect to the existing hospital.

In September 2021 the Master Plan for the redevelopment was finalised and exhibited, and valuable feedback was provided.

The release of the updated designs follows extensive consultation with staff, our consumer representatives and other community groups and is the next significant step in the delivery of the redevelopment. We will continue to provide opportunities for consultation and updates as the project progresses.

We would like to invite you to an informal drop-in session for local residents held at our project site office (behind the Grand Pacific Health building) on Wednesday 30 March between 4pm and 6pm. Please note, there will be no formal presentation, so drop in at a time that suits you.

We will also be holding a number of pop-up stalls around the region to provide the entire community with an opportunity to meet the project team and provide feedback. If you can't make the session at the Hospital, please come along to another one:

- Thursday 31 March from 10am – noon at Stockland Nowra, 32 East Street, Nowra
- Thursday 31 March from 2pm – 4pm at Berry Square (next to Berry Pharmacy) 113 Queen Street, Berry
- Friday 1 April from 10am – noon at Ulladulla Shopping Centre, 199 Princes Highway, Ulladulla
- Friday 1 April from 2pm – 4pm at Vincentia Shopping Village, 5 Burton Street, Vincentia
- Saturday 2 April from 10am – noon at Bunnings Nowra, 147 Princes Highway, Nowra

Alternatively, please visit our new project website **www.shoalhavenredevelopment.health.nsw.gov.au** to view the plans and provide your feedback. If you would like further information, please contact the project team at **HI-shoalhavenredevelopment@health.nsw.gov.au**

I look forward to continuing to work with you as we progress and build a new state-of-the-art hospital for our region.

Kind regards

Michael Bellman

Senior Project Director

Health Infrastructure ABN 89 600 377 397
1 Reserve Road, St Leonards NSW 2065 | Locked Bag 2030, St Leonards NSW 1590
T 02 9978 5402 | W hinfra.health.nsw.gov.au

Brad Hazzard
Minister for Health
Bronnie Taylor
Minister for Women, Regional Health and Mental Health

MEDIA RELEASE

Wednesday, 30 March 2022

DESIGNS FOR $438M SHOALHAVEN HOSPITAL UNVEILED

The community has been provided with its first look at designs for the $438 million Shoalhaven Hospital redevelopment showcasing the vision for the state-of-the-art health facility.

Minister for Health Brad Hazzard said the NSW Government is investing in a significant expansion of Shoalhaven Hospital, which will provide the local community with enhanced health services.

"In a major step forward for the redevelopment, new artist impressions have been unveiled today revealing the design for the hospital precinct, which will transform healthcare services for the Shoalhaven community and improve health outcomes," Mr Hazzard said.

Minister for Regional Health Bronnie Taylor said the redevelopment of Shoalhaven Hospital is about future proofing healthcare in the region.

"I'm very excited to share the new artist impressions of the Shoalhaven Hospital redevelopment with the community and encourage everyone to provide feedback as we move forward with its delivery. This major investment from the NSW Government marks a new era in healthcare for the South Coast," Mrs Taylor said.

"A new acute services building connecting to the existing hospital, rooftop helipad, and refurbishment of existing hospital buildings are just some of the highlights of this major redevelopment.

"The NSW Government is also improving access to the hospital with alternate entry and drop off areas on Shoalhaven Street and off North Street. There will also be a new dedicated entrance for ambulances.

"The project team has been working closely with clinicians and key healthcare stakeholders and we're now encouraging the local community to provide their feedback which will inform the design of the project."

Local Member and the Parliamentary Secretary for the South Coast, Shelley Hancock, said the southern end of Nowra Park will be retained as greenspace for the local community to enjoy.

“Landscaped areas will also be established on the hospital’s ground to create a welcoming space and enhanced experience for patients, staff and visitors,” Mrs Hancock said.

Mrs Hancock encouraged the local community to attend pop-up stalls that will be taking place throughout the region, where members of the project team will be on site to answer any questions about the redevelopment.

The community pop-ups are scheduled for the following locations and times:

- Shoalhaven Hospital, Wednesday, 30 March 2022 from 4pm – 6pm
- Stockland Nowra, Thursday, 31 March from 10am – 12pm
- Berry Mall (next to Berry Pharmacy), Thursday, 31 March from 2pm – 4pm
- Ulladulla Shopping Centre, Friday, 1 April from 10am – 12pm
- Vincentia Shopping Village, Friday, 1 April from 2pm – 4pm
- Bunnings Nowra, Saturday, 2 April from 10am – 12pm

The $438 million Shoalhaven Hospital redevelopment will provide new facilities including cardiology, mental health and aged care wards, more operating theatres and a new emergency department, and there will also be greater access to more specialised staff, equipment and technology.

The Shoalhaven District Memorial Hospital will complement other health projects for the Illawarra Shoalhaven community, including $700 million for the new Shellharbour Hospital, and recently completed projects including $11.8 million for the new Shoalhaven Hospital multistorey car park, $37.1 million towards the Bulli Hospital, and the Dapto and Ulladulla HealthOne projects, delivered as part of the $100 million HealthOne program.

The project is part of the NSW Government’s record $10.8 billion investment in health infrastructure to 2024-25, with nearly a third of the capital allocation in this financial year going towards regional and rural health facilities.

To view the plans and find out more about the proposed new hospital, please visit www.shoalhavenredevelopment.health.nsw.gov.au

The renders of the hospital can be downloaded here

MEDIA: Rory Cunningham | Minister Taylor | 0457 674 099
Nicolette Kormendy | Minister Hazzard | 0429 064 897

Shoalhaven Hospital Redevelopment update

I am delighted to be able to share the latest design update for the Shoalhaven District Memorial Hospital redevelopment.

For the first time, the community is able to see what the redeveloped hospital might look like and the scope of services which will be provided. With the easing of COVID-19 restrictions, we are finally able to meet face-to-face with the community and as a result, we're planning a "road show" for a number of Shoalhaven locations in the coming weeks (see details in box). This will allow community members to see these draft plans first-hand, offer any feedback or ask questions of the project team.

Although the design is yet to be finalised, this update offers a clearer idea of the location and size of the new acute care building, the location of the relocated Shoalhaven Community Preschool and more details about the future of the existing hospital.

The redevelopment will provide state-of-the-art health care for the community, including a new emergency department, medical wards, dedicated mental health ward, cardiology ward and double the number of operating theatres and surgical services.

A new seven-storey building is being proposed to be built with a helipad on top. It has been designed in a way that it will step up towards the north of the site, in order to ensure a lower scale building adjacent to the park. It will be linked to the existing hospital which will undergo varying levels of refurbishment.

Public access to the hospital will be improved with alternate entry and drop off options on Shoalhaven Street and a new ambulance entry from the street.

The final design of the new hospital aims to blend with the surrounding native landscape to create a building within a natural setting, and, with incredible views to the mountains and river.

It will allow for parkland to the south of the building and more landscaped areas around the significant blackbutt tree on Nowra Park.

Engaging with Aboriginal communities

The Illawarra Shoalhaven Local Health District operates on the lands of the Dharawal and Yuin Nations which includes many language groups, clans, tribal groups and discrete communities including the Wadi Wadi, Walbunga, Wandiwandian and Jerrinja people.

The local Aboriginal communities are integral to the design process for the hospital redevelopment to help ensure a culturally safe place for all consumers.

Consultation with Aboriginal stakeholders has identified the need to provide health services and facilities that are safe and culturally welcome so the Aboriginal community feels welcomed and respected when receiving care. We have been working closely with our local community who have been providing vital ideas and feedback about how best we can do this.

With this in mind, the landscape and First Nations people's connection to country is of prime importance and by providing a strong connection with the natural environment and cultural identity this protects the health and wellbeing of Country and by extension all the community.

In late 2021 we held a Connecting with Country workshop and Design Jam attended by more than 35 community members, staff and project team members. It provided an opportunity for people to share stories and exchange ideas about Nowra Park and the blackbutt tree and to think about how the Aboriginal heritage and cultural significance can be imbedded in the redeveloped hospital.

Shoalhaven Community Preschool

ARTIST'S IMPRESSION

To accommodate the new hospital building, the existing preschool will be relocated to the southern end of the Hospital campus. This follows extensive consultation with the preschool operators and Shoalhaven City Council. The project team is continuing to consult with the preschool on the design and requirements of the new facility.

The new building will include a dedicated parking zone for carers and staff, including a drop-off zone. In addition to the new preschool, the southern end of the campus will also be retained as greenspace, enhancing the area's family-friendly atmosphere.

Construction is due to start this year and the current preschool will remain open until the new building is completed.

What's next?

During 2022, the team will continue to work on and refine the design of the new building and the scale of refurbishment. The State Significant Development Application (SSDA) will be lodged with the NSW Government in the second half of this year.

Pending planning approval, construction will commence in 2023 with the intention for the new hospital to be completed and operational in mid-2026.

I encourage all community members to visit the team during the regional "road show", or go to the project website (www.shoalhavenredevelopment.health.nsw.gov.au) for more information and to offer your feedback.

Margot Mains, ISLHD Chief Executive

Pop-up information stalls

- Thursday 31 March from 10am – noon at Stockland Nowra, 32 East Street, Nowra
- Thursday 31 March from 2pm – 4pm at Berry Square (next to Berry Pharmacy) 113 Queen Street, Berry
- Friday 1 April from 10am – noon at Ulladulla Shopping Centre, 199 Princes Highway, Ulladulla
- Friday 1 April from 2pm – 4pm at Vincentia Shopping Village, 5 Burton Street, Vincentia
- Saturday 2 April from 10am – noon at Bunnings Nowra, 147 Princes Highway, Nowra

ARTIST'S IMPRESSION

Shoalhaven Hospital Redevelopment

The NSW Government has committed $438 million in the redevelopment of Shoalhaven District Memorial Hospital. It will be the health hub for the region, providing the majority of emergency, critical care, acute and sub-acute and non-admitted services locally, reducing the need to transfer patients to Wollongong and Sydney.

ARTIST'S IMPRESSION

For more information visit:
shoalhavenredevelopment.health.nsw.gov.au

NSW GOVERNMENT

Shoalhaven Hospital Redevelopment

The new seven-storey hospital building will provide:

- A new emergency department (ED) and emergency short-stay unit to improve patient flow and reduce wait times
- New state-of-the-art intensive care unit (ICU)
- Theatres and endoscopy procedure rooms, doubling capacity
- A dedicated cardiology inpatient unit (IPU), coronary care unit and catheterisation lab
- A new vascular surgery service and expanded orthopaedic, general surgery and urology services
- Overnight surgical IPUs and a dedicated day surgery unit
- New medical IPUs for specialties including gastroenterology, respiratory, oncology, endocrinology and general medicine
- A new acute mental health IPU
- A psychiatric emergency care centre for emergency and crisis response adjacent to the ED
- An expanded acute stroke unit collocated with a dedicated rehabilitation service to ensure early access to rehabilitation and minimise functional loss
- A new nuclear medicine department to support expanded clinical services including cancer, cardiology and respiratory care
- A new MRI service to provide improved diagnostic capacity
- Expanded medical imaging including CT, X-ray, ultrasound and mammography to support clinical services
- Significant increase in aged care capacity in a dedicated ward
- A sub-acute geriatric evaluation and management service
- A dedicated palliative care facility
- A new paediatric assessment unit which will provide additional capacity for day presentations and short-stay admissions
- A specialist rehabilitation unit for a range of conditions including stroke, orthopaedics, brain and spine injuries
- Expanded outpatient departments for follow up and management of admitted and non-admitted services
- Helipad on top of the new building with direct access to ICU and ED.

For more information visit:
shoalhavenredevelopment.health.nsw.gov.au

NSW GOVERNMENT

Shoalhaven Hospital Redevelopment

Project timeline

AUG 2021 — Master Plan completed

MID 2022 — Business case and schematic design expected to be completed

MID 2022 — State Significant Development Application submission expected to be lodged and early works / preschool expected to start

LATE 2022 — Main works tender expected to be completed

EARLY 2023 — Main works expected to start

2026 — Construction expected to be completed

For more information visit:
shoalhavenredevelopment.health.nsw.gov.au

NSW GOVERNMENT

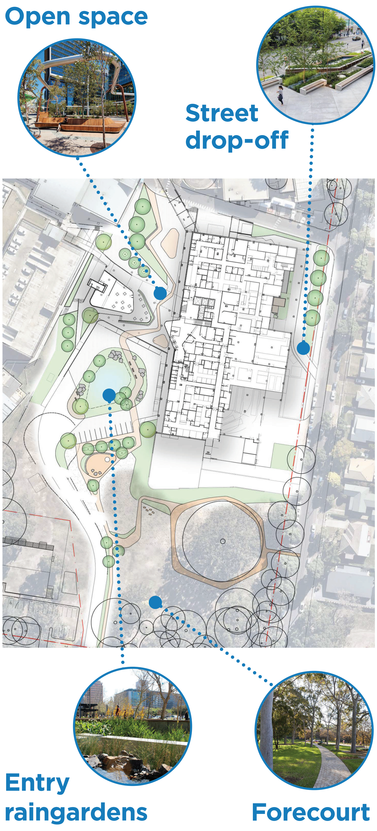
Shoalhaven Hospital Redevelopment

Landscaping

The new seven-storey hospital will be built next to the existing hospital. It will merge with the surrounding native landscape so that it becomes a building within a natural setting, and represents the benefits of the environment, biodiversity, sustainability and the community.

One of the key objectives is to provide culturally appropriate facilities to meet the needs of the First Nations people.

The project team is working closely with the local Indigenous community to ensure the new Shoalhaven Hospital is designed to promote cultural safety and to maximise its connection to Country of the First Nations people on which it is situated.



For more information visit:
shoalhavenredevelopment.health.nsw.gov.au

NSW GOVERNMENT

Shoalhaven Hospital Redevelopment

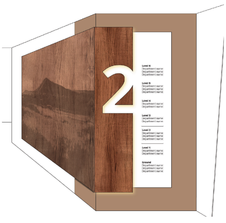
Design

Interior spaces, colours, materials and furniture selected for health care facilities can support patients, their families, carers and visitors' wellbeing by providing:

- Memorable spaces to assist with wayfinding
- Natural, light-filled and life affirming spaces with a strong connection to the surrounding environment
- Integrating elements of the natural world through windows, materials, colours and textures
- Spaces that relate to the local Shoalhaven context
- Inclusion of local elements such as artworks, place names, historical and cultural items
- Access to outdoor gathering areas (Nowra Park, cafe, forecourts)
- Integration of current artwork co-ordinated with new concepts and wayfinding.

Interior concept

The interior colour palette takes inspiration from the local rock formations within the area, as well as the local flora, river and sky.



For more information visit:
shoalhavenredevelopment.health.nsw.gov.au

NSW GOVERNMENT

Contact Details

Health Infrastructure
Locked Bag 2030
St Leonards NSW 1590
hinfra.health.nsw.gov.au

NSW GOVERNMENT