Catholic Education
Diocese of Parramatta

Date: 15th October 2020

Planning Secretary
Department of Planning, Industry and Environment
GPO Box 39
Sydney NSW 2001

Dear Planning Secretary,

Santa Sophia Catholic College (SSD 9772): Revision of Strategies, Plans and Programs – A31

I refer to the Santa Sophia Catholic College project (SSD 9772) that was approved on 21st April 2020.

In accordance with condition A31 of the Development Consent, I notify that a review and subsequent revision was undertaken on the following document:

- Construction Environmental Management Plan (CEMP) – associated with consent condition C8 (Attachment 1).

The updates made were in response to the Independent Environmental Auditors report and aligns with the recommendations to:

- Update to cross reference the Health, Safety and Environment Management Plan
- Update to cross reference the project organizational chart
- Make general sub plan updates in alignment with the auditors recommendations.

No further modification was made to the document.

For any further inquiries, please contact Kenny Lim, Project Manager, TSA, Kenny.lim@tsamgt.com.

Regards,

Mark Desylva
Schools Development Manager
Catholic Education Diocese of Parramatta

ATTACHMENT 1 – Construction Environmental Management Plan

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CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

Santa Sophia Catholic College – BN1058

Revision date: 4/08/2020

Construction Environmental Management Plan
Santa Sophia Catholic College– BN1058

Document revision control

Revision	Date	Revision Details	Author
0	24/04/2020	New Plan	Paddy Holland
1	15/05/2020	Section 4.3	Anthony Aziz
2	4/08/2020	Sections 2.1, 2.2, 3, 4.2, 4.3, 4.9.2	Anthony Aziz

This document is approved for release by:

Date	Position	Approved by:
5/08/2020	Senior Project Manager	Mick Cafe

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1 Introduction

1.1 Background

This Construction Environmental Management Plan (CEMP) has been prepared for Santa Sophia Catholic College as a requirement of SSD 9772 Development Consent, Clause C.8, which states

Prior to the commencement of construction, the Applicant must submit a Construction Environmental Management Plan (CEMP) to the Certifier and provide a copy to the Planning Secretary. The CEMP must include, but not be limited to, the following:

(a) Details of:

(i) hours of work;

(ii) 24-hour contact details of site manager;

(iii) management of dust and odour to protect the amenity of the neighbourhood;

(iv) stormwater control and discharge;

(v) measures to ensure that sediment and other materials are not tracked onto the roadway by vehicles leaving the site;

(vi) external lighting in compliance with AS 4282-2019 Control of the obtrusive effects of outdoor lighting;

(vii) community consultation and complaints handling;

(b) Construction Traffic and Pedestrian Management Sub-Plan (see condition C10);

(c) Construction Noise and Vibration Management Sub-Plan (see conditionC11);

(d) Construction Waste Management Sub-Plan (see condition C12);

(e) Construction Soil and Water Management Sub-Plan (see condition C13);

(f) an unexpected finds protocol for Aboriginal and non-Aboriginal heritage and associated

communications procedure; and

(g) waste classification (for materials to be removed) and validation (for materials to remain)

of site to confirm the contamination status in these areas of the site.

This Construction Environmental Management Plan (CEMP) has also been prepared for Santa Sophia Catholic College as a requirement of the AS4300 General Conditions of the contract, Clause 52, which states

The Contractor shall:

(i) before commencing work on the Site, prepare and implement a site specific environmental management system which conforms with the requirements of AS/NZS ISO 14001:2015 or as otherwise approved by the Project Manager;

(ii) monitor and record its environmental performance and, based on that performance, amend or update the environmental management system as required such that the Contractor complies with its obligations under the Contract and any applicable Legislative Requirement; and

(iii) provide the Project Manager with access to the environmental management system monitoring records of the Contractor to enable monitoring and auditing.

1.2 NSW Environmental Management System Guidelines

The NSW Code of Practice for Procurement requires government agencies and their service providers to "identify the environmental opportunities, risks and impacts of their activities". Having done so, it requires that they must then "adopt measures to:

- realise the opportunities, manage those risks, and enhance and protect the environment;
- encourage recycling and re-use of materials and minimise waste; and
- support effective use of scarce resources - including energy, water and materials".

To comply, service providers and their service providers must be able to demonstrate a commitment and an effective systematic approach to environmental management, and acceptable environmental performance.

The Code adds that "on construction projects, all service providers are required to develop and implement an appropriate site-specific environmental management plan", and "Tenderers and service providers for major contracts are required to have an acceptable corporate Environmental Management System.

These Guidelines apply to all agency construction projects, including those involving private sector investment or financing, and asset development, ownership and operation. They apply to all project and contract activities, from detailing project requirements, option and concept development, and design, to asset construction, maintenance and operation, and ultimately asset demolition and disposal. It is important to recognise that the overall environmental impact of a construction project is influenced by what happens in defining the asset design, before and throughout the life of the constructed asset, and with asset disposal - not just by what happens during the construction phase.

The Guidelines with AS/NZS ISO 14001:2004 (Environmental management systems– Requirements with guidance for use) provide a framework for applying a systematic approach to environmental management, through an organisation's environmental management system and its use of environmental management plans, in accordance with the Code.

The Guidelines and their use do not in any way relieve service providers of their legal obligations.

1.3 Project Details

Business unit	Buildcorp Contracting NSW
Name	Santa Sophia Catholic College
Number	BN1058
Description / Project objective	The Santa Sophia Catholic College will be a new 5 block multi-storey building and will include the following • Catholic Early learning centre for 60 students; • General Learning Spaces for years Kindergarten to 12; • Community Hub – knowledge centre and cafe; • Creative Hub – art and applied science; • Performance Hub – multipurpose hall and music, dance and drama spaces; • Professional Hub – administrative space; • Research Hub – science and fitness;

	• Associated site landscaping and open space including a fence and sporting facilities; • Bus drop off from Fontana Drive; • Pick-up and drop-off zone from future road 'B'; • Pedestrian access points from Red Gables Road north, Fontana Drive and future road 'B'; • Staff parking for 110 vehicles provided off site in an adjacent location; • Short term parking for pick up and drop off for Catholic Early Learning Centre from Red Gables Road; and • Digital and non-digital signage to the school
Contract Sum	Budget $151,000,000.00
Contract duration and completion date	Approximately 13 months (July 2021)
Floor area	Approx. 15,090m^2 Gross Floor Area (GFA)
Client name	Catholic Educational Diocese of Paramatta
Superintendent name	TSA
End user name	Catholic Educational Diocese of Paramatta

1.4 Objective

The Key Performance Indicators for this project are:

1. To complete the contract works in accordance with Buildcorp's Group Environment Policy
2. To complete the contract works in accordance with Buildcorp Construction Programme

Performance Indicator	Measure	Action
1. Safety		
To complete the contract works in accordance with Buildcorp's Group Environment Policy	All external safety audits are above required KPI	Ongoing review of Safety Review to ensure that KPI remains above requirement
	One external safety audit per year is below required KPI	Buildcorp Senior Management attend site and review Project Team actions to get back on track
	More than one external safety audit per year is below required KPI	Buildcorp Senior Management provide additional resources to site to ensure that Safety Performance improves.
2. Construction Programme		
The work are completed in accordance with	All works completed on time and under budget	Ongoing surveillance by Buildcorp Senior Management

Buildcorp Construction Programme	Some elements of the schedule and cost are trending to exceed tolerances	◥ Buildcorp Senior Management attend site and review Project Team actions to get back on track. Advise Client
	Schedule and cost for the project are trending to exceed tolerances	◥ Buildcorp Senior Management investigate and if necessary, provide additional resources to maintain cost and schedule within tolerances. Advise client

1.5 Definitions of Terms and Acronyms

Acronym or term	Definition
AS	Australian Standard
BCA	Building Code of Australia
BIM	Building Information Modelling system
BMS	Building Management System
CC	Construction Certificate
CDR	Critical Design Review
DMP	Design Management Plan
DoP	NSW Department of Planning & Infrastructure
DSRR	Design Safety Risk Report
EPA	The Environment Protection Authority
EUG	Executive User Group
FFE	Fittings, Furniture and Equipment including Group 1,2,3 and 4
GPO	General Power Outlet
HSEMS	Health Safety and Environment Management System
HOST	Hospital Operations Support Team
HSE	Health, Safety and Environment
HSR	Health and Safety Representative
QMF	Internal Quality Management
ISO	International Standards Organisation
ITP	Inspection and Test Plan
JSA	Job Safety Analysis
KPI	Key Performance Indicators
LTI	Lost Time Injury frequency rates
MBA	Master Builders Association
MTIFR	Medically-Treated Injury Frequency Rate
MSDS	Material Safety Data Sheet
PCG	Project Control Group
PMP	Project Management Plan
PPE	Personal Protective Equipment
PPR	Principal's Project Requirements
SDM	Stagging and Decanting Meeting
SIDE	Safety In Design Evaluation

Acronym or term	Definition
SLA	Service Level Agreement
CEMP	Construction Environmental Management Plan
SSD	State Significant Development
CEDP	Catholic Education Dioceses of Paramatta
SWMS	Safe Work Method Statements
WPRA	HSE Whole Project Risk Assessment
WRMP	Workplace Relations Management Plan

2 People Management

2.1 Roles and Responsibilities Matrix

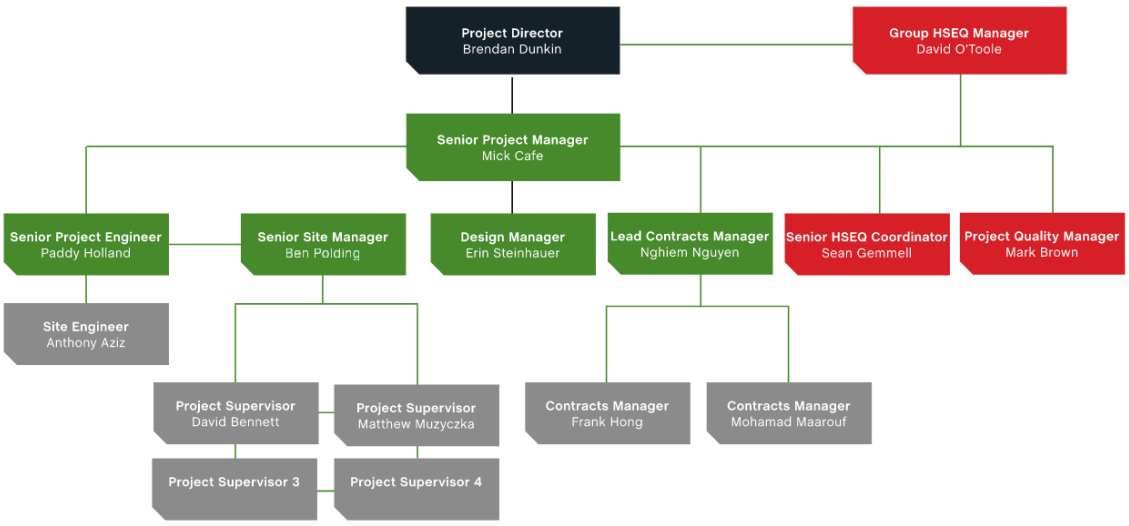
The following table describe the roles of individuals assigned to the project and how they relate Construction Environmental Management:

Name	Role title(s)	Construction Environmental Management Responsibilities
Mick Cafe	Senior Project Manager	◥ Ultimate responsibility for delivery of the project in accordance with the design documents ◥ Reports to the Construction Manager
Ben Polding	Senior Site Manager	◥ Project supervision and control of site staff ◥ Review and control of program and site progress to ensure construction is completed in accordance with programme duration ◥ Formulates detailed construction methodologies in consultation with CEDP, the design consultants and Buildcorp Project Team to de-risk the works ◥ Identifies and advises the Contract Management Team of potential time delays ◥ Ensure additional works are not undertaken by subcontractors without the appropriate authorities to proceed ◥ Reports to the Project Manager
Erin Steinhauer	Design Manager	◥ The primary role of the Design Manager during the Site Management phase of the project is to ensure design is developed and /or amended as required to deal with issues that arise during construction ◥ During the Site Management phase, the Design Manager reports to the Project Manager
Nghiem Nguyen	Contracts Manager	◥ Responsibility for the lettings contracts to subcontractors to execute the works in accordance with the proposed methodologies ◥ Reports to Project Manager
Mohamad Maarouf	Contracts Manager	◥ Responsibility for the lettings contracts to subcontractors to execute the works in accordance with the proposed methodologies ◥ Reports to Contracts Manager
Frank Hong	Contracts Manager	◥ Responsibility for the lettings contracts to subcontractors to execute the works in ◥ Reports to Contracts Manager
Paddy Holland	Senior Project Engineer	◥ Responsibility for the management of all design and construction issues. Manage design consultants and complete documentation reviews to ensure For Construction documentation complies with head contract requirements

Name	Role title(s)	Construction Environmental Management Responsibilities
		◥ Reports to Project Manager
Anthony Aziz	Site Engineer	◥ Responsibility for the management of all design and construction issues. Manage design consultants and complete documentation reviews to ensure For Construction documentation complies with head contract requirements ◥ Reports to Project Engineer
Sean Gemmell	Senior HSEQ Project Coordinator	◥ Provides administrative support to the Project Supervisors to ensure that site safety is maintained. ◥ Reports to the Project Manager
Matthew Muzyczka David Bennett	Project Supervisors	◥ Help plan project and arrange short to medium term lead time items. Directs & supervises subcontractors, Buildcorp labourers ◥ Ensures that where required works are executed in accordance with the Detailed Construction methodologies ◥ Reports to Site Manager

2.2 Project Team Structure Chart

The following diagram indicates the team structure and the relationship between personnel.



3 Construction Environmental Management Overview

Effective Construction Environmental Management will be achieved through application of the standard Buildcorp construction strategy. Buildcorp's group-wide Health Safety and Environment Management System (HSEMS) is documented and referenced in the Health Safety and Environment (HSE) Site Management Plan.

3.1 Develop an Overall Strategic Construction Methodology

At project commencement, the Buildcorp Project Team will prepare an overall Construction Methodology. This will address the following key phases of the project:

- Enabling Works
- Site Establishment
- Excavation & Piling
- Superstructure
- Façade
- Finishes and fit-out
- Landscaping and external works
- Commissioning

The methodology will highlight the following:

- Approximate time frames when the stage(s) will occur
- Proposed solution how the stage may be implemented
- Key risks of the stage

3.2 Detailed Component Method Statements

Where any construction works may potentially have an impact on day to day operations, the Site Manager will consult with the client and relevant stakeholders to develop detailed Disruption Notice (DN)/Component Method Statements (CMS) with respect to those works. The CMS will be in accordance with the template within the Interface Plan.

The detailed CMS will include the following:

- Step by step outline of the sequence/staging of the works including photos or photographic mark-ups of the proposed works where possible
- Disruption Notices prior to works commencing
- Steps being taken to separate the construction works from public/staff
- Type of works being undertaken including dust or noise being generated and control measures being implemented to limit impact
- Timing of the works to minimise impact
- Considering how materials/waste are going to be taken to/from the workface
- Clean-up and handover process upon completion of the works
- close off of Disruption Notices upon completion

Buildcorp will revise/resubmit any proposed methodology until such time as it is endorsed by the Project Director.

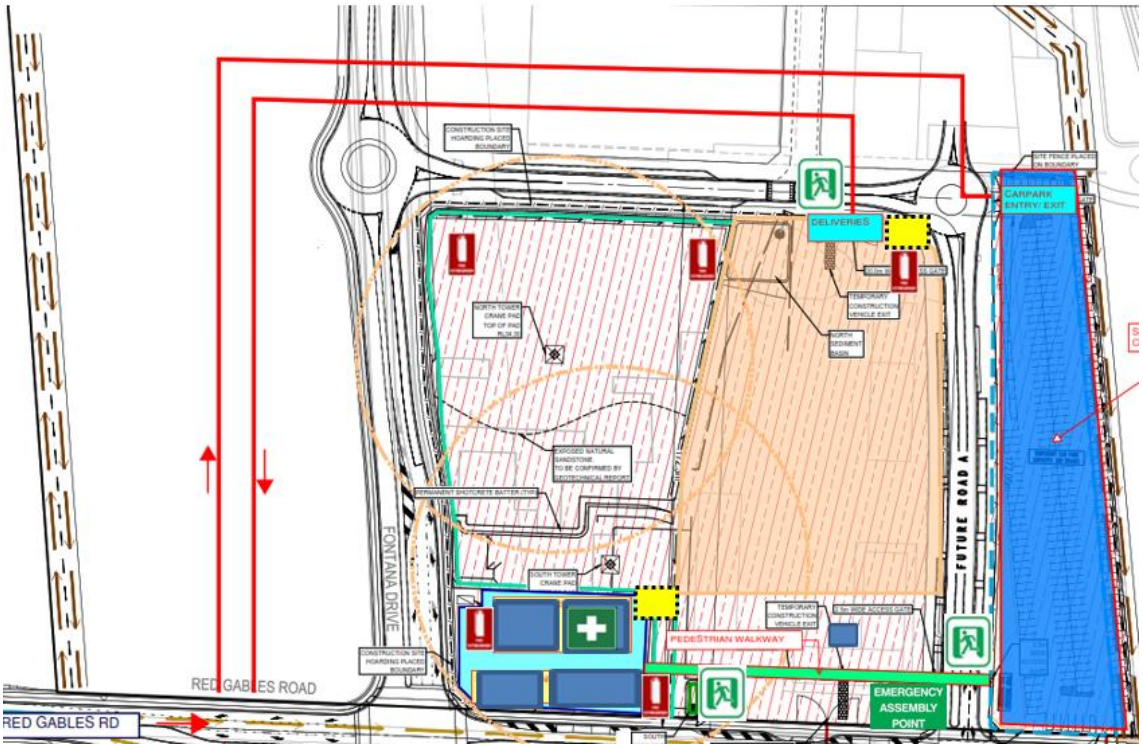
4 General Site Requirements

4.1 Emergency and Evacuation Procedures

The Site Manager will be the Chief Warden for the Construction Site.

Emergency Evacuation Procedures are documented in Buildcorp's accredited Safety System. This involves evacuation to a primary and/or secondary Muster Point under the direction of the Chief Warden for the Construction Site. Respective area wardens within the site will report back to the Chief Warden for the site and a Muster Warden will report the progress of any evacuation to the Chief Warden.

The primary Evacuation Muster Point is shown on the diagram below



4.2 24 Hour Contact

Buildcorp have nominated staff that will be available for emergency call outs 24 hours a day. The following staff is nominated in order of priority for first case communication:

Name	Position	Contact Details
Matthew Muzyczka	Project Supervisor	M: 0415 886 192 E: *matthew_muzyczka@buildcorp.com.au*
Sean Gemmell	Senior HSE Coordinator	M: 0478 877 518 E: *sean_gemmell@buildcorp.com.au*

4.3 Community Consultation

During construction works impact on the community is minimised by/ carried out in accordance with:

- Establishing a community contact for the site. This person's name and contact details are displayed on signage at the front of the site (attached to the building, fence or hoarding) and they are available 24-hours a day.

  The community contact for this site is:

  Name: Matthew Muzyczka

  Role: Project Supervisor

  Mobile: 0415 886 192
- Putting in place a community issues process so that any issues regarding the site (including noise, emissions, vibrations, waste, contamination etc) are recorded and investigated.
- Community consultation for high noise generating works will be undertaken by informing (via the project website) of the nature and duration of such work.
- Implementing corrective measures in response to community issues to minimise the likelihood of reoccurrence.
- Targeting resolution of the issue within seven days from the date it was raised.

Community issues process

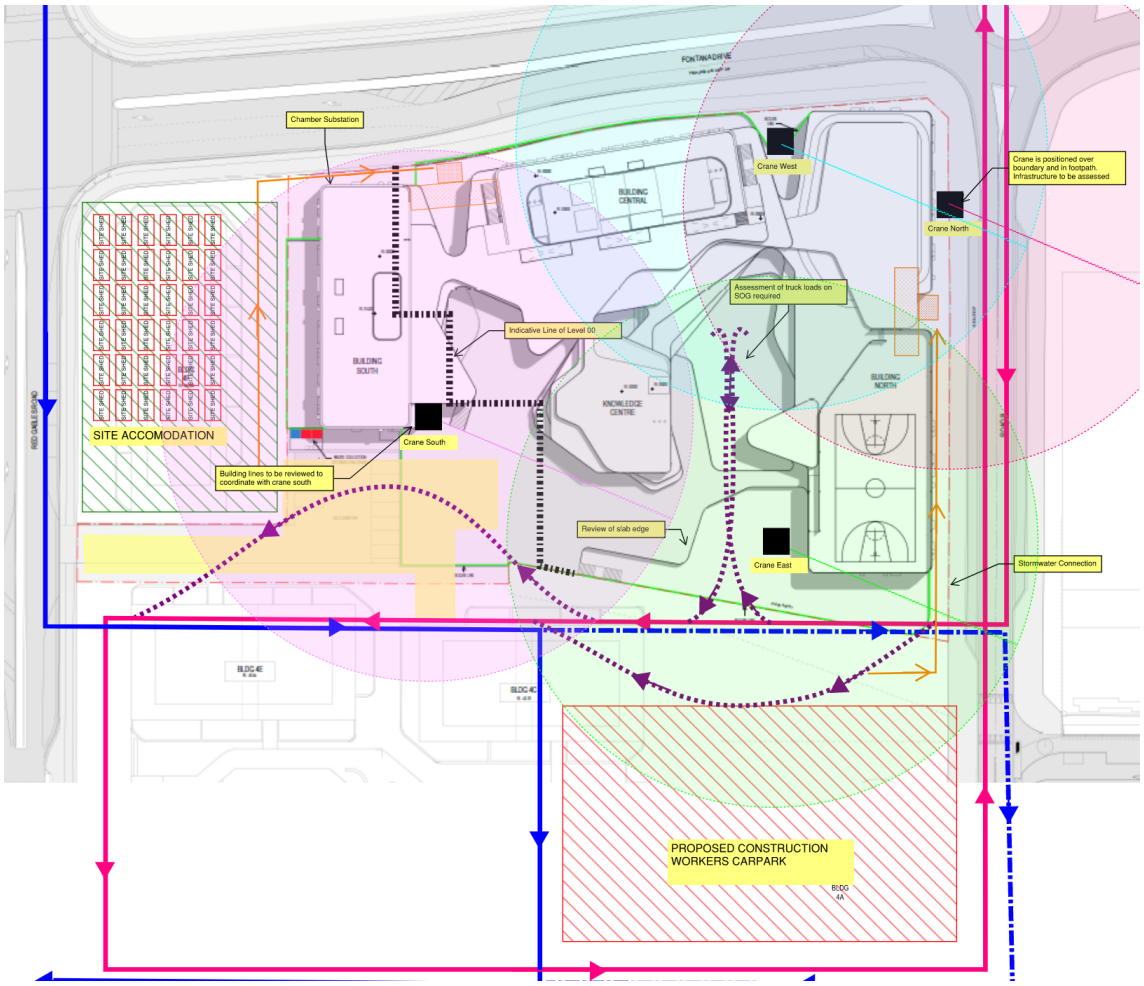
1. Record all required details about the issue in the Community Issues Register.
2. Assign the issue to the appropriate staff for resolution.
3. Investigate the issue and document actions / outcomes on the Community Issues Register.
4. Advise the person who originally raised the issue of the resolution and how it has been closed out.
5. Follow-up after a week to ensure that the corrective measures are satisfactory.

Refer to the following form:

- Community Issues Register (refer to Appendix 6)

4.4 Onsite Access/Parking (Vehicular)

An onsite construction workers carpark is to be provided adjacent the site for all construction personnel including Buildcorp staff and its subcontractors. Access to the carpark is to be from Red Gables Road. At no times will anyone be permitted to park on Red Gables Road adjacent the construction site.



4.5 Hazardous Material

During construction, Buildcorp will review and inspect each portion of the works. Where there is any doubt, a hygienist will be contacted to inspect the area and set path of action to ensure everyone is safe at all times. Refer to the Health, Safety and Environmental Plan for further details.

4.6 Onsite Working Hours

In accordance with the Development Consent (SSD9772) Condition D11, D12, D13 and D14 the following Hours of work are permitted:

D11. 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 7am and 5pm, Saturdays.

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

D12. Construction activities may be undertaken outside of the hours in condition D11if 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 a variation is approved in advance in writing by the Planning Secretary or his nominee if appropriate justification is provided for the works.

D13. Notification of such construction activities as referenced in Condition D12 must be given to affected residents before undertaking the activities or as soon as is practical afterwards.

D14. Rock breaking, rock hammering, sheet piling, pile driving, and similar activities may only be carried out between the following hours:

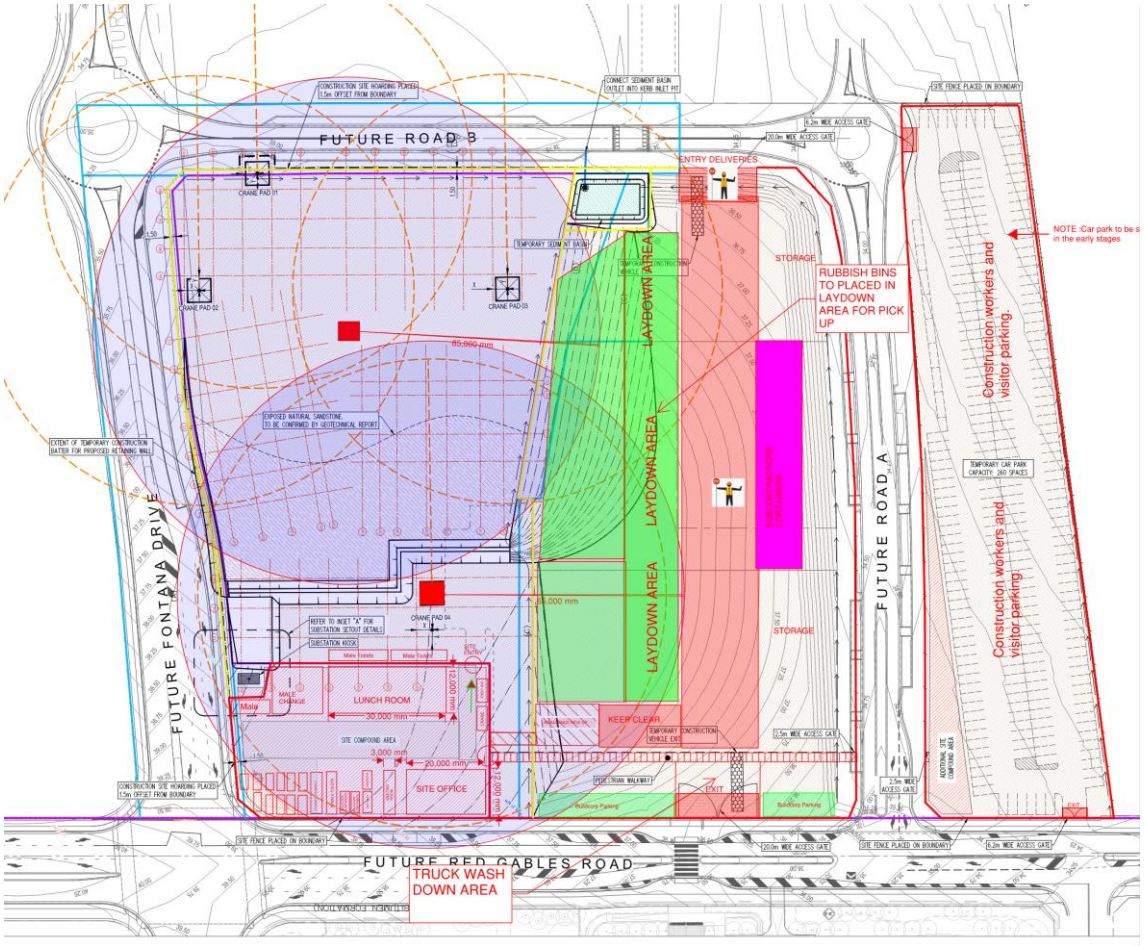
(a) 9am to 12pm, Monday to Friday;

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

(c) 9am to 12pm, Saturday

4.7 Waste Removal and Recycling

The site map below shows access locations for waste contractors, designated rubbish areas and wash down areas (within the proposed construction zone – shown in purple). Skip bins are provided on site for the management of mixed construction waste and are then taken away and sorted by a Buildcorp approved Waste contractor.



Buildcorp will have 1m^3 to 2m^3 crane-able waste bins located on each floor level of the project. These will be periodically emptied into a large 12m3 waste bin located within the 'proposed construction zone'. Movement of the bins will be undertaken by Buildcorp's onsite labourers and crane crew. The 12m^3 bin will be emptied/swapped on an as required basis. To control dust these bins will be covered with shade cloth. A Traffic and Pedestrian Management Plan will incorporate the all required movements of trucks into and out of the construction zone. Traffic control will be

utilised during the bin swap to ensure the general public/other workers are excluded from the construction zone for safety.

The Buildcorp approved Waste Contractor will provide monthly recycling and waste minimisation reports. These reports are audited to ensure that we are reaching our set targets. Records of the total waste generated and disposed to landfill or recycled, are retained on site by Buildcorp contractor site staff. (Refer to the Waste Management Plan in Appendix 3)

4.8 Noise and Vibration Management Plan

In accordance with SSDA condition C11

Buildcorp will where it can, utilise noise dampening construction techniques. The determination of noise control methods will be dependent on the particular activity and construction equipment being used at that time. Where a particular activity is found to be generating an unacceptable noise the work will be discontinued and alternative means of construction may be sought.

Acoustic barriers are an effective means of reducing noise, and can be located either at the receiver or at the source.

See attached Appendix 2 for full noise and vibration monitoring report.

4.9 Environmental Protection

Buildcorp's federally accredited Health Safety and Environment system includes reviewing all works on site not just for their impact on the Health and Safety of the workers but also the impact on the Environment. Buildcorp will ensure that all works onsite are exercised in accordance with Buildcorp Group's Environmental policy a copy of which is available in Folder 1 of the HSE System.

4.9.1 Erosion and sediment control

Buildcorp will incorporate filtration devices to stormwater inlets as per the TTW Civil design documents (CIV-TTW-DD-C010– (refer Appendix 4) for locations and details). Buildcorp is to check the sediment controls on a weekly basis for repairs that may be required.

4.9.2 Dust & Odour Control

During construction and demolition it is expected that dust will be generated from a variety of activities. To combat dust impacting neighbours the following techniques will be employed:

- Wetting down of demolition areas to minimise the generation of air-born dust
- Daily sweeping of construction areas to remove waste onsite (when applicable water will be used during sweeping to prevent dust agitation)
- Application of a curing and dust proofing agent to all new concrete slabs
- Use of shade-cloth on all long term scaffolding and fencing.
- Use of shade cloth to cover waste bins at the end of day.
- Wood born dust will be controlled with designated cutting areas, this will facilitate regular clean up if necessary
- MDF cutting rooms will be required if MDF needs to be cut onsite, Buildcorp does not encourage the use of MDF on this project and all means to substitute this will be used. If MDF does need to be cut, a designated cutting room will be employed (including mechanical dust extraction and filtering, complete segregation from work area, designated MDF Fibre cleaning areas)
- The following standards will be used when controlling dust onsite:
    - AS 3640:2004, Workplace atmospheres – Method for sampling and gravimetric determination of inhalable dust
    - AS/NZS 1715, Selection, use and maintenance of respiratory protective devices

- AS/NZS 1716, Respiratory protective devices
- WorkCover Release Catalogue No. WC03972

During construction it is possible that odour *may* be generated from a variety of plant and equipment. To manage potentially resultant odours from the greater neighbourhood, the following techniques will be employed:

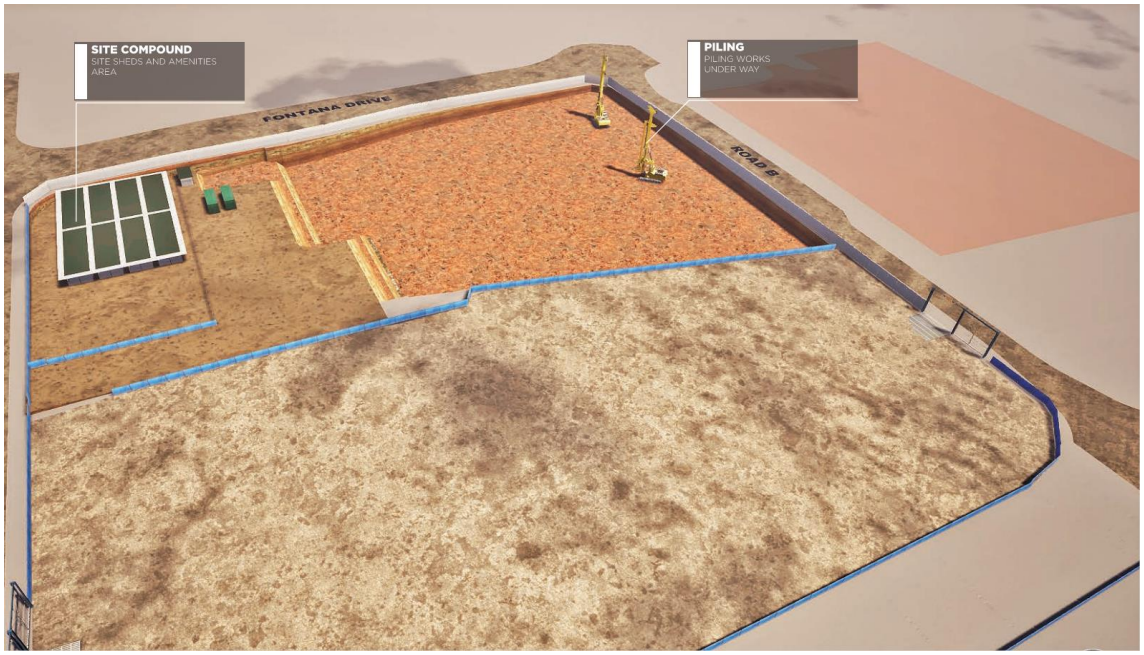
- Exhausts and ductwork from equipment are located away from any nearby (if any) air intakes, windows, enclosed areas and public areas,
- Plant and equipment emitting fumes are to be serviced regularly to prevent the discharge of excessive pollutants, including smoke, toxic fumes and odours.

4.10 Construction Lighting

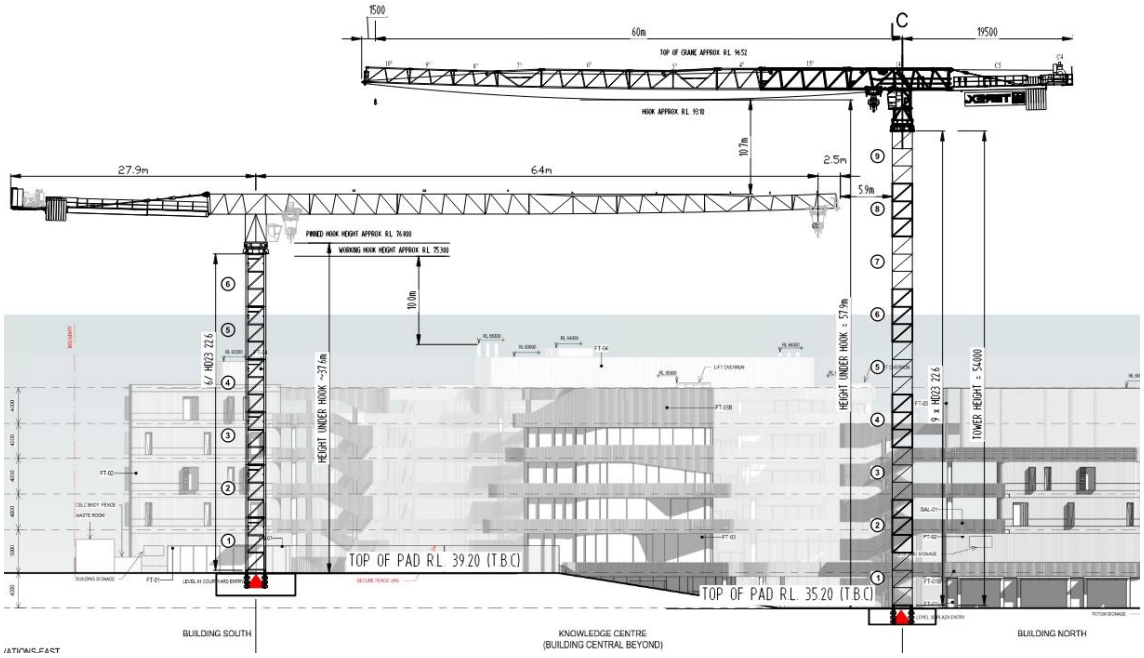
During construction, necessary precautions will be taken to minimise and control the obtrusive effects of lighting, particularly outdoor lighting. The outdoor lighting on site will predominantly consist of an array of accessway lighting, including lighting to tower sections of the cranes, task lighting, and general lighting to amenities and compound areas. Outdoor construction lighting of this nature is such that it is safe and appropriately adequate for use by users in proximity and as such will be non-obtrusive in nature. As such all external lighting will be compliant with AS 4282-2019 and certainly not have any adverse impacts on nearby dwellings, residents and general users of nearby roads.

5 Site Establishment

During the early works phase of the project the site will have a perimeter fence set up. Site Accommodation will be set up in a compound at the corner of Fontana Drive and Red Gables Road

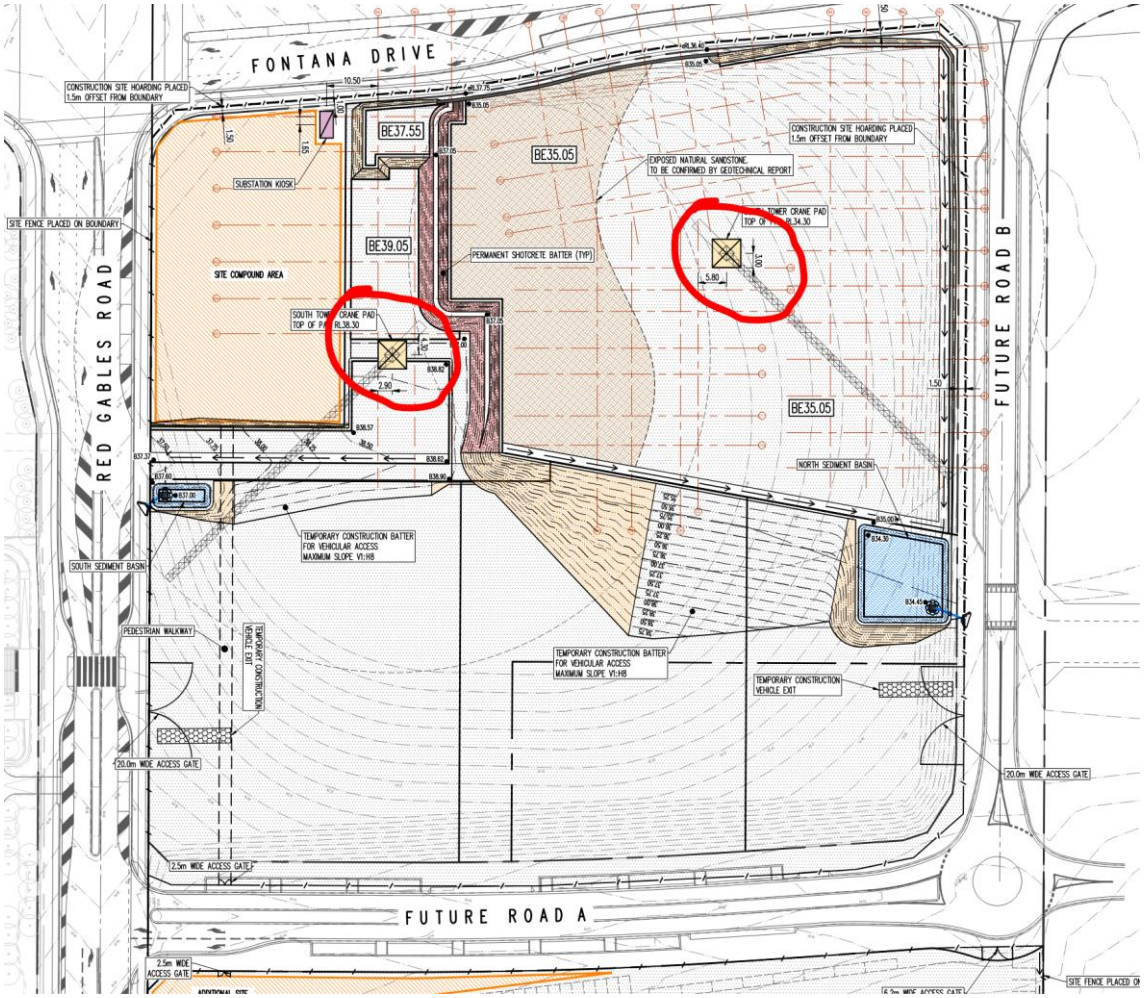


As the excavation phase draws to an end Buildcorp will erect two tower cranes on site.



5.1 Materials Handling

Two tower crane's will be placed on site as per the mark up below.



Loading platforms will also be placed at various locations on the structure to load materials into and out of the site.

Two construction hoists (Alimak) will be utilised as man and materials hoists and will be located on site also for materials handling location.

5.2 Site Loading Compound – Construction Zone

The site loading and unloading compound is located within the site boundaries and will not interfere with the general public.

5.3 Site Enclosure

The construction site will be fenced by 2.1m high wire mesh fencing system to separate the site from the public. There will be a controlled entry point to the site and Buildcorp will consider having it manned by a full time traffic control or a security boom gate to ensure that the public do not attempt to enter the construction site.

Buildcorp will ensure that the construction site is adequately lit throughout the night to provide safe access for Security or personnel responding to any issues that may have been raised. Buildcorp shall also ensure that any such night lighting does not adversely affect neighbouring Building occupants of an evening and is in compliance with A54282: 1997 Control of the Obtrusive Effects of Outdoor Lighting.

5.4 Site Photography and Recording Procedures

Buildcorp will liaise with providers about locating a camera to create a time lapse video of the construction of the new building. The location and view obtained will be agreed by the Project Director. Buildcorp will also take regular progress photos of the project to table at regular management meetings.

5.5 Site Communications

Buildcorp will utilise two way radios onsite to communicate between the Project Manager, Site Manager, Site Supervisors, Health and Safety and labourers. The Site Manager will ensure that communication on radios is concise and professional. Foul language will result in disciplinary action.

The crane crew will have their own radios on their own radio channel and will also be briefed on the above requirements.

5.6 Protection of People and Assets

Buildcorp will ensure that Construction works are kept separate from the general public by erecting a chain-wire fence around the entire perimeter of the site.

5.7 Site Signage

Buildcorp will ensure sufficient signage is allowed for around all access and egress points SVHS. Signage will include:

- Overall site plan
- Access/egress locations
- Detour routes if required
- Site contact details
- 24 hr contact details
- Directions to site office

5.8 Traffic and Pedestrian Management Plan

Construction Traffic and Pedestrian Management Plan (CTMP) (dated 13.3.2020) were prepared by Roadwork Solutions and submitted to the Hills Shire Council on 28/04/2020. The CTMP was prepared with the benefit of consultation with Hills Shire Council personnel:

Martin Jia

Buildcorp will continue to work with the Hills Shire Council to achieve a compliant CTMP for the site with clear and identifiable controls in place for the protection of the public and construction workers.

5.9 Traffic and Pedestrian Management Measures and Personnel

Buildcorp will ensure that Construction works are conducted in such a way as to minimise impact on traffic flow.

Delivery vehicles will be allocated delivery times and will be sent away from site if prior booking has not been made. If there is a vehicle in the construction zone any other vehicles will be given an instruction to “go around” and be given an approximate time frame when they might be accepted to site in the construction zone. Refer attached Construction Traffic Management Plan in Appendix 1.

5.10 Site Surveys and Setting-out

Buildcorp will subcontract a registered surveyor to perform all surveys required on the site. During establishment, surveys will be undertaken on the site surrounds to set property benchmarks and to track the alignment of the building. Buildcorp will compile all surveys and publish them within the hand over manual. As a minimum, these are to include:

- Corner coordinates
- RL’s for all floors
- Overall building heights
- Tops of surrounds walls and structures (retaining walls, stairs, vents etc.)

5.11 Identification and Tagging of Existing Services

Buildcorp will undertake identification of all existing services which are impacted by the construction works. Buildcorp will utilise an experienced service location contractor who will provide the following services:

- Review Dial Before You Dig (DBYD) documentation relating to the site to establish an understanding of known services within the area
- Conduct service locating onsite for all services nominated on the DBYD documents to ensure there is a visual representation of services for contractors to be aware of
- Provide a plan mark-up highlighting all located services (plan to be overlaid from an aerial photograph)
- Notify Buildcorp of areas that may require additional investigation to determine the actual conditions onsite

6 Construction

6.1 Road Cleanliness

As a general rule, vehicles will only enter and depart from the construction zone on Red Gables Road. As this is not a sealed urban roadway, Buildcorp will provide a cattle grid to ensure that construction activities do not contribute dirt or debris to the roadway. If at any stage dirt or debris is found on Red Gables Road as a result of Buildcorp or its trade contractors, Buildcorp will arrange for a road sweeper to clean the road as soon as possible to mitigate the transfer of dust and debris out of the site environment.

During excavation, Buildcorp will provide a 'cattle grid' system where trucks enter the construction zone to receive spoil.

6.2 Site Cleanliness

Buildcorp maintain that a clean site is a safe and productive site in addition to being environmentally friendly. All trade contractors will be made responsible to ensure that they clean up daily and place waste in bins provided by Buildcorp. Failure to clean up will result in Buildcorp taking appropriate actions under the trade contract agreements.

6.3 Subcontractor Parking

Buildcorp will provide an on-site construction workers car-park for the duration of the project. All workers will be instructed to park here. No parking of vehicles on Red Gables Road will be permitted.

6.4 Order of Works

Buildcorp will utilise the construction programme as defined within the Project Management Plan to schedule works and determine the order and sequencing. The construction programme will be available to all subcontractors within the Site Manager's office. The construction programme is to be updated per the requirements set-out within the Project Management Plan.

6.5 Procedure for Diversion of Existing Services

Buildcorp will identify all services that are required to be diverted and these will be listed in the schedules in the Interface Plan. The process will involve:

- Assessment of interface (Diversion of service)
- Generating a CMS for the works to be priced/completed by the subcontractor
- Undertaking DN process
- Consulting with the relevant stakeholders with appropriate notice
- Undertaking the works

Procedures are to strictly follow those set-out within the Interface Plan to ensure all stakeholders are aware of potential disruptions/changes to the hospital operations. No works are to be undertaken without written consent.

6.6 Procedure for Connecting Site Services

Buildcorp will provide a temporary substation for power during construction activities. These works were undertaken in an early works package.

Buildcorp will utilise the Interface Plan procedures of:

- Assessment of interface (Connection to existing service)
- Generating a CMS for the works to be priced/completed by the subcontractor
- Undertaking DN process
- Consulting with the relevant stakeholders identified
- Undertaking the works
- Testing the impact that the connection has on Hospital services

Procedures are to strictly follow those set-out within the Interface Plan to ensure all stakeholders are aware of potential disruptions/changes to the Hospital operations. No works are to be undertaken without written consent.

7 Appendices

7.1 Appendix 1 – Construction Traffic and Pedestrian Management Sub-Plan

Construction Traffic Management Plan

Santa Sophia Catholic College

Red Gables Road

Box Hill North

Buildcorp

Revision control:

Revision	Date	Description	Approved
Draft	13 Mar 2020	First Draft – Tori Curtin	
A	8 Jul 2020	Rev A	
B			
C			
D			

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Contents

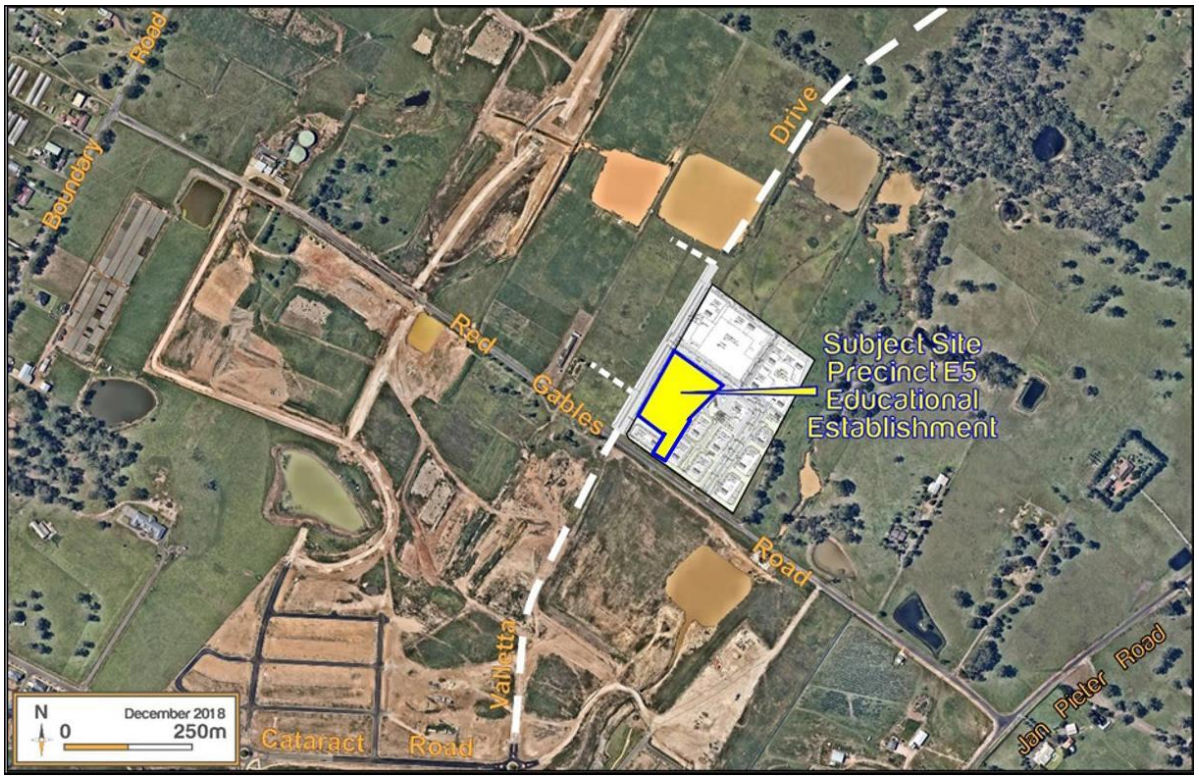
1.0 Scope of Works

This Construction Traffic Management Plan (CTMP) facilitates the safe implementation of a Traffic guidance scheme prepared to address traffic access and safety issues associated with Buildcorp's Santa Sophia Catholic College Box Hill.

This TMP has been prepared to provide details of the management of the traffic, plant and site compound activities associated with the proposed works. The primary purpose of this Plan is to provide traffic and plant management measures to be incorporated into the operational management of the works to ensure that all traffic and plant activity associated with work occurs with minimal interaction with adjoining public road traffic movements as well as ensuring the safe working conditions for construction crews. The traffic management plan is designed to be consistent with the overall construction plan for the project.

2.0 Location of Works

This TMP will be implemented for the proposed works associated with Buildcorp's 'Santa Sophia Catholic College' project situated at 10 Red Gables Rd, in the Red Gables Town Centre within Box Hill North. The site is situated on the North East corner of the intersection of Red Gables Rd and Fontana Dr. A location map is presented below.



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3.0 Project Scope & Context

The construction of Santa Sophia Catholic College will accommodate the development of a five-part multi storey building on the vacant site at Red Gables Road, Box Hill North. The building will present as three main hubs connected by terraced courtyards & Garden spaces. The development will primarily cater for 1,920 Primary & Secondary school students, inclusive of a 60-student catholic early learning center. The School will have 130 full time equivalent staff. The construction also includes a Staff car park for 110 vehicles provided off site in an adjacent location.

The construction program is expected to start in June 2020 and to be completed by 31 July 2021

The school will include:

- Catholic Early learning centre for 60 students
- General Learning Spaces for years Kindergarten to 12
- Community Hub – knowledge centre and cafe
- Creative Hub – art and applied science
- Performance Hub – multipurpose hall and music, dance and drama spaces
- Professional Hub – administrative space
- Research Hub – science and fitness
- Associated site landscaping and open space including a fence and sporting facilities
- Bus drop off from Fontana Drive
- Pick-up and drop-off zone from future road 'B'
- Pedestrian access points from Red Gables Road north, Fontana Drive and future road 'B'
- Staff parking for 110 vehicles provided off site in an adjacent location
- Short term parking for pick up and drop off for Catholic Early Learning Centre from Red Gables Road
- Digital and non-digital signage to the school.

Extract from SSDA

4.0 Impact Assessment

Existing Road Network

Windsor Road – A classified RMS Main Road (MR184) that generally runs in a northwest-southeast direction to the south of the Site. The road has a divided carriageway and is subject to an 80 km/h speed zoning. The road carries approximately 55,000 vehicles per day (vpd) (Station 71024)

Boundary Road – An unclassified Regional Road (7205) that generally runs in a northeast southeast direction to the west of the Site. It connects to Windsor Road in the south and Cattai Right Road to the north and carries one lane of traffic in each direction and is subject to a speed limit of 80 km/h.

Old Pitt Town Road – A local collector road that traverses in an east-west direction to the south of the site and is subject to a speed limit of 60 km/hr.

Red Gables Road – A local road that runs parallel to Old Pitt Town Road and connects to Boundary Road in the west and Janpieter Road in the east. It forms the southern frontage of the Site and carries one lane of traffic in both directions with a speed limit of 60 km/hr.

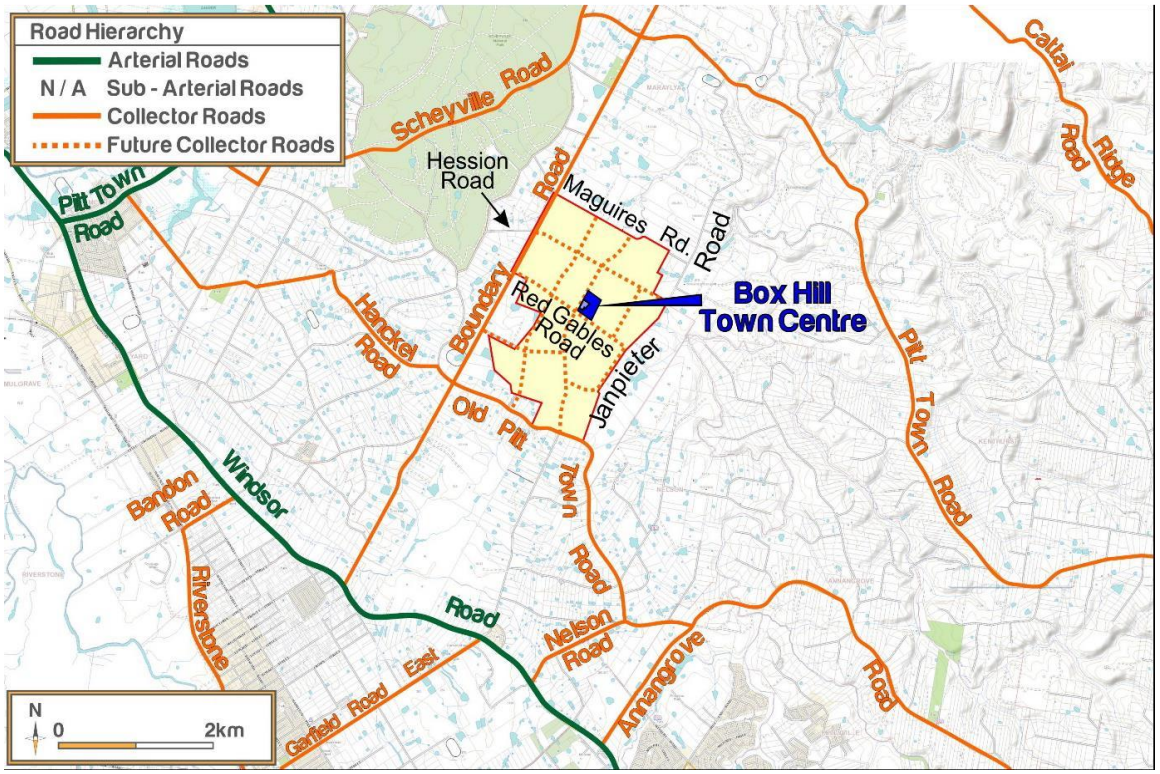
Fontana Drive – A future local road that runs parallel to Boundary Road which generally runs in the north-south direction and forms the western frontage of the Site. The road is proposed to have a

divided carriageway. It should be noted that Fontana Drive is undergoing construction and construction has not yet commenced in vicinity of the Proposal.

Internal Road A (Road A) – A future local road that runs parallel to Fontana Drive which generally runs in the north-south direction and to the east of the Site. The road is proposed to have a divided carriageway. It should be noted that Internal Road A has yet to be constructed.

Internal Road B (Road B) – A future local road that runs parallel to Red Gables Road which generally runs in the east-west direction and along the northern frontage of the Site. It should be noted that Internal Road B has yet to be constructed.

Image of Key Intersections



The impact on the traffic flow on the adjacent and surrounding road network from construction traffic will be minimal.

Site access

During the construction works, there will be one site access, located at the northern Road B street frontage. All vehicles would need to avoid the Red Gables Road / Fontana Drive intersection to allow the construction of the precinct's key intersections and roads. As such, construction vehicles would be redirected to turn off-road at Red Gables Road onto a temporary off-road haulage track before turning back onto Road B to access the Site. It is unlikely any residential construction activity would be occurring along Fontana Drive during the construction of the Santa Sophia Catholic College.

The largest vehicle accessing the Site would be a 19.6m Truck and Dog. Contractor parking would be provided on-site but the location of the temporary contractor parking would change throughout the construction schedule.

Pedestrians attempting to cross the Site's heavy vehicle accesses are to be managed through signage, pedestrian barriers and traffic controllers.

Emergency vehicle access to and from the Site will be available at all times while the Site is occupied by construction workers. This process would be implemented through emergency protocols on the site which will be developed by the Contractor.

Image of Proposed Site access point

Image of Proposed Road "B"

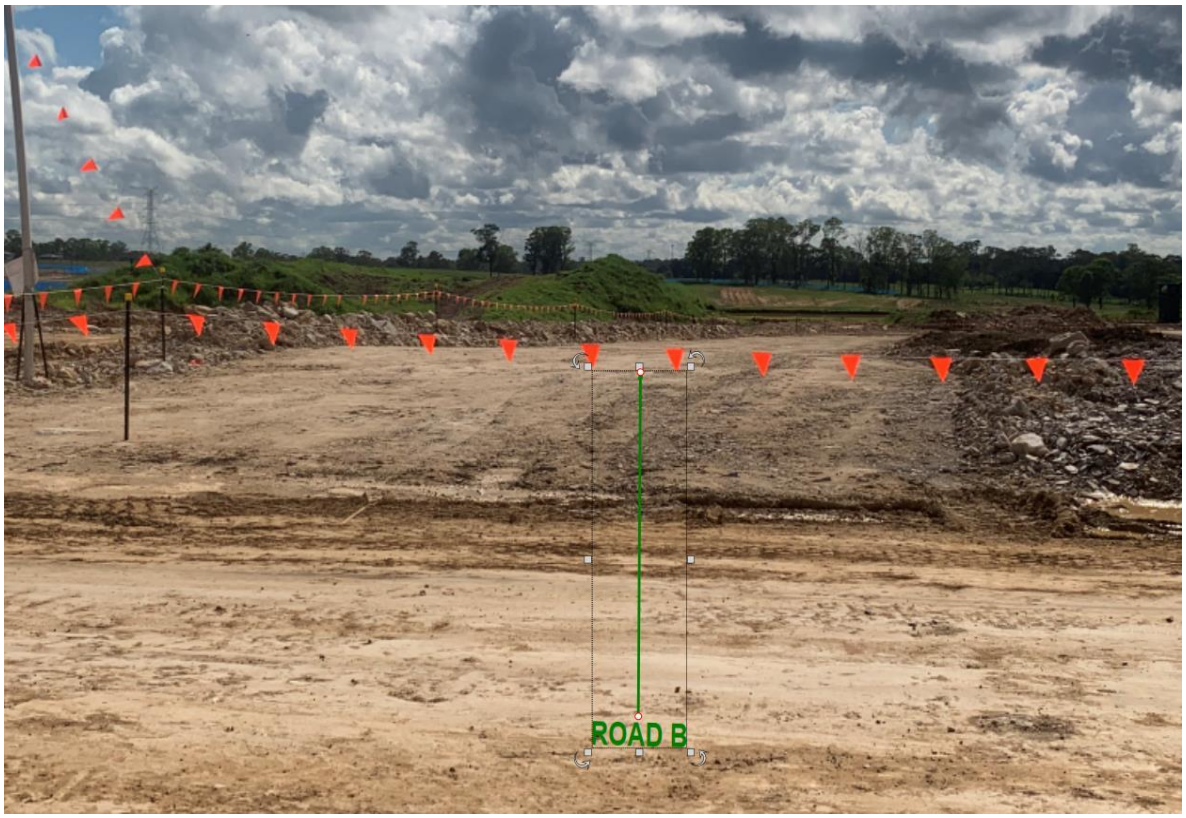


Image of Proposed Site entry access point on road "B"

Image of Proposed egress point on road "B"

Image of Proposed Road "B"

Hours of Operation

Standard hours of construction for the duration of the project are anticipated to be between 7:00 am – 6:00 pm, Monday to Friday and 7:00 am – 5:00 pm Saturdays. It is not anticipated that activities during the construction program will have to be completed outside of these hours. However, any such works will be coordinated and notified as required.

Construction Vehicles

Construction vehicles likely to travel to and from site are likely to include:

- Floats for Earthwork and Piling machines
- Heavy and medium rigid trucks for construction spoil removal
- Floats for onsite crane assembly
- Heavy and medium rigid trucks for construction material delivery
- Mobile cranes and concrete pumps
- Concrete Agitators: and
- Trade vehicles

During the construction period, the construction vehicle movement activities are set out in the below table.

Task	Duration	Truck movement per day
Excavation	4 weeks	72
General construction	10 months	135
Concrete pours	9 months	138
External finishes	4 months	22
Footpath works	4 weeks	18

Vehicle Dimensions

SRV – Small rigid vehicle-load capacity of 4 tonnes, typically single rear axle, are 6 m long

MRV – Medium rigid vehicle-load capacity of 8 tonnes, typically single rear axle, are 8.8 m long

HRV – Heavy rigid vehicle-load capacity of 12-16 tonnes, typically dual rear axle, up to 12.5 m long

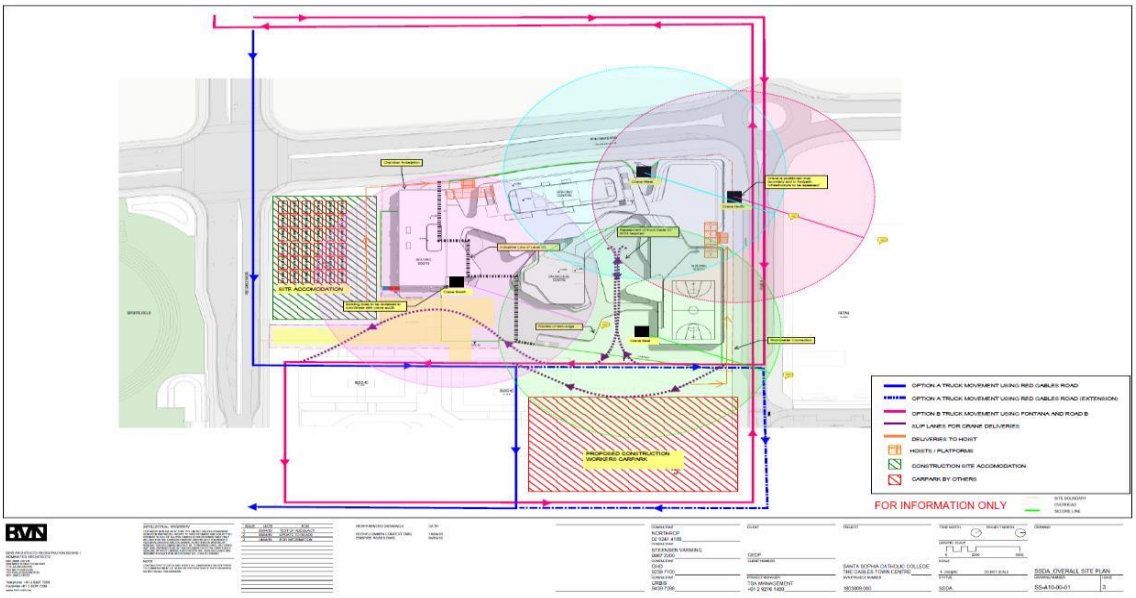
AV – Truck and dog combinations, typically an MRV with a trailer

Construction Routes

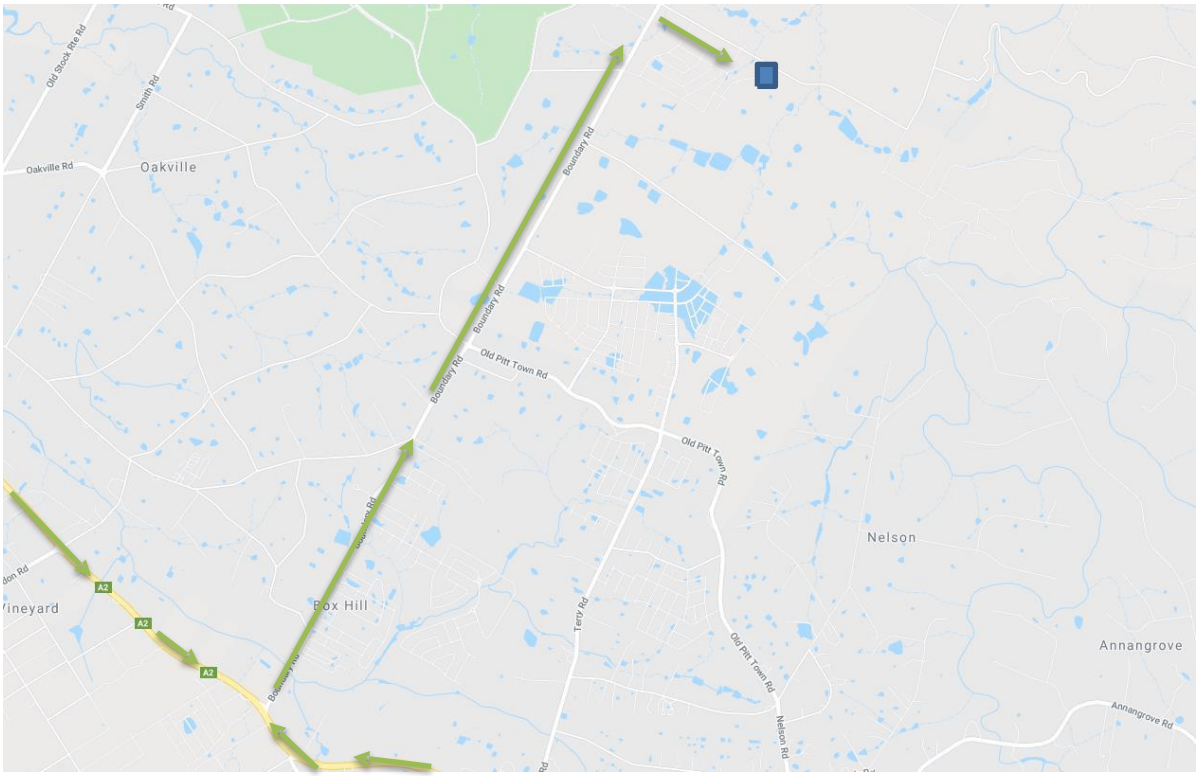
Construction vehicles will travel to and from site on arterial road suitable to their vehicle type. The main routes are illustrated in the figure below.

The construction access to the site will be Road B, from Red Gables Rd, via Boundary Road. Construction vehicles will egress from the site on Road B, following through to Red Gables Rd, then Boundary Road This will connect all construction vehicles to the wider road network.

Internal Construction Travel Routes



Construction Travel Routes



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5.0 Traffic Control

Each work stage has different requirements, these will be identified individually and management plans put into place, the site TCP will include more detail of this implementation and how the controls put in place will minimize disruption whilst maintain a safe work area for construction crews. These Traffic Control Plans based on Australian Standard 1742.3 and RMS' Traffic Control at Work Sites Guidelines, will be produced in consultation with Council and RMS.

Each work site will have a TCP which will address the following:

Traffic flow. All traffic will be managed by a TCP which will comply with AS 1742.3 and the RTA Traffic Control at Work Sites manual (TCWSM). Please refer to the Traffic Control Plans attached.

Pedestrian movement. All pedestrian movement including entry, egress and movement around the work area will be in accordance with RMS TCWSM Section 9.3 – Pedestrians. All work areas will be secured with barriers and fencing to ensure that no unauthorized entry for pedestrians is possible.

Plant movement. All plant movement including entry, egress and movement within the work area in accordance with RT TCWSM Section 7 – Providing for works traffic.

Cyclist movement. All cyclist movement including around or adjacent to the work area will be in accordance with RMS TCWSM Section 9.4 – Cyclist.

Stakeholder Authority. The work site will require the authority of the stakeholder – The Hills Council which will be onsite at all times.

5.1 Vehicle Access

Vehicle access is on Road B via Red Gables Rd. There are currently no residential properties existing within the surrounding area. Once constructed, vehicle access to all properties within the surrounding area will remain unaffected.

5.2 Site Access

The construction zone will be accessed at a nominated access point on road "B". All site access during construction periods will be managed under the vehicle movement plan. The remaining access path will lay within the site perimeter. As a safety precaution the use of safety barriers is recommended to ensure that appropriate separation of workers, plant and construction traffic is maintained. All oversized deliveries will occur as per RMS guidelines and council restrictions.

Pedestrians attempting to cross the Site's heavy vehicle accesses are to be managed through signage, pedestrian barriers and traffic controllers.

5.3 Pedestrian Access

The majority of construction activities would occur off-street. Although construction activities occur off road, the pedestrian and cycle connections would be managed by traffic controllers and boom gates during construction activities.

It is proposed that traffic controllers be at each vehicle access to remotely control

the pedestrian boom gates at the vehicle accesses to control the pedestrian flow.

Pedestrians and cyclists using the footpath fronting the Site or Work Zone will be halted by an accredited Traffic Controller using a remote-controlled boom gate while construction vehicles are exiting the Site. An expandable barrier (pedestrian boom gate or equivalent) would be installed on both sides of the driveway, to be operated when construction vehicles are on approach / ready to depart from the Site. Once the construction vehicles are clear from the footpath, the Traffic Controller can allow the pedestrians and cyclists to continue along their journey. An on-Site waiting bay and stopping location

is proposed for all Heavy Vehicle exiting movements. This will allow co-ordination and management of pedestrian/cyclist right of Way and interaction with traffic controllers. Warning signs will be put in place where pedestrians and construction vehicles interact.

5.4 Signage

The TMP introduces new regulatory and advice signage designed to provide motorists and pedestrians the clearest notification of the potential hazards created by the new work site. Parking restrictions signs will also be used for construction zones.

Additional static signs to inform motorist and pedestrians will be put on the approach to works. Please refer to Traffic Control Plans/Traffic Guidance Schemes.

5.5 Barriers

A small number of barriers may be installed as required. Buildcorp may deploy appropriate temporary barrier system compliant with AS 3845. A work site exclusion zone will be created to cater for this deflection distance.

6.0 Maintaining Network Performance

6.1 Road Occupancy

If Required Buildcorp will obtain an approval from The Hills Council and TfNSW prior to the commencement of any works on the road except in the case of an emergency, or when directed by Police or Emergency services, Buildcorp will endeavour to reinstate road as soon as practicable.

All applications will be forwarded to The Hills Council and TfNSW with an allowance for the Traffic Committee to approve the application (if required). Associated works (utilities) may require ROLs, as required subcontractors will obtain ROL's and carry out works as per ROL conditions.

All ROL's will comply with the overarching road safety and traffic management principles, objectives and targets outlined in the Project Construction Management Plan.

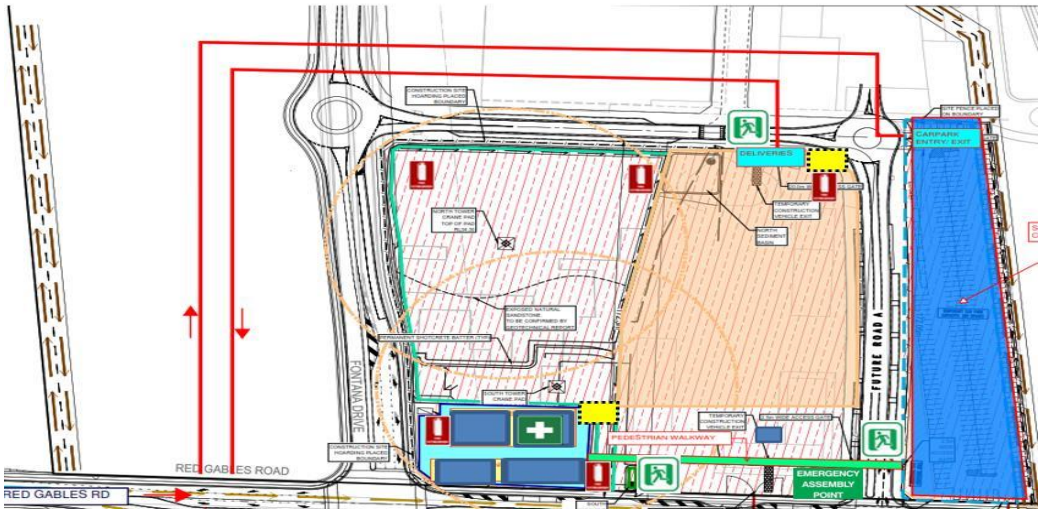
6.2 Surrounding Parking Modifications

There will be no parking modifications on site as all contractors must park in the designated car park provided

6.3 Construction Workers Parking

Temporary contractor parking will be provided at an adjacent plot of land to the northwest of the Site across Fontana Drive. This area would be eventually be developed as a residential precinct, but during the construction of the School, this area would be vacant. Key contractors and staff will be provided parking there throughout the construction works. No on-site parking will be permitted as all parking will be wholly contained within these parking areas

Construction Workers Car Parking



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6.4 Unplanned Events (Incident Response)

Buildcorp will manage all incidents which may contribute to congestion, aggravate the free-flow of traffic or threaten the wellbeing of any road user within the Project boundaries in compliance with the Project Incident Management Plan.

6.5 Planned Events

The Hills Council and Transport for NSW events calendar will be considered when programming this work, to ensure there are no conflicts with local events or other motorway works. Consultation will continue with the council regarding any issues working during proposed times.

6.6 Public Transport

The road network surrounding the site is not highly serviced by public transport services due to the previous and current low travel demands of the locality. The 746 Riverstone to Rouse Hill town centre service is the closest regular bus service to the site running along Old Pitt Town Road. There is also a daily school bus service running along Luddenham. Riverstone train station is located 10km north of the site and the new Tallawong Metro Station is located 12km north-west. All affected services will be consulted prior to works with approvals requested as required.

6.7 Property Access

All property access adjacent to, and the surrounding area will be maintained. Any unforeseen restrictions to property access will be communicated to stakeholders prior to works.

6.8 Emergency Services

This arrangement will result in minimal impact on emergency vehicles. Emergency Services will be provided advance notice of any changes via the site management team and email updates.

6.9 Monitor the effectiveness of control measures

The use of an inspection checklist will be implemented to monitor the effectiveness of the traffic control measures in place. A traffic control safety inspection will be completed at least once per month, with any minor modifications completed as required. Any major modifications will be assessed and implemented by a suitably qualified person.

7.0 Community/Advertising/Consultation

In order for any construction traffic management strategy to work effectively, continuous communication is required between all parties, which may be potentially impacted upon, the builder and the regulatory authority. This establishes a dynamic response process which allows for the adjustment of control methods and criteria for the benefit of all parties.

The objective in undertaking a consultation processes is to:

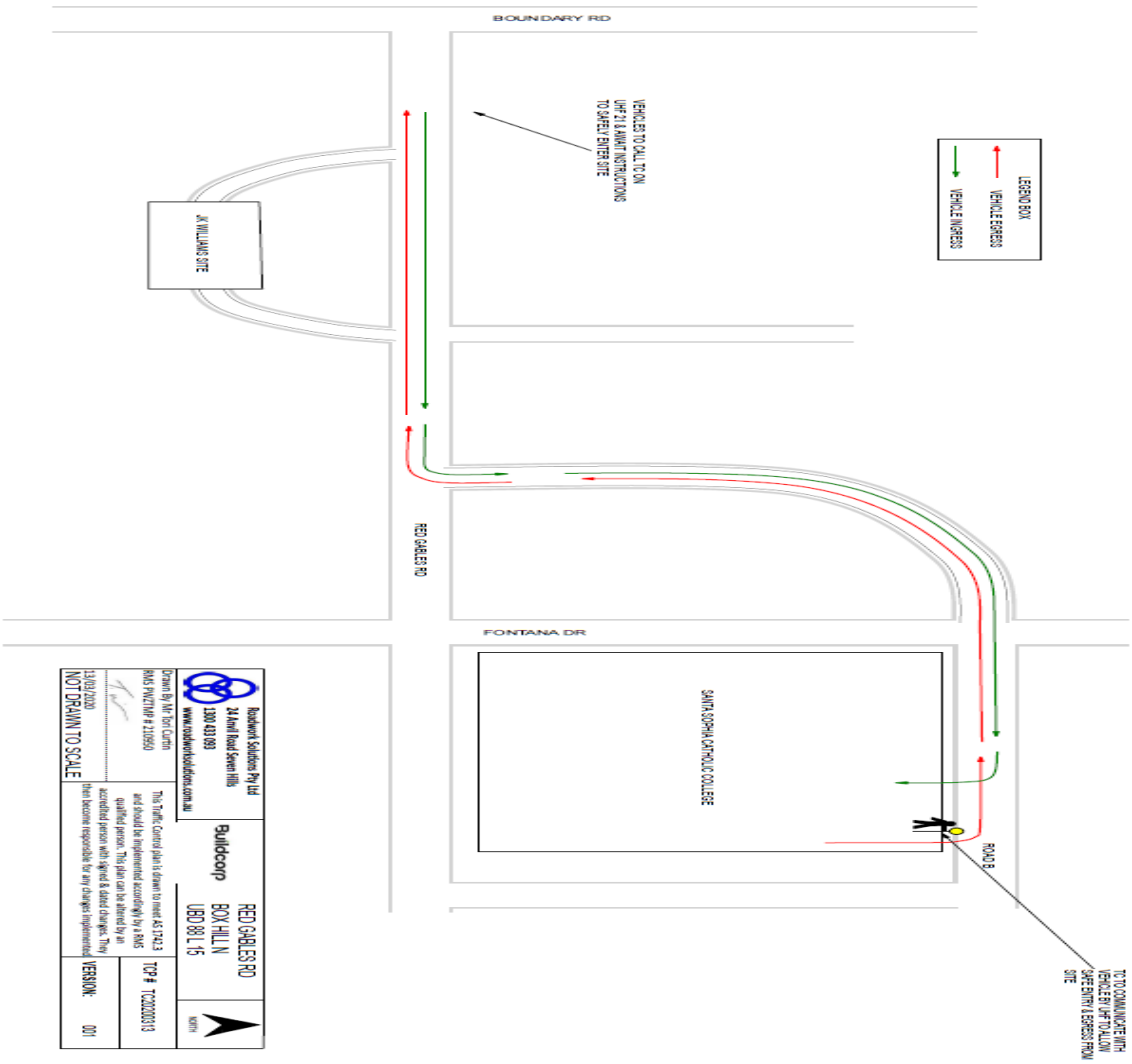
- Inform and educate the groups about the project and the noise controls being implemented;
- Increase understanding of all acoustic issues related to the project and options available;
- Identify group concerns generated by the project, so that they can be addressed; and
- Ensure that concerned individuals or groups are aware of and have access to a Constructions Complaints Register which will be used to address any construction noise related problems should they arise.

Community consultation is recommended prior to any works commencing on site, with letterbox notifications to all identified surrounding sensitive receivers. This will include a construction management plan detailing the proposed works on site and duration of each stage.

8.0 Contacts

Contact	Position	Mobile No.
Paddy Holland	Project Engineer	0411 032 559
Ben Polding	Senior Site Manager	0406 751 278
Sean Gemmell	Senior HSE Coordinator	0478 877 518
Matthew Muzyczka	Project Supervisor	0415 886 192
Transport Management Centre	Operations Centre	1800 679 782

9.0 Traffic Control Plan/Traffic Guidance Scheme



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10.0 CTMP Approval

BUILDCORP representative to sign off

The Project Manager will verify the long term TMP is completed and suitable for consideration by the approval authorities:

Name and signature:	**Date:**

Road Authority representative to sign off

The Road Authority Project Manager will email confirmation that this TMP is approved for implementation to the BUILDCORP Project Manager. The signature box below will record a note confirming receipt of that email. A copy of the email will be attached as an Appendix to this document.

Name and signature:	**Date:**

11.0 Driver Code of Conduct

General Requirements

Construction vehicle drivers travelling to and from the site must:

- Have undertaken a site induction carried out by an approved member staff or suitably qualified person under the direction of management;
- Hold a valid driver's licence for the class of vehicle that they operate;
- Operate the vehicle in a safe manner within and external to the quarry site;
- Comply with the direction of authorised site personnel when within the site;

Heavy Vehicle Speed

Increased speed means not only an increased risk of crashing but also increased severity if an accident occurs. A study undertaken for the Australian Transport Safety Bureau found that travelling 10 km/h faster than the average traffic speed can more than double the risk of involvement in a casualty accident. (Source Roads and Maritime Services (RMS) previously known as Roads and Traffic Authority (RTA)).

There are two types of speeding:

- Where a heavy vehicle travels faster than the posted speed limit; and
- Where a driver travels within the speed limit but because of road conditions (e.g. fog or rain) this speed is inappropriate. (Source RMS).

Drivers and truck operators are to be aware of the "Three Strikes Scheme" introduced by the Roads and Maritime Services which applies to all vehicles over 4.5 tonnes. When a heavy vehicle is detected travelling at 15 km/h or more over the posted or relevant heavy vehicle speed limit by a mobile Police unit or fixed speed camera, the Roads and Maritime Services will record a strike against that vehicle. If three strikes are recorded within a three year period, the Roads and Maritime Services will act to suspend the registration of that vehicle (up to three months).

More information is available from the Roads and Maritime Services website.

Vehicle speed on public roads is enforced by the NSW Police Service.

The speed limit within the quarry site is 20 km/h which is to be strictly maintained.

Heavy Vehicles Driver Fatigue

Fatigue is one of the biggest causes of accidents for heavy vehicle drivers. The Heavy Vehicle Driver Fatigue Reform was therefore developed by the National Transport Commission (NTC) and approved by Ministers from all States and Territories in February 2007.

The heavy vehicle driver fatigue law commenced in NSW on 28 September 2008 and applies to trucks and truck combinations over 12 tonne GVM (however there are Ministerial Exemption Notices that can apply).

Under the law, industry has the choice of operating under three fatigue management schemes:

- Standard Hours of Operation
- Basic Fatigue Management (BFM)
- Advanced Fatigue Management (AFM)

Heavy Vehicle Compression Braking

Compression braking by heavy vehicles is a source of irritation to the community generating many complaints especially at night when residents are especially sensitive to noise.

In some instances compression braking is required for safety reasons however when passing through or adjacent to residential areas or isolated farmsteads a reduction in the speed of the vehicle is recommended to reduce the instances and severity of compression braking.

Heavy Vehicle Noise

The operating hours for transportation of materials to and from site are:

Monday – Saturday (except Public Holidays) 7:00 am to 6:00 pm

Sundays and Public Holidays No activities

The following activities may be carried out on the site outside these hours of operation;

- delivery or dispatch of materials as requested by Police or other authorities; and
- Emergency work to avoid the loss of lives, property and/or to prevent environmental harm.

At the commencement of the working day it is not unusual for drivers to arrive early and wait for opening. If this occurs drivers are to wait with engines turned off.

Vehicle Departure and Arrival

Heavy Vehicles travelling in close proximity on single lane public roads can be of concern to light vehicle drivers as well as increasing noise through or adjacent to residential areas. To alleviate public concern and increase road safety, heavy vehicles leaving the site should be separated by a minimum two minute interval.

It is difficult to schedule arrivals to the site (except at the commencement of work for the day), however, when a driver becomes aware, through visual contact or two-way contact between trucks, that they will arrive at approximately the same time then they are to ensure that there is a suitable gap between vehicles.

12.0 Traffic Control Inspection Checklist

SITE AUDIT CHECKLIST

Date…… Time…… Completed by……
Name of Supervisor:…… Project:……
Name of Client…… Foreman ……..
Location…… TCP No……

				Tick or cross in the appropriate box:
No.	**Conditions**	**Acceptable**	**Not Acceptable**	**Not Applicable**
1	**Traffic Control Plan**			
1.1	Is an approved TCP on site & has it been modified by an authorized person?			
1.2	Have signs & devices been correctly implemented as per the TCP?			
1.3	Could the worksite be set out differently to minimize the impact on traffic, pedestrians &/or cyclists?			
1.4	Is the clearance between workers & traffic adequate for worksite?			

ANY COMMENTS, IMPROVEMENT?

……
……
……

2	**Signs & Devices**	**Acceptable**	**Not Acceptable**	**Not Applicable**
2.1	Has a site check been completed?			
2.2	Are signs present & in good condition?			
2.3	Are the signs in a clear position & not affected by other contradictory signs, plant, vegetation, shade, etc?			
2.4	Are the correct sign sizes being used?			
2.5	Have the needs for pedestrians & cyclists been provided for?			
2.6	Is all property access to the site controlled?			
2.7	Is the taper length correct?			
2.8	Is there an adequate buffer zone?			

ANY COMMENTS, IMPROVEMENT?

……
……
……

3	Traffic Controllers	Acceptable	Not Acceptable	Not Applicable
3.1	Are the correct number of Traffic Controllers being used?			
3.2	Have their Traffic Control Certifications been sighted & are they current? (WHS Card? Blue ticket? Client/Project Induction?)			
3.3	Are all staff using a two-way radio?			
3.4	Are they wearing high visibility clothing?			
3.5	Are the TC's getting adequate breaks?			
3.6	Do the TC's have a clear escape route?			

ANY COMMENTS IMPROVMENTS?

……

……

……

4	Record Keeping	Acceptable	Not Acceptable	Not Applicable
4.1	Has a Job Safety Analysis been completed & signed?			
4.2	Does the Job Safety Analysis cover the risks & hazards associated with the worksite?			
4.3	Has a service delivery docket been completed & recorded?			

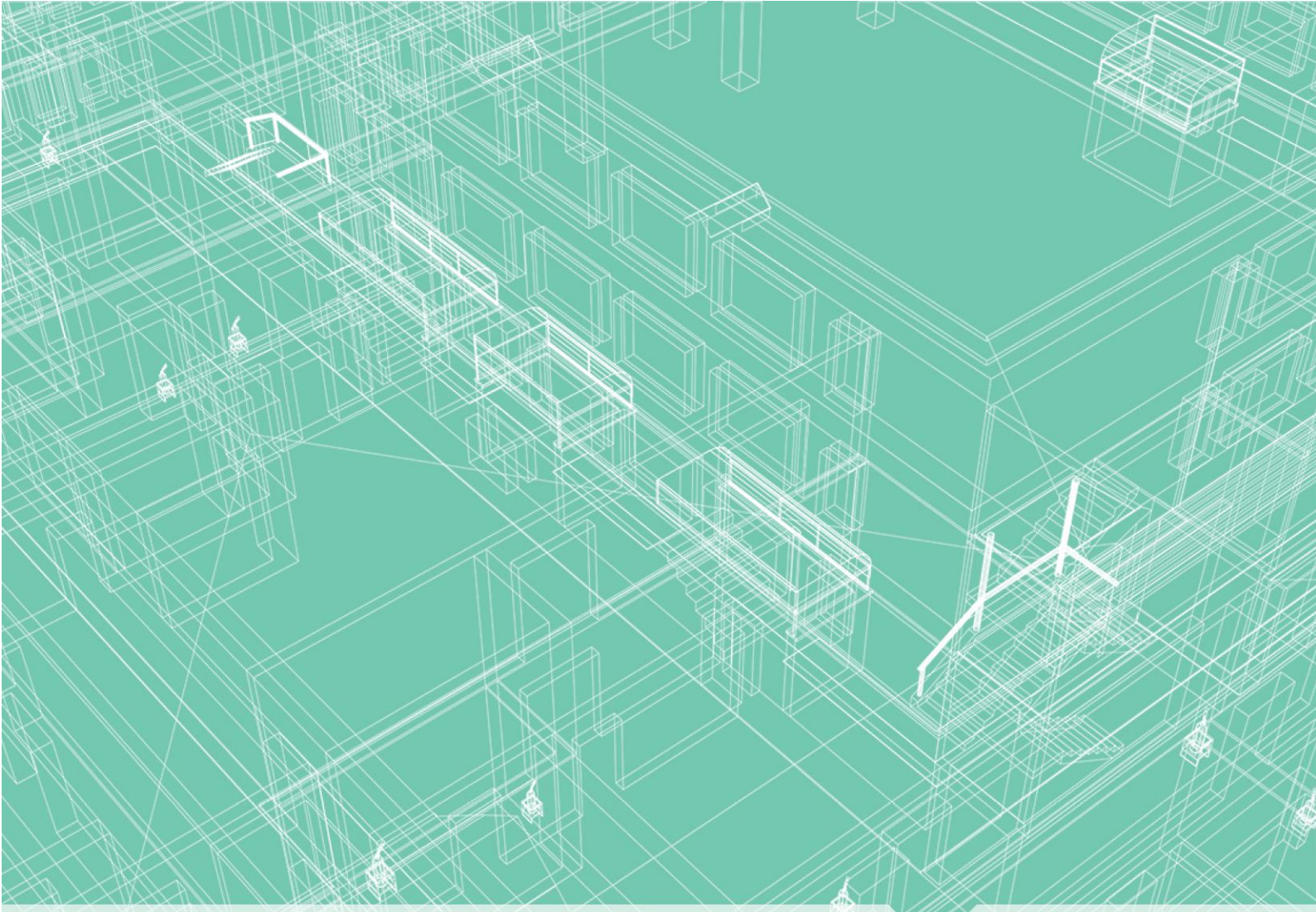
ANY COMMENTS, IMPROVEMENT?

……

……

……

7.2 Appendix 2 – Construction Noise and Vibration Management Sub-Plan



CONSTRUCTION NOISE AND VIBRATION MANAGEMENT PLAN

SANTA SOPHIA CATHOLIC COLLEGE

ACOUSTIC SERVICES

JHA

JHASERVICES.COM

This report is prepared for the nominated recipient only and relates to the specific scope of work and agreement between JHA and the client (the recipient). It is not to be used or relied upon by any third party for any purpose.

DOCUMENT CONTROL SHEET

Project Number	190091
Project Name	Santa Sophia Catholic College
Description	Construction Noise and Vibration Management Plan
Key Contact	Mathew McGrory

Prepared By

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Author	Sean Matthews, B.Eng (Mech)
Checked	Mathew McGrory
Authorised	Mathew McGrory

Revision History

Issued To	Revision and Date							
Buildcorp	REV	A	B	C	D	E		
	DATE	28/04/2020	05/05/2020	09/07/2020	09/07/2020	21/07/2020		

CONTENTS

1 INTRODUCTION

1.1 OVERVIEW

JHA Consulting Engineers has been engaged by TSA Management to provide acoustic services for the Santa Sophia Catholic College, for the development of a Construction Noise and Vibration Management Plan (CNVMP). This CNVMP has been prepared to address Condition 11 of the SSD 9772 Consent Conditions as part of the requirement for Construction Certificate.

The development involves the construction of a new school for approximately 1,920 primary and secondary school students, inclusive of a 60 student Catholic Early Learning Centre (CELC). The development includes the following:

- Catholic Early Learning Centre for 60 students;
- General Learning Spaces for years Kindergarten to 12;
- Community Hub – knowledge centre and cafe;
- Creative Hub – art and applied science;
- Performance Hub – multipurpose hall and music, dance and drama spaces;
- Professional Hub – administrative space;
- Research Hub – science and fitness;
- Associated site landscaping and open space including a fence and sporting facilities;
- Bus drop off from Fontana Drive;
- Pick-up and drop-off zone from future road 'B';
- Pedestrian access points from Red Gables Road north, Fontana Drive and future road 'B';
- Staff parking for 110 vehicles provided off site in an adjacent location;
- Short term parking for pick up and drop off for Catholic Early Learning Centre from Red Gables Road; and
- Digital and non-digital signage to the school.

The following documentation has been used for the preparation of this report:

- Noise and Vibration Impact Assessment for SSDA (SSD 18_9772) prepared by JHA dated 04/05/2019
- Construction Management Plan prepared by Buildcorp dated 12/04/2019
- Noise data collected on site through the use of noise loggers and a hand held spectrum analyser

This document and related work has been prepared following JHA Consulting Engineers Quality Management System, which is based on AS/NZS ISO 9001 and ISO 14001 Environmental Management Systems. This document has been prepared by an appropriately qualified and competent person practicing in the area of acoustics.

1.2 PURPOSE OF THE CNVMP

The purpose of the CNVMP is to ensure that noise and vibration impacts due to construction activities are appropriately managed in accordance with relevant legislation and standards, plus protection of nearby sensitive receivers. The requirements of Development Application Consent Condition 11 will be met. Condition 11 states the following:

C11. 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 C11(d);*
>
> *(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 management measures in accordance with Condition C11(c). The program should be developed with reference to the recommendations made in the Noise and Vibration Impact Assessment for Santa Sophia Catholic College , prepared by JHA Acoustics and dated 12 September 2019*

This CNVMP identifies the Contractor's obligations and the requirements to manage noise and vibration during construction such that the necessary allowances within the construction costs, programmes and work methodologies can be made. Relevant legislation, guidelines and standards are identified in this CNVMP.

JHA notes that given the proximity of the site to the nearest noise affected receivers (RC3 at ~270m) there is a low risk of adverse noise impacts, therefore community consultation was not undertaken in developing this CNVMP as per Condition C11(e).

1.3 NOISE AND VIBRATION ISSUES

The development site is a greenfield site, and is currently surrounded by rural land and residences, generally with significant distance from the site to surrounding residences. The construction works will contribute noise and vibration emissions to the surrounding environment. Typically, this will comprise of continuous and intermittent noise and vibration from on-site construction equipment and plant equipment.

Construction noise associated with the project may include airborne and ground-borne noise impacts as follows:

- Airborne Noise: Proposed construction works will generate noise that will propagate through the air. Airborne noise generated by external construction activities is likely to impact on surrounding sensitive receivers.
- Ground-borne noise and vibration impacts: Demolition and piling works have the potential to generate noise and vibration that propagates through the ground and building structural elements which is then radiated by vibrating wall and floor surfaces of nearby sensitive receivers.

1.4 RESPONSIBILITIES

The main Contractor must be responsible for ensuring that the noise and vibration from activities carried out on site are minimised as far as practical.

The Contractor is responsible for:

- Ensuring that any site noise and vibration plus any complaints, are monitored, investigated, managed and controlled in accordance with the recommendations provided in this plan.
- Ensuring procurement documents specify any particular requirements in relation to the management of noise and vibration.
- Ensuring all works are undertaken in accordance with the requirements of the contract documents and this plan.
- Ensuring all project personnel and sub-contractors employed are aware of their responsibilities in regard to the management of noise and vibration during construction and assume the responsibilities assigned to them within the plan.
- Monitoring and managing noise and vibration impacts on sensitive receivers, in accordance with the requirements of the relevant guidelines and standards.
- Consulting with the occupants of surrounding buildings to inform them of the nature of the construction works, to determine any specific noise and vibration sensitivity they may have and to negotiate respite times during noisier works.

2 PROJECT DESCRIPTION

2.1 DESCRIPTION OF THE PROPOSAL

The Santa Sophia College site is located in Box Hill, NSW, within the future town centre 'The Gables', on the corner of Red Gables Road and the future extension of Fontana Parade. The Gables is a master planned community privately developed by Celestino. The existing site is a greenfield site surrounded by rural land and residences. The surrounding land uses are as follows:

- *North*: Immediately north of the site is currently rural and/or agricultural land. Further north is rural residential and grazing land.
- *East*: Land to the east is currently occupied by rural and agricultural uses and residential properties.
- *South*: Land to the south is currently occupied by rural and agricultural uses. Further south is the Box Hill urban release area and residences.
- *West*: Land to the west of the site is rural and/or agricultural land. Further West is Boundary Road and residences.

The location of the site and surrounding noise sensitive receivers are presented in Figure 1, in relation to where the construction work will occur.

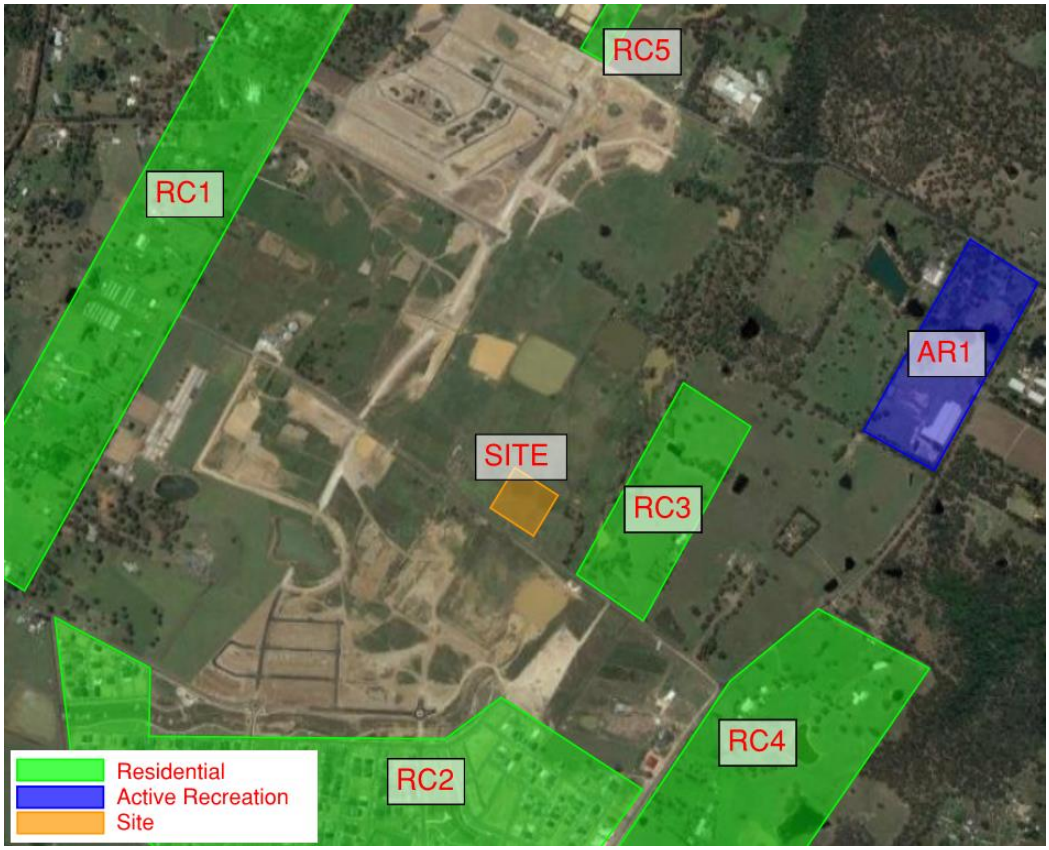


Figure 1: Aerial view of site showing the location of the construction site and sensitive receivers.

Refer to Table 1 for the details of the nearest receivers including the approximate distance to the construction site.

Receiver Catchment ID	*Nearest Address*	*Details*	*Receiver Type as per ICNG*	*Distance from Boundaries (m)*
AR1	191 Maguires Road	Horseworld Sportsworld	Active Recreation	920
RC1	162 Boundary Road	Residence	Residential	990
RC2	New residences on Peperino Street	Residence	Residential	450
RC3	28 Red Gables Road	Residence	Residential	270
RC4	35 Janpieter Road	Residence	Residential	690
RC5	66 Maguires Road	Residence	Residential	920

Table 1: Receivers surrounding the site and the approximate distances from boundaries.

It is noted that if noise impacts associated with the proposed development are controlled at the nearest sensitive receivers, then compliance with the recommended criteria at all noise sensitive receivers should be achieved.

2.2 NOISE MONITORING RESULTS

Long-term noise monitoring was carried out from Friday 22nd March to Friday 29th March 2019 with a Rion NL-52 noise logger (Serial Number 1254316) for the Noise and Vibration Impact Assessment for SSDA prepared by JHA. Refer to Table 2 for the results of the monitoring. The noise monitor was located on vacant land to the North of site. Details of the monitoring are provided in the JHA report.

Rating Background Levels, dB(A)			*L_{Aeq} Ambient Noise Levels, dB(A)*		
Day 7am-6pm	*Evening 6pm-10pm*	*Night 10pm-7am*	*Day 7am-6pm*	*Evening 6pm-10pm*	*Night 10pm-7am*
32	45	33	49	55	49

Table 2: Long-term background and ambient noise levels measured on site.

3 NOISE AND VIBRATION CRITERIA

3.1 RELEVANT CODES AND STANDARDS

In preparing this plan, the following documentation including legislation, codes, standards and guidelines have been considered:

- Conditions of Consent for State Significant Development Application SSD 9772
- Environmental Planning and Assessment (EP&A) Act 1979.
- NSW Department of Environment and Climate Change (DECC) *'Interim Construction Noise Guideline'* (ICNG) 2009.
- Australian Standard AS 2436:2010 *'Guide to Noise Control on Construction, Maintenance & Demolition Sites'*.
- NSW Department of Environment and Conservation (DEC) *'Assessing Vibration: A Technical Guideline'* 2006.
- NSW Transport Roads & Maritime Services (RMS) *'Construction Noise and Vibration Guideline'* 2016.
- British Standards Institution BS 6472:2008 *'Evaluation of human exposure to vibration in buildings (1 to 80 Hz)'*.
- British Standards Institution BS 5228.1:1997 *'Noise and Vibration Control on Construction and Open Sites'*.
- British Standards Institution BS 7385.2:1993 *'Evaluation and Measurement for Vibration in Buildings. Guide to Damage Levels from Ground-borne Vibration'*.
- DIN 4150-3 (1992-02) Structural vibration - Effects of vibration on structures

3.2 CONSTRUCTION NOISE

3.2.1 CONSENT CONDITIONS

SSD 9772 Consent Condition D19, D20 and D21 states the following requirements:

D19. 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 CNVMSP (condition C11).

D20. The Applicant must ensure construction vehicles (including concrete agitator trucks) do not arrive at the site outside of the construction hours of work outlined under condition D11.

D21 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.

3.2.2 NSW INTERIM CONSTRUCTION NOISE GUIDELINE

The DECC's Interim Construction Noise Guideline (ICNG) suggests construction Noise Management Levels (NML) that may minimise the likelihood of annoyance being caused to noise sensitive receivers depending on the works. The NMLs are as follows for residential receivers: Refer to Table 3 for the details as per the ICNG.

Time of Day	*NML $L_{Aeq,15min}$*	*How to Apply*
Recommended Standard Hours: Mon-Fri 7am-6pm Sat 8am-1pm No work on Sundays or public holidays	Noise affected: RBL + 10dB	The noise affected level represents the point above which there may be some community reaction to noise. ▪ Where predicted or measured $L_{Aeq,15min}$ is greater that 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: 75dB(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 may require respite periods by restricting the hours that the very noisy activities can occur, taking into account: 1. Times identified by the community when they are less sensitive to noise. 2. If the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
Outside Recommended Standard Hours	Noise affected: RBL + 5dB	▪ A strong justification would typically be required for work outside the recommended standard hours. ▪ The proponent should apply all feasible and reasonable work practices to meet the noise affected level. ▪ Where all feasible and reasonable practices have been applied and noise is more than 5dB(A) above the noise affected level, the proponent should negotiate with the community.

Table 3: ICNG construction airborne noise criteria for sensitive receivers surrounding the construction site.

Refer to Table 4 for the noise management levels that are applicable to the surrounding residential receivers, which are based on the day time background levels obtained from noise monitoring as shown in Table 2.

Residential Receiver Catchment	*Receiver Type*	*Noise Management Level RBL+10 dB(A)*	*High Noise Affected Level dB(A)*
1	Residential	42	75
2	Residential	42	75
3	Residential	42	75

Table 4: Noise management levels.

Refer to Table 5 for the noise management levels of non-residential receivers as per the NSW ICNG.

Land use	*Management level, $L_{Aeq\ (15min)}$ (applies when properties are being used)*
Active recreation areas	External noise level 65dB(A)

Table 5: ICNG construction airborne noise criteria for sensitive receivers surrounding the construction site.

3.2.3 GROUND-BORNE NOISE CRITERIA

Ground-borne noise is noise generated by vibration transmitted through the ground into a structure. The DECC's ICNG recommends internal ground-borne noise maximum levels at residences affected by nearby construction activities. The ground-borne noise levels recommended are for residential receivers during evening and nigh-time periods only, as the objectives are to protect the amenity and sleep of people when they are at home. The internal noise levels are assessed at the centre of the most affected habitable room.

- Evening: $L_{Aeq,15m}$ 40dB(A) internal.
- Night-time: $L_{Aeq,15m}$ 35dB(A) internal.

No assessments of ground borne noise are has been conducted as no out of hours work is proposed to occur.

3.3 VIBRATION CRITERIA

3.3.1 CONSENT CONDITIONS

The SSD 9772 Consent states the following requirements regarding vibration impacts:

D22. 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*
>
> *(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).*

D23. 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 D22.

D24. The limits in conditions D22 and D23 apply unless otherwise outlined in a Construction Noise and Vibration Management Plan, approved as part of the CEMP required by condition C8 of this consent.

3.3.2 HUMAN COMFORT

In accordance with the requirements SSD 9772 Consent Condition D22, the Department of Environment and Climate Change (DECC) *'Assessing Vibration: A Technical Guideline'* has been adopted. The document *'Assessing Vibration: A Technical Guideline'* was produced in February 2006 to assist in preventing people from exposure to excessive vibration levels within buildings. It is based on the guidelines contained in BS 6472.1:2008 *'Guide to evaluation of human exposure to vibration in buildings – Vibration sources other than blasting'*. The guideline does not however address vibration induced damage to structures or structure-borne noise effects.

Vibration criteria for continuous and impulsive vibration are presented in Table 6, in terms of vibration velocity levels. When assessing intermittent vibration comprising a number of events, it is recommended that the Vibration Dose Value (VDV) is used. Table 7 shows the acceptable VDV values for intermittent vibration.

Place	*Time*	*RMS velocity, mm/s [dB ref 10^{-6}mm/s]*			
		Continuous Vibration		*Impulsive Vibration*	
		Preferred	*Maximum*	*Preferred*	*Maximum*
Residences	Day-time	0.20 [106 dB]	0.40 [112 dB]	6.00 [136 dB]	12.00 [142 dB]
	Night-time	0.14 [103 dB]	0.28 [109 dB]	2.00 [126 dB]	4.00 [132 dB]
Offices, schools, educational and worship	When in use	0.40 [112 dB]	0.80 [118 dB]	13.00 [142 dB]	26.00 [148 dB]

Table 6: Continuous and impulsive vibration criteria applicable to the site. *Note: Day-time is 07:00 to 22:00 and night-time is 22:00 to 07:00.*

Place	*Time*	*Vibration Dose Values, m/s$^{1.75}$*	
		Preferred	*Maximum*
Residences	Day-time	0.20	0.40
	Night-time	0.13	0.26
Offices, schools, educational and worship	When in use	0.40	0.80

Table 7: Intermittent vibration criteria applicable to the site.

3.3.3 STRUCTURAL BUILDING DAMAGE

3.3.3.1 Structural Building Damage

In accordance with the requirements SSD 9772 Consent Condition D22, the vibration limits to receiver structures has been based on by German Standard DIN 4150.3:1993. Ground vibration from construction activities can damage surrounding buildings or structures. For unoccupied buildings, or during periods where the buildings are unoccupied, the vibration criteria for building damage suggested by German Standard DIN 4150.3:1993 '*Structural Vibration – Effects of Vibration on Structures*' has been adopted. Guideline values from DIN 4150.3:1993 are presented in Table 8.

Structural type	*Vibration velocity, mm/s*			
	Foundation			*Plane of floor uppermost full storey*
	Less than 10Hz	*10 to 50Hz*	*50 to 100Hz*	*Frequency mixture*
Buildings used for commercial purposes, industrial buildings and buildings of similar design	20	20 to 40	40 to 50	40
Dwellings and buildings of similar design and/or use	5	5 to 15	15 to 20	15
Particularly sensitive	3	3 to 8	8 to 10	8

Table 8: DIN 4150.3:1993 Guideline values of vibration velocity for evaluating the effects of short-term vibration.

4 CONSTRUCTION ACTIVITIES

This noise impact assessment has been carried out based on the information within the Construction Management Plan (CMP), and where required has applied typical assumptions as to the construction equipment to be used.

4.1 DESCRIPTION OF WORKS

Refer to Table 9 for the stages of work that have been assessed, and typical activities would occur during those stages. This is based on the details in the CMP.

Stage of Works	*Main Activities*
Shoring, Excavation, Foundation	Bulk and detailed excavation works, and installation of piles and structural footings
Structure	Formation of the building structure
Façade, Building, Internal works	Installation of façade, internal fitout and finishes

Table 9: Stages of work

4.2 CONSTRUCTION WORK HOURS

Construction is expected to occur for approximately 12 months. The hours of construction are to be as per the Consent Conditions. The requirements of Condition D11, D12, D13 and D14 are as follows:

D11. 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 7am and 5pm, Saturdays

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

D12. Construction activities may be undertaken outside of the hours in condition D11 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 a variation is approved in advance in writing by the Planning Secretary or his nominee if appropriate justification is provided for the works.

D13. Notification of such construction activities as referenced in Condition D12 must be given to affected residents before undertaking the activities or as soon as is practical afterwards.

D14. 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.

4.3 TYPICAL EQUIPMENT AND NOISE LEVELS

In accordance with the information provided and in order to assess potential noise and vibration impacts during works from a quantitative point of view, the construction noise sources for the works occurring during the project and the associated equipment noise levels have been assumed and are listed in Table 10.

These levels are based on the databases published by Roads and Maritime Services '*Construction Noise and Vibration Guideline*', the UK Department for Environmental, Food and Rural Affairs (DEFRA) and Australian Standard 2436:2010 '*Guide to Noise Control on Construction, Maintenance & Demolition Sites*'.

Stage of works	*Item*	*Typical Power Noise Level L_{Aeq} (dB ref 1pW)*	*Typical Sound Pressure Level L_{Aeq} at 10m (dB ref 20μPa)*
Shoring, Excavation, and Foundation	40T Excavator	117	89
	Dump truck	117	89
	Front end loader	113	85
	Truck (>20tonne)	107	79
	Excavator Rock breaker	122	94
	Impact piling (vibratory)	111	83
Structure	Concrete agitator truck	109	76
	Concrete pump truck	108	80
	8t Vibratory Roller	108	80
	Crane	105	76
	Circular saw	115	87
	Electric Hand-Tools	102	74
Façade, Building, Internal works	Fork lift	106	78
	Crane	105	76
	Electric Hand-Tools	102	74
	Vehicle (light commercial)	106	78
	Angle grinders	104	76
	Circular saw	115	87
	Truck (>20tonne)	107	79

Table 10: Anticipated maximum airborne noise levels for equipment / plant used during the different stages of the project.

5 CONSTRUCTION NOISE AND VIBRATION ASSESSMENT

5.1 ASSESSMENT METHODOLOGY

An assessment of the likely noise impacts of the assumed stage of works on the most affected receiver catchments surrounding the site has been carried out.

The assessment has been considered the following:

- Typical construction activities considered in the noise impact are detailed in Section 4.1.
- Typical noise source levels considered in the noise impact are detailed in Section 4.3.
- Project specific noise and vibration criteria at sensitive receivers as outlined in Section 3.

It should be noted that the predicted noise levels generated during the construction works may vary depending on many factors including:

- Final selection of plant and equipment.
- Exact location of equipment and plant on site – relative to the noise sensitive receivers.
- Shielding of noise provided by structures and hoardings on and around the site.
- Reflections provided by existing structures on and around the site.

5.2 NOISE ASSESSMENT

Refer to Table 11, Table 12 and Table 13 for the predicted noise levels for the excavation, structure, and facade/fit-out works phases respectively. These levels are typically representative of the worst case 15 minutes that would be expected. The predicted noise levels at receiver locations are calculated to 1.5m above ground level, at the most affected point externally to each receiver, or receiver catchment. Refer to Table 11 for the predicted noise levels for the Excavation phase.

Excavation Phase Noise Levels at Receivers $L_{Aeq,15m}$ dB(A)			
Receiver Catchment	*Predicted noise level*	*Noise Management Level*	*Compliance with Highly Noise Affected*
AR1	56	65	N/A
RC1	56	42	Complies
RC2	62	42	Complies
RC3	67	42	Complies
RC4	59	42	Complies
RC5	56	42	Complies

Table 11: Summary of predicted airborne noise levels for Excavation.

Refer to Table 12 for the predicted noise levels for the structure phase.

Structure Phase Noise Levels at Receivers $L_{Aeq,15m}$ dB(A)			
Receiver Catchment	*Predicted noise level*	*Noise Management Level*	*Compliance with Highly Noise Affected*
AR1	50	65	N/A
RC1	50	42	Complies
RC2	56	42	Complies
RC3	61	42	Complies
RC4	53	42	Complies
RC5	50	42	Complies

Table 12: Summary of predicted airborne noise levels for Structure.

Refer to Table 13 for the predicted noise levels for the façade and fit-out phase.

Façade/Fit-out Phase Noise Levels at Receivers $L_{Aeq,15m}$ dB(A)			
Receiver Catchment	*Predicted noise level*	*Noise Management Level*	*Compliance with Highly Noise Affected*
AR1	49	65	N/A
RC1	48	42	Complies
RC2	55	42	Complies
RC3	59	42	Complies
RC4	51	42	Complies
RC5	49	42	Complies

Table 13: Summary of predicted airborne noise levels for Façade/Fit-otu.

Based on the results of the predicted noise levels, compliance with the high noise affected level is expected to be achieved to surrounding residential receivers. Due to the very low background noise levels, there are predicted to be exceedances of the noise management levels. The predicted exceedance of the NMLs in the surrounding receivers triggers the proponent to apply all reasonable and feasible work practices to minimise the noise as much as possible, and community consultation, a per the requirements of the NSW ICNG and the Consent Conditions. Refer to Section 6 for details.

5.3 VIBRATION ASSESSMENT

The vibration intensive plant used during the construction works has the potential to impact adjacent sensitive receivers. In order to assess the construction vibration impact due to heavy construction plant, the NSW RMS *'Construction Noise and Vibration Guideline'* provides safe working distances for vibration intensive plant and are quoted for both 'cosmetic' damage (in accordance with BS 7385.2:1993) and human comfort (in accordance with DEC's *'Assessing Vibration: A Technical Guideline'*). These levels have been corrected such that safe working distances can be provided for DIN4150 vibration limits for dwellings, which are a lower criteria than BS7385. The recommended safe working distances are provided in Table 14 for expected equipment.

Plant Item	*Description*	*Structural Damage DIN4150*	*Human Response*
Vibratory Roller	300 kN	59m	15-20m
Large Hydraulic Hammer	18-34 Tonne	87m	73m
Pile Boring	<800mm	7m	N/A

Table 14: Recommended minimum working distances for vibration intensive plant from sensitive receivers.

The minimum working distances are indicative and will vary depending on the particular item of plant and local geotechnical conditions. They apply to damage of typical buildings under typical geotechnical conditions. The worst-case vibration buffer distance is shown below in Figure 2. Based on this, it is expected that there are no adverse vibration impacts from construction at the nearest receivers.

Figure 2: Worst-case Vibration Buffer Distances

In relation to human comfort (response), the minimum working distances in Table 14 relate to intermittent vibration (VDV parameter) as for most construction activities, vibration emissions are intermittent in nature. Where the predicted vibration levels will exceed the human comfort objectives, the procedures Section 6.1.2 are to be followed in order to mitigate the potential impacts at sensitive receivers. If the contractor has concerns for the disruptions at the nearest sensitive receivers due to vibration intensive plant use, it is recommended that prior to the commencement of the works, to undertake a preliminary vibration survey on each key vibration generating activity / equipment.

6 NOISE AND VIBRATION CONTROL RECOMMENDATIONS

6.1 GENERAL CONTROLS FOR NOISE AND VIBRATION

According to DECC's ICNG and AS 2436:2010 *'Guide to Noise Control on Construction, Maintenance & Demolition Sites'*, the following techniques could be applied to minimize the spread of noise and vibration to the nearest sensitive receivers.

6.1.1 NOISE

If a process that generates significant noise levels cannot be avoided, the amount of noise reaching the receiver should be minimized. Two ways of achieving this are to either increase the distance between the noise source and the receiver or to introduce noise reduction measures such as screens.

Physical methods to reduce the transmission of noise between the site works and residences, or other sensitive land uses, are generally suited to works where there is longer-term exposure to the noise. Practices that will reduce noise from the site include:

- Increasing the distance between noise sources and sensitive receivers.
- Restrict areas in which mobile plant can operate so that it is away from residences and other sensitive land uses at particular times.
- Reducing the line-of-sight noise transmission to residences or other sensitive land uses using temporary barriers (stockpiles, shipping containers and transportable site offices can be effective barriers).
- Constructing barriers that are part of the project design early in the project to introduce the mitigation of site noise.
- Installing purpose built noise barriers, acoustic sheds and enclosures.

6.1.2 VIBRATION

Vibration can be more difficult to control than noise, and there are few generalizations that can be made about its control. It should be kept in mind that vibration may cause disturbance by causing structures to vibrate and radiate noise in addition to perceptible movement. Impulsive vibration can, in some cases, provide a trigger mechanism that could result in the failure of building components that had previously been in a stable state.

During the excavation and the erection of the new structure, some vibrations are expected, being more of a concern for the surrounding sensitive receivers.

It can also trigger annoyance being elevated into action by occupants of exposed buildings, and should therefore be included in the planning of communication with impacted communities. It should be remembered that failures, sometimes catastrophic, can occur as a result of conditions not directly connected with the transmission of vibrations, e.g. the removal of supports from retaining structures to facilitate site access.

Where site activities may affect existing structures, a thorough engineering appraisal should be made at the planning stage.

General principles of seeking minimal vibration at receiving structures should be followed in the first instance. Predictions of vibration levels likely to occur at sensitive receivers are recommended when they are relatively close, depending on the magnitude of the source of the vibration or the distance associated. Relatively simple prediction methods are available in texts, codes of practice or other standards, however it is preferable to measure and assess site transmission and propagation characteristics between source and receiver locations.

Guidance for measures available for the mitigation of vibration transmitted can be sought in more detailed standards, such as BS 5228.2:2009 *'Code of practice for noise and vibration control on construction and open sites. Vibration'* or policy documents, such as the NSW DEC *'Assessing Vibration: A technical guideline'*.

Identifying the strategy best suited to the control of vibration follows a similar approach to that of noise avoidance, control at the source, control along the propagation path, control at the receiver, or a combination of these. It is noted that vibration sources can include stationary plants (pumps and compressors), portable plants (jackhammers and pavement vibrators), mobile plants, pile-drivers, tunneling machines and activities, and blasting, amongst others. Unusual ground conditions, such as a high water-table, can also cause a difference to expected or predicted results, especially when considering the noise propagated from piling.

6.1.3 GROUND-BORNE NOISE

Ground-borne noise is noise generated by vibration transmitted through the ground into a structure. Ground-borne noise caused, for example, by underground works such as tunnelling can be more noticeable than airborne noise. Section 3.2.3 of this report shows the ground-borne noise levels criteria for residences which indicate when management actions should be implemented.

These levels recognise the temporary nature of construction and are only applicable when ground-borne noise levels are higher than airborne noise levels. The ground-borne noise levels are for evening and night-time periods only, as the objectives are to protect the amenity and sleep of people when they are at home.

Mitigation options to deal with ground-borne noise may include extensive community consultation to determine the acceptable level of disruption and the provision of respite accommodation in some circumstances, not just restriction of work hours.

The level of mitigation of ground-borne noise would depend on the extent of impacts and also on the scale and duration of works. Any restriction that the relevant authority (consent, determining or regulatory) may impose on the days when construction work is allowed should take into account whether the community:

- Has identified times of day when they are more sensitive to noise (for example, Sundays or public holidays).
- Is prepared to accept a longer construction duration in exchange for days of respite.

6.2 UNIVERSAL WORK PRACTICES

To minimise construction noise complaints due to preventable activities at any time of the day, the following work practices shall be considered:

- Regularly train workers and contractors (such as a toolbox talks) to use equipment in ways to minimise noise.
- Ensure site managers periodically check the site and nearby residences and other sensitive land use for noise problems so that solutions can be quickly applied.
- Include in tenders, employment contracts, subcontractor agreements and work method statements clauses that require minimisation of noise and compliance with directions from management to minimise noise.
- Avoid the use of radios or stereos outdoors where neighbours can be affected.
- Avoid shouting, and minimise talking loudly and slamming vehicle doors.
- Keep truck drivers informed of designated vehicle routes, parking locations, acceptable delivery hours or other relevant practices.
- Develop a one-page summary of approval or consent conditions that relate to relevant work practices, and pin it to a noticeboard so that all site operators can quickly reference noise information.
- Workers may at times need to discuss or negotiate practices with their managers.

For work practices during night-time, the following shall be considered:

- Avoid the use of equipment which generates impulsive noise.
- Minimise the need for reversing or movement alarms.
- Avoid dropping materials from a height.
- Avoid metal-to-metal contact on equipment.
- Schedule truck movements to avoid residential streets if possible.
- Avoid mobile plant clustering near residences and other sensitive land uses.
- Ensure periods of respite are provided in the case of unavoidable maximum noise level events.

6.3 CONSULTATION AND NOTIFICATION

The community is more likely to be understanding and accepting of noise if the information provided is frank, does not attempt to understate the likely noise level, and if commitments are firmly adhered to. Recommended actions before and during construction:

- Provide, reasonably ahead of time, information such as total building time, what works are expected to be noisy, their duration, what is being done to minimise noise and when respite periods will occur. For works outside standard hours, inform affected residents and other sensitive land use occupants between five and 14 days before commencement.
- Provide information to neighbours before and during construction through media such letterbox drops, meetings or individual contact. In some areas, the proponent will need to provide notification in languages other than English.
- Use a site information board at the front of the site with the name of the organisation responsible for the site and their contact details, hours of operation and regular information updates. The signage should be clearly visible from the outside and include after-hours emergency contact details.

- Maintain good communication between the community and project staff.
- Appoint a community liaison officer where required.
- For larger projects, consider a regular newsletter with site news, significant project events and timing of different activities.
- Provide a toll-free contact phone number for enquiries during the works.
- Facilitate contact with people to ensure that everyone can see that the site manager understands the potential issues, that a planned approach is in place and that there is an ongoing commitment to minimise noise.

To assist in the management of noise and vibration complaints, various procedures are to be followed. These include:

- Clearly visible signage identifying any key personnel along with their contact details to be erected along the perimeter of the building site including a 24 hour contact name, phone number and email address provided for the resident to address any complaint.
- Give complaints a fair hearing.
- Have a documented complaint process, including an escalation procedure so that if a complaint is not satisfied there is a clear path to follow.
- Call back as soon as possible to keep people informed of action to be taken to address noise problems. Call back at night-time only if requested by the complainant to avoid further disturbance.
- Provide a quick response to complaints, with complaint handling staff having both a good knowledge of the project and ready access to information.
- Try to ascertain from the complaint which equipment / plant is causing the problem.
- Where necessary, establish from the monitoring equipment and or attended monitoring if the allowable noise and vibration levels have been complied with.
- Establish if the equipment / plant positioning has previously been highlighted as a problem area. If not, and the noise levels are above the allowable limits, then the equipment / plant and its position shall be noted.
- Implement all feasible and reasonable measures to address the source of the complaint.
- The Communications Register is to be kept by the Contractor to keep a record of complaints and detail any information associated with them. The registration of a particular item will remain open until the compliant has been appropriately dealt with. The contents of the register will include:
    - The name and the address of the complaint
    - Time and date of the complaint
    - The nature of the complaint (Noise/Vibration)
    - Subsequent details
    - Remedial action undertaken

The contents of the Communications Register will be maintained and updated with any new complaint without delay. The report will be reported to both Authority and the Contractor. The investigation of the complaint and any remedial actions will be performed by the builder and/or client representative.

6.4 MANAGING NOISE LEVELS AND MAINTENANCE PROGRAM FOR PLANT AND EQUIPMENT

In terms of both cost and results, controlling noise at the source is one of the most effective methods of minimising the noise impacts from any construction activities. Recommendations for managing noise levels from plant and equipment are as follows:

- Use quieter methods:
  - Examine and implement, where feasible and reasonable, alternatives to rock-breaking work methods, such as hydraulic splitters for rock and concrete, hydraulic jaw crushers, chemical rock and concrete splitting, and controlled blasting such as penetrating cone fracture. The suitability of alternative methods should be considered on a case-by-case basis.
  - Use alternatives to diesel and petrol engines and pneumatic units, such as hydraulic or electric controlled units where feasible and reasonable. Where there is no electricity supply, use an electrical generator located away from residences.
- Use quieter equipment
  - Examine different types of machines that perform the same function and compare the noise level data to select the least noisy machine. For example, rubber wheeled tractors can be less noisy than steel tracked tractors.
  - Noise labels are required by NSW legislation for pavement breakers, mobile compressors, chainsaws and mobile garbage compactors. These noise labels can be used to assist in selecting less noisy plant.
  - Pneumatic equipment is traditionally a problem – select super silenced compressors, silenced jackhammers and damped bits where possible.
  - When renting, select quieter items of plant and equipment where feasible and reasonable.
  - When purchasing, select, where feasible and reasonable, the most effective mufflers, enclosures and low-noise tool bits and blades. Always seek the manufacturer's advice before making modifications to plant to reduce noise.
- Operate plant in a quiet and efficient manner
  - Reduce throttle setting and turn off equipment when not being used.
  - Examine and implement, where feasible and reasonable, the option of reducing noise from metal chutes and bins by placing damping material in the bin.

The Contractor shall prepare and implement a regular plant and equipment use and maintenance program. This is to ensure that 'noisy' equipment or tools are not used. This program should ensure that the contractor will:

- Regularly inspect and maintain equipment to ensure it is in good working order. Also check the condition of mufflers.
- Equipment must not be operated until it is maintained or repaired, where maintenance or repair would address the annoying character of noise identified.
- For machines with enclosures, check that doors and door seals are in good working order and that the doors close properly against the seals.
- Return any hired equipment that is causing noise that is not typical for the equipment – the increased noise may indicate the need for repair.
- Ensure air lines on pneumatic equipment do not leak.

6.5 WORKS TIMING RESTRICTIONS AND SCHEDULING

Works should be carried out during periods specified by the hours in the Development Consent Conditions. Scheduling noisy work during periods when people are least affected reduces noise impact on those. Recommendations for work scheduling are as follows:

- Provide respite periods.
- Schedule activities to minimise noise impacts.
  - Organise work to be undertaken during the recommended standard hours where possible.
  - When works outside the recommended standard hours are planned, avoid scheduling on Sundays or public holidays.
  - Schedule work when neighbours are not present (for example, commercial neighbours).
  - Schedule noisy activities around times of high background noise (local road traffic or when other local noise sources are active) where possible to provide masking or to reduce the amount that the construction noise intrudes above the background.
  - Consult with affected neighbours about scheduling activities to minimise noise impacts.
- Organise deliveries and access.
  - Nominate an off-site truck parking area, away from residences, for trucks arriving prior to gates opening.
  - Amalgamated loads can lead to less noise and congestion in nearby streets.
  - Optimise the number of vehicle trips to and from the site – movements can be organised to amalgamate loads rather than using a number of vehicles with smaller loads.
  - Designate access routes to the site, through consultation with potentially noise-affected residences and other sensitive land uses, and make drivers aware of nominated vehicle routes.
  - Provide on-site parking for staff and on-site truck waiting areas away from residences and other sensitive land uses. Truck waiting areas may require walls to minimise noise.
  - Schedule deliveries to nominated hours only.

6.6 ADDITIONAL NOISE AND VIBRATION CONTROLS

As there will likely be times/situations when construction works are likely to exceed stated criteria at the nearest receivers, particularly when works occur in the areas closer to the receiver(s). Therefore, all feasible and reasonable noise control measures should be considered.

If, during construction, an item of equipment exceeds either the noise criteria at any location or the equipment noise level limits, the following noise control measures, together with construction best practices presented in Section 6.1 shall be considered to minimise the noise and vibration impacts of the project on the neighbourhood.

- Schedule noisy activities to occur outside of the most sensitive times of the day for each nominated receiver. For example, the residential receivers are likely to be more sensitive to noise before 8am and after 6pm.
- Consider implementing equipment specific temporary screening for noisy equipment, or other noise control measures recommended in Appendix C of AS2436:2010. This is most likely to apply to noisier hand-held items such as jack-hammers and circular saws.

- Locate specific activities such as carpentry areas (use of circular saws, etc.) to internal spaces or where shielding is provided by existing structures or temporary screening.
- Limit the number of trucks and heavy vehicles on site at any given time through scheduling deliveries at differing times.
- Traffic rules should be prepared to minimise the noise impact on the community.
- When loading and unloading trucks, adopt best practice noise management strategies to avoid materials being dropped from height.
- Avoid unnecessary idling of trucks and equipment.
- Ensure that any miscellaneous equipment (extraction fans, hand tools, etc.) not specifically identified in this plan incorporates silencing/shielding equipment as required to meet the noise criteria.

If the measured construction vibration levels exceed the appropriate criteria during the works, one or more of the following measures should be taken:

- Modifications to construction equipment used.
- Modifications to methods of construction.
- Rescheduling of activities to less sensitive times.

If the measures given cannot be implemented or have no effect on noise or vibration levels or impact generated, a review of the criteria should be undertaken and the noise and vibration strategy amended.

6.7 MONITORING PROGRAM

Noise and vibration levels are recommended to be monitored from time to time to ensure that noise generated as a result of remediation and construction activities does not disturb the nearby noise and vibration sensitive receivers.

Monitoring may be in the form of regular checks by the builder or indirectly by an acoustic consultant engaged by the builder and in response to any noise or vibration complaints.

Where noise and vibration criteria are being exceeded or in response to valid complaints, noise and / or vibration monitoring should be undertaken. This would be performed inside the premises of the affected property and on site adjacent to the affected receivers.

Monitoring is to be undertaken by an experienced noise and vibration monitoring professional or an acoustic consultant. The results of any noise or vibration monitoring are to be provided to the relevant party or person in a timely manner allowing the builder to address the issue and respond to the complaints.

Noise and vibration monitoring can take two forms:

- Short-term monitoring: Short-term monitoring consists of attended monitoring when critical stages of the construction are occurring. This normally provides real-time assistance and guidance to the sub-contractor on site letting them know when the noise and vibration criteria are exceeded allowing the selection of alternative method on construction or equipment selection in order to minimise noise and vibration impacts.
- Long-term monitoring: Similarly long-term monitoring uses noise and vibration loggers providing real-time alerts to the builder / site manager when the noise and vibration criteria are exceeded. Typically, the noise and vibration loggers stay on site for a period of several months for the critical construction stages of the project. Sometimes the period of construction noise and vibration monitoring is dictated by the local authorities through the DA conditions.

Both methodology are complementary and normally used simultaneously providing a significant of amount of data via the long-term monitoring but also providing information on the sources of noise and vibration generating exceedances via the short-term or attended monitoring.

6.7.1 NOISE MONITORING PROGRAMME

Noise monitoring is recommended throughout construction in order to demonstrate that the works are compliant with the aforementioned noise criteria. The noise monitoring is recommended to be carried out for minimum two week periods for noisy construction activities as agreed with the acoustic consultant, project manager and contractor. The noise monitor is recommended to be installed on the boundary of the nearest noise affected receiver (RC3) as shown in Figure 1.

Following the noise monitoring, an acoustic report is recommended to be prepared by an appropriately qualified acoustic consultant outlining the following:

- The type of monitoring conducted (for example, at a particular project stage or following complaints) and a brief statement of the measurement method.
- The noise / vibration conditions on the consent / licence, or the relevant noise management objectives.
- Descriptions of the nearest affected residences and other sensitive land uses or, in the case of complaints, description of the complainant location and complaint.
- Plan or diagram showing the location of the monitoring and the noise generating works.
- Description of the instrumentation used.
- The weather conditions during monitoring.
- The time(s) and duration(s) of monitoring, including dates – in the case of complaints.
- A clear description of the construction activities taking place during the monitoring.
- The results of monitoring at each monitoring location, including a comparison with the consent conditions or relevant noise management objectives.
- A clear statement outlining the project's compliance or non-compliance with the conditions or objectives.
- Where the monitored level is higher than the conditions or objectives, the reasons for non-compliance should be stated, strategies for minimising noise identified and stated, and the appropriate actions to implement the strategies.

6.8 OCCUPATIONAL HEALTH AND SAFETY

In addition to potential noise and vibration impacts on the community and structures, construction noise and vibration can also have an adverse impact upon the health of workers. It is important that Contractors adopt noise management strategies to prevent or minimise worker exposure to excessive noise and vibration. Such measures will also assist in reducing noise and vibration impacts on the surrounding community.

The National Occupational Health and Safety Commission (NOHSC) recommends a maximum acceptable workplace noise exposure level of 85dB(A) ($L_{Aeq,8h}$) for an eight hour time period.

Personnel involved in operations should be issued with ear plugs or ear muffs which must be used whenever noise levels interfere with normal speech when individuals are standing at a distance of 1m from each other, or when the $L_{Aeq,8hr}$ exceeds 85dB(A).

Signs should be erected and made visible at the entry to all areas where noise levels will exceed 85dB(A).

6.9 CONSTRUCTION TRAFFIC ROUTES

The contractor shall establish and implement traffic routes for deliveries to the site, which minimise the noise impact on surrounding noise sensitive receivers as best possible.

7 CONCLUSIONS

JHA Consulting Engineers has been engaged by Buildcorp to provide acoustic services for the Santa Sophia Catholic College. This Construction Noise and Vibration Management has been prepared to address Condition 11 from the Consent Conditions.

In particular, this plan identifies the Contractor's obligations and the requirements to manage noise and vibration during construction such that Contractor can make the necessary allowances within the construction costs, programmes and work methodologies.

The responsibilities of all stakeholders are identified and a framework for the management of noise and vibration during construction works is provided.

Nearest noise and vibration sensitive receivers are identified in Section 2.1 and noise and vibration criteria are established in Section 3.

Section 3.3.3.1 describes the assumed construction work staging plus associated construction plant, based on the CMP. Work is to occur as per hours stipulated in DA consent conditions.

Compliance with the highly noise affected level is expected to be achieved to surrounding residential receivers. There is predicted to be exceedances of the NMLs to surrounding receivers, therefore the proponent must apply all reasonable and feasible work practices to minimise the noise as much as possible, and community consultation, a per the requirements of the NSW ICNG. Refer to Section 6 for details.

A noise monitoring program has been developed as per the Consent Conditions requirements. Unattended noise monitoring is proposed at the nearest residential receiver for 2 week periods in order to verify the construction noise levels.

For each of these work stages and associated plant, and assuming that in fact are exceeding the noise level criteria, then the noise control measures presented in Section 6 shall be considered and implemented wherever reasonable and feasible in order to minimise any potential noise impact. Operation time restrictions shall be applied to 'noisy' construction plant to minimise noise impact to the nearest sensitive receivers.

In following this plan, the Contractor will ensure that any site noise and vibration impacts on sensitive receivers are monitored, investigated, managed and controlled.

The information presented in this report shall be reviewed if any modifications to selection of equipment/machinery and modifications to the works construction program.

APPENDIX A: ACOUSTIC TERMS

L_{A1} – The L_{A1} level is the noise level which is exceeded for 1% of the sample period. During the sample period, the noise level is below the L_{A1} level for 99% of the time. This measure is commonly referred to as the maximum noise level.

L_{A10} – The L_{A10} level is the noise level which is exceeded for 10% of the sample period. During the sample period, the noise level is below the L_{A10} level for 90% of the time. The L_{A10} is a common noise descriptor for environmental noise and road traffic noise. This measure is commonly referred to as the average maximum noise level.

L_{A90} – The L_{A90} level is the noise level which is exceeded for 90% of the sample period. During the sample period, the noise level is below the L_{A90} level for 10% of the time. This measure is commonly referred to as the background noise level.

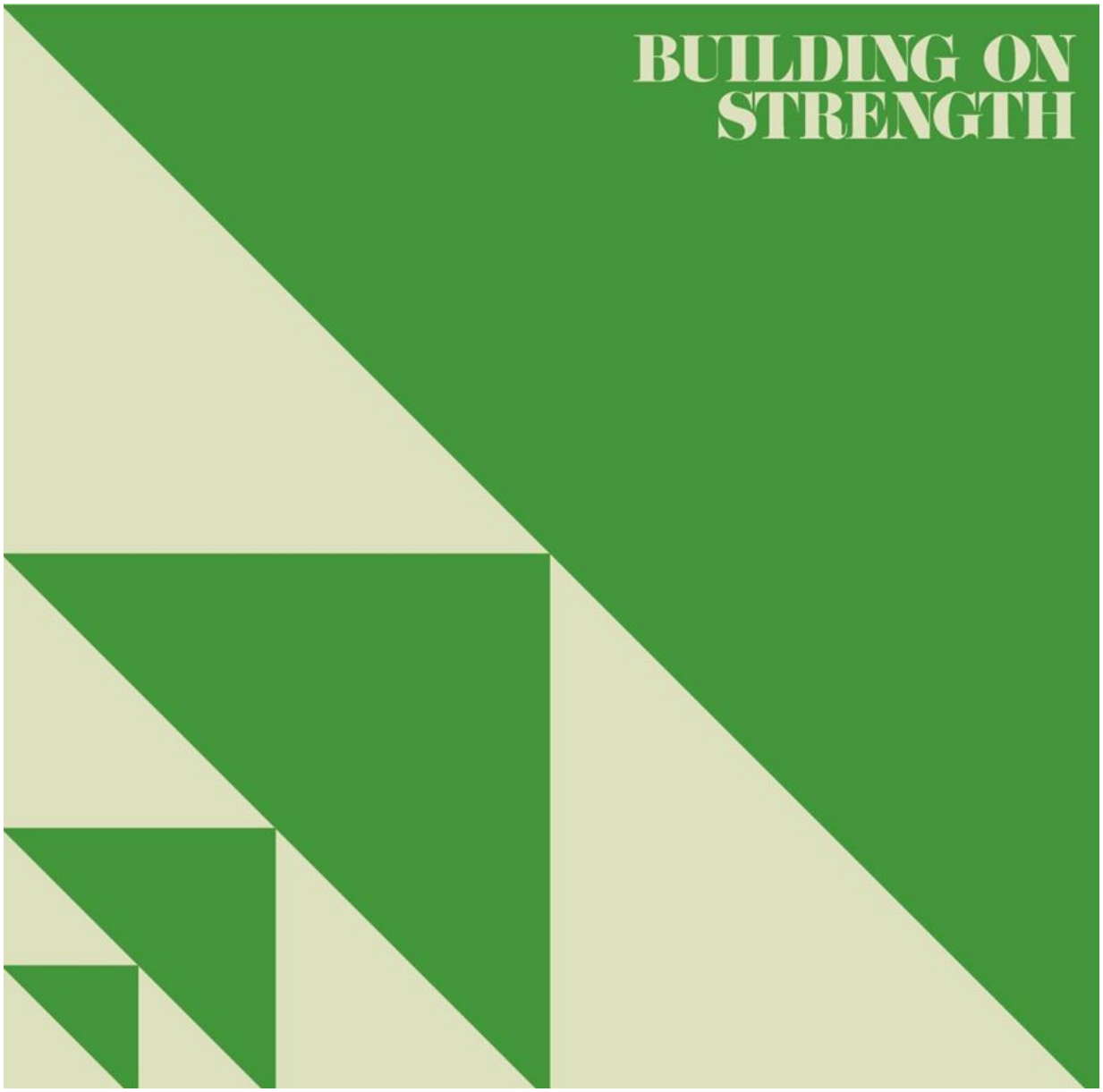
L_{Aeq} – The equivalent continuous sound level (L_{Aeq}) is the energy average of the varying noise over the sample period and is equivalent to the level of a constant noise which contains the same energy as the varying noise environment. This measure is also a common measure of environmental noise and road traffic noise.

7.3 Appendix 3 – Construction Waste Management Sub-Plan

WASTE MANAGEMENT PLAN

Santa Sophia Catholic College -BN 1058

4 August 2020



Waste Management Plan

Santa Sophia Catholic College – BN 1058

Document revision control

The Buildcorp Project Manager with the QA Manager will be responsible for the preparation, issue, periodic review, and revision of this document.

Revision	Date	Revision Details	Author
1	06/05/2020	New Plan	Paddy Holland
2	4/08/2020	Distribution List	Anthony Aziz

This document is approved for release by:

Date	Position	Approved by:
5/08/2020	Project Manager	Mick Cafe

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Contents

1. Summary

This Waste Management Plan (WMP) has been prepared with the benefit of Independent Planning Commission. Our WMP (dated 016/05/2020) outlines Buildcorp's strategy to minimise the generation of waste, maximise the reuse of waste products and materials recycling during construction and to ensure waste is disposed of at a licensed EPA waste disposal facility.

The purpose of this plan is to:

- Establish the specific procedures to ensure waste generated by project activities are minimised and waste is appropriately managed;
- Provide a consistent approach that assures the required standards relating to waste are attained and maintained for the project works to achieve minimum recycling/reuse target of 80% of waste by weight, minimising the amount of waste going to landfill;
- Establish waste management strategies for construction stages from demolition to construction and commissioning;
- Establish provision for on-site monitoring of wastes generated with details of each material, disposal destinations (tracking) and receipts;
- Define the appropriate waste disposal measures to be undertaken for materials that pose an environmental risk such as soils, concrete, contaminated water, paints etc;
- Provide Compliance with Condition C12 of DA – SSDA-9772

This WMP has been prepared in accordance with the Department of Planning and Environment's SSDA 9772 condition C12 *Construction Waste Management Sub-Plan*

Waste Management Plan during construction

The Construction Waste Management Sub-Plan (CWMSP) must address, but not be limited to, the following:

a) detail the quantities of each waste type generated during construction and the proposed reuse, recycling and disposal locations; and

b) removal of hazardous materials, particularly the method of containment and control of emission of fibres to the air, and disposal at an approved waste disposal facility in accordance with the requirements of the relevant legislation, codes, standards and guidelines, prior to the commencement of construction.

2. Waste Management Roles and Responsibilities

To manage waste generation on site, the following roles and responsibilities have been set for all project employees to follow and ensure the waste recycling requirements can be met. The table below represents a summary of the waste management roles and responsibilities for the works on the SSCC project:

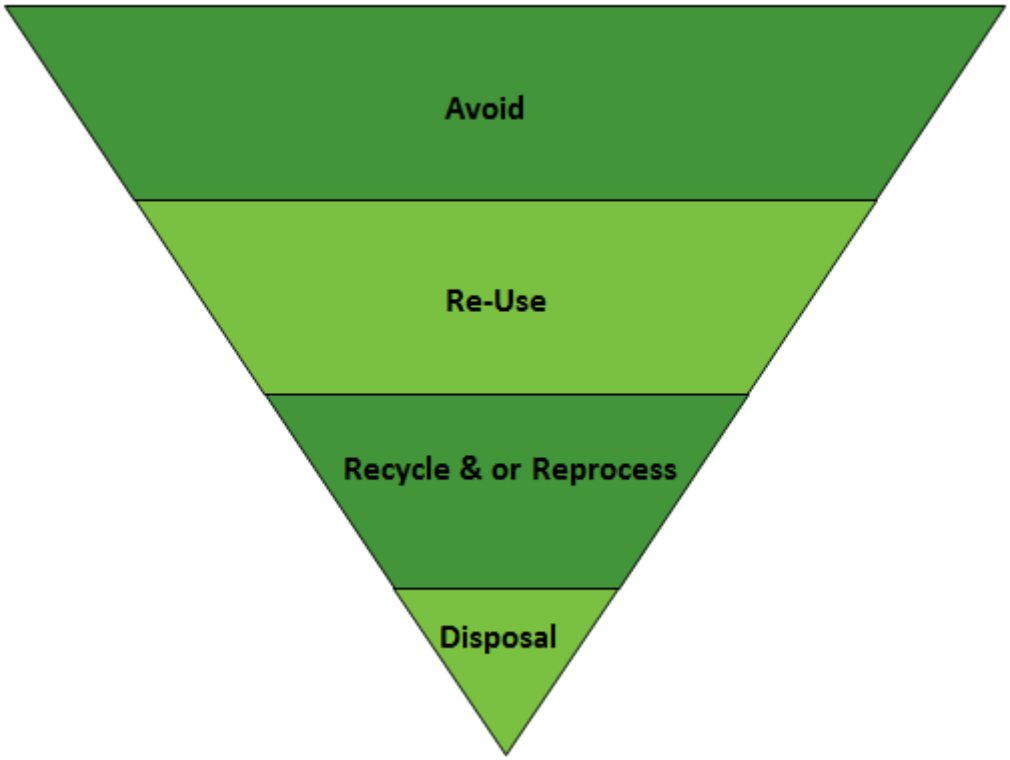
Responsibility	Project Task
Site Operation	
Buildcorp	▪ Ensure that use of materials is minimised and all effort is used to control the excess ordering of materials to site including high energy dense materials such as concrete and aluminium. ▪ Ensuring that waste is sorted and collected in accordance with this Plan;

	◥ Ensure that waste is stored appropriately onsite to minimise the risk of waste materials leaving the site, including dust, fibres, liquids and the like. This process may include the covering of bins, wetting down of storage areas and setup of mist sprayers on boundary lines. ◥ Ensuring that Duty of Care documentation is obtained and maintained in the site file (e.g. copy of waste transporters licence, waste collection receipts, waste transport certificates); ◥ Updates to the Plan and Building Management approvals; ◥ Supervising the collection of waste by the waste contractor (where practical); ◥ Maintaining site records of waste types and approximate quantities collected from site (supplied by the waste contractor) ◥ Ensure that demolition materials such as concrete are appropriately disposed of and where possible reused to create practical products (graded road base)
Waste Sorting	
All Contractors	◥ It is the responsibility of all contractors to be inducted into this plan and put waste into the correct bins on site for appropriate disposal off site; ◥ Contractors are to use the designated bins on site and not dispose of any materials expect within designated bins on site; ◥ Minimise the generation of waste through appropriate behaviour on site, through site measurement and ongoing management of works. ◥ Ensure that demolition material like Concrete and Steel are appropriately reused and recycled and sent to reprocessing facilities.
Waste Collection & Management	
Waste Contractor & Buildcorp Project Manager	◥ Supply of bins, according to agreed approach & ongoing site requirements; ◥ Collection & disposal of waste, as agreed & according to ongoing site requirements; ◥ Weighing and sorting of all wastes generated on site for disposal off site; ◥ Ensuring that the waste collected is managed in accordance with the relevant legislation and the identified wastes are re-used, recycled or recovered; ◥ Providing to Buildcorp waste/recycle data sheets and reports.
Reporting	
Buildcorp Project Administrator	◥ Tracking of wastes generated (supplied by waste contractor); ◥ Reporting of all waste data; ◥ End of Project reporting of waste data to confirm % recycled / reused and wastes to landfill; ◥ Preparation of final waste report for the site.

3. Waste Management Hierarchy

Buildcorp have prioritised waste management by adopting a waste management hierarchy as follows:

- **Avoiding Waste** (identify demolition and construction waste to minimise packaging and over ordering of materials)
- **Re-Use Materials** (pallets and storage containers)
- **Recycle and Reprocess Materials** (target of 80% recycle figure)
- **Disposal of Waste** (conducted offsite by waste contractor)



4. Waste Minimisation Controls

The following controls will be implemented on site to ensure waste is minimised on the project:

- Main subcontractors are asked to submit waste minimisation details in their SWMS including the following:
  - Avoiding over-ordering materials
  - Minimising the use of un-recyclable packaging materials
  - Reviewing with suppliers, the potential for reusable packaging, such as cloth bags, blankets, pallets or containers for materials and equipment
  - Buying environmentally-approved and recycled-content products where possible, including the use of recycled crushed concrete
- Waste management training is provided as part of site induction, ensuring that subcontractors and site visitors are aware of the materials on-site (in particular any hazardous wastes) and waste disposal requirements
- Buildcorp will utilise the services of a Waste Sub-Contractor whose facilities and waste procedures have been audited by our sustainability management team for stringency and accuracy. They should need also meet the following requirements:
  - Be appropriately licensed under the POEO Act (1997) and associated regulations to transport, store, recycle, reprocess and/or dispose of wastes removed from the site
  - Provide waste containers and transport vehicles suitable for storage and carriage of waste types to be generated at the site
  - Provide EPA licenses of the appropriate landfills that are licensed to accept the waste which is generated onsite
  - Provide accurate written documentation including tracking documentation and disposal receipts to Buildcorp in a prompt manner following the disposal of waste from the site to comply with regulatory and Buildcorp contract requirements
  - Remove and transport all waste for disposal to a facility lawfully able to accept the waste
  - Securely load and cover all vehicles/bins and containing waste prior to exit from the site to minimise the risk of waste spillage, dust generation, fibre control, etc. during transport
  - Facilitate recycling of appropriate materials
- Prior to commencing work on site project personnel (including subcontractors) are to be informed through the site induction process of the importance of waste, recycling, spills or incident impacts on the site and adjacent areas. Site supervisors are to discuss waste management issues at toolbox and other meetings as required
- All work areas are to be maintained in a clean and tidy manner. A weekly (or more frequent if required) sweep of the entire site will be completed by the contractor to remove loose waste, dust and/or litter present within the site to appropriate waste/recycling storage facilities in the loading dock ultimately minimising the risk of foreign debris being transferred onto roadways
- Daily inspections are to be conducted to ensure that the worksite is left in a rubbish-free state and that no rubbish has been “trapped” against site fencing
- Regular management audits are to be carried out to ensure that the Waste Management Plan is being adhered to

5. Waste Management

The table below represents the expected waste types that will be generated during the works and describes how each will be managed on-site, collected and the waste management outcome ranked from the most to least preferred:

Waste Type	Waste Management Outcome

	Most Preferred				Least Preferred
	Avoid/Reduce	Reuse	Recycle	Recover	Treat &/or Dispose
Plasterboard					
Paper & Cardboard					
Steel, Scrap Metal etc.					
Timber					
Plastics and Foam					
Insulation Material					
Excavated Fill					
Glass					
Concrete and Bed Mix					
Residual					
Hazardous(including Fibres)					
Food and General Waste					

Notes

- Waste is collected in “general construction waste” bins and is sorted at a resource recovery facility using mechanical and manual sorting techniques that remove wastes such as plasterboard, timber, metal, cardboard and plastic for recycling
- Residual waste refers to construction waste other than those listed as a waste type
- Waste Management Definitions:
  - Re-use, means the activity of using waste materials in their current form (i.e. not altering their chemical or physical state);
  - Recycling, means the activity of processing waste materials to form new products;
  - Recovery, means the activity of processing waste materials for the purpose of recovering energy (e.g. incineration);
  - Disposal, means the activity of depositing waste materials in landfill.

5.1. Demolition

The site has already been cleared by a previous contractor and an clearance certificate has been issued. There will be no more demolition works. Refer to contamination assessment in Appendix 2

5.2. Excavation Fill Material

Any fill materials identified requiring excavation within the site footprint should be reused, where suitable, on the site as part of the site engineering or landscaping work. Excess or contaminated excavation fill is to be removed off site and classified in accordance with relevant authorities. To ensure the fill is being taken to the correct landfill the subcontractor transporting the waste should provide details of the landfill site, the EPA licence details and confirmation that landfill is authorised

to receive that waste. Trucking docket records are to be kept on site to check that fill is going to the nominated landfills.

5.3. Construction Waste

Construction and demolition bins are located in separate areas on the site to ensure safe storage and collection of waste. The construction waste generated on site is to be placed as follows:

- Within mixed waste skip bins, meaning that all waste is deposited in the one skip bin and segregation into the appropriate waste streams occurs offsite, including concrete, plasterboard, steel, plastics and other recyclables

5.4. Food and General Waste

Food scrap/general waste bins are provided in the vicinity of site offices and amenities. It is sorted into general waste, cans/bottles and paper/cardboard. Buildcorp site sheds have paper bins and printer cartridge bins (for staff to return to head office for recycling).

5.5. Hazardous Materials

Contaminated waste including fibrous and non-fibrous asbestos will be disposed of to an EPA licensed facility which is able to take the waste. Contaminated waste will be stored within designated storage areas on site. Fibres will be controlled by either, applying a bonding fluid to the materials, bagging the waste or using a wetting down procedure. Records of disposal of the waste will be maintained with site records.

5.5.1. Asbestos removal procedure

- On suspicion of an Asbestos find the area will be immediately cordoned off and signage posted.
- A Hygienist will be engaged to assess; the extent of asbestos contamination if any, class of Asbestos found, recommended removal procedure and recommended de-contamination procedure.
- A licensed Asbestos contractor will be engaged to carry out the works including the following; set up of dust control measures including any hoarding works and air monitoring, removal and disposal of all types of asbestos including bagging and tagging all contaminated waste and equipment before disposal and finally issuing a certificate of disposal to Buildcorp.
- On completion of the Asbestos removal a clearance certificate will be provided after a further Hygienist inspection.

5.6. Hazardous Substances

Any subcontractors handling, using or disposing of harmful or toxic chemicals or substances are to ensure they follow appropriate manufacture requirements and legislation requirements in disposal. No chemicals or substances are to be disposed of down any drains, sewer etc. onsite.

If a spillage of a hazardous substance occurs staff are appropriately trained in spill kit procedures to clean up spills immediately. Spill kits are located adjacent to the areas where hazardous substances are stored on site. Once the substance has been cleaned up it will then be disposed of to the appropriate EPA licensed facility. Records of disposal and the clean-up methods of the spill are to be maintained with site records.

5.7. Waste Water/Washout Areas

Wash out facilities for finishing trades including concrete and paint waste are to be minimised and water recycling for these activities are encouraged. If a wash out facility is utilised it should not be plumbed to any building services or drain to stormwater.

The wash out area will have sediment controls and be clearly signposted. The location of the wash down area is shown on the sites layout plan (see section 6) and everyone is made aware of this location during the site induction.

The wash out area and sediment controls should be emptied of all solid residues regularly in order for it to catch waste water. Solids which are caught by this process should be disposed of in a bin going to a licensed waste facility.

6. Transportation Access and Designated Rubbish Areas:

The site map below shows access locations for waste contractors, designated rubbish areas and wash down areas (within the proposed construction zone). Skip bins are provided on site for the management of mixed construction waste and are then taken away and sorted by a Buildcorp approved Waste contractor. The proposed resource recovery contractor's infrastructure is in the attached appendix.

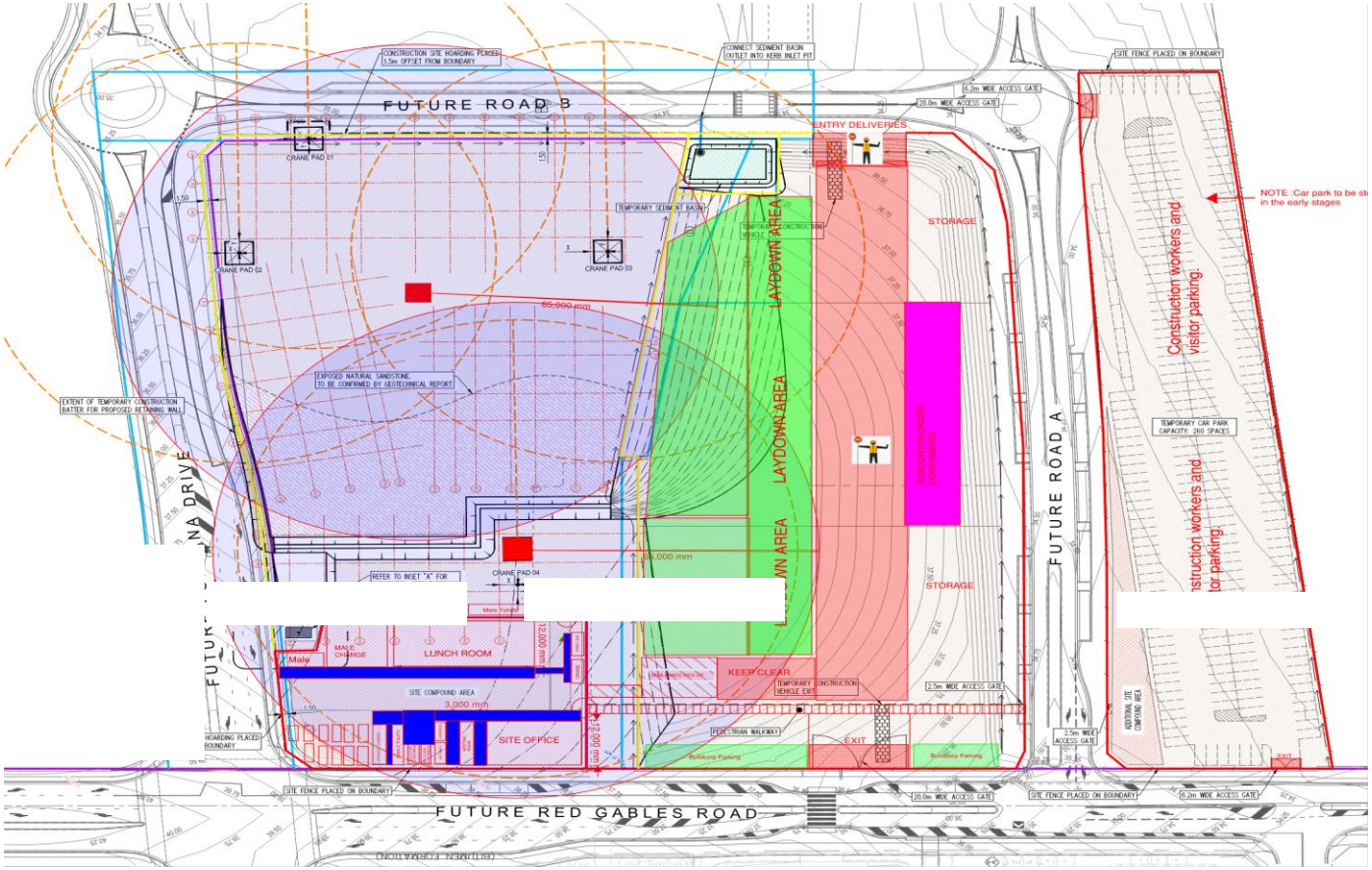
Buildcorp will have $1m^3$ to $2m^3$ crane-able waste bins located on each floor level of the project. These will be periodically emptied into a large 12m3 waste bin located within the 'proposed construction zone'. Movement of the bins will be undertaken by Buildcorp's onsite labourers and crane crew. The $12m^3$ bin will be emptied/swapped on an as required basis. A Traffic Management Plan will incorporate the all required movements of trucks into and out of the construction zone. Traffic control will be utilised during the bin swap to ensure the general public/other workers are excluded from the construction zone for safety.

6.1 Notification of RMS

Prior to the commencement of the removal of any waste material from the Site. Buildcorp will notify the Roads and Maritime Services' Traffic Management Centre (TMC) of the truck routes to be followed by the trucks transporting waste material from the Site.

Transportation Access and Rubbish Plan

Proposed Waste Recovery Contractors preferred recycling facilities.



7. Monitoring, Conformance and Reporting

The Buildcorp (BC) approved Waste Contractor will provide monthly recycling and waste minimisation reports. These reports are audited to ensure that we are reaching our set targets. Records of the total waste generation and disposal to landfill or recycling are retained on site by Buildcorp contractor site staff.

Any subcontractor found to be inappropriately dumping materials will be issued with a non-conformance and rectification notice immediately by BC. The procedure for environmental non-conformances is as follows:

- Site issue is identified
- Buildcorp investigates and issues a response to all subcontractors
- Buildcorp issues non-conformance/rectification notice to party responsible
- Subcontractor to rectify immediately to relevant legislative requirements
- Buildcorp notifies external parties as required and final notice to subcontractor

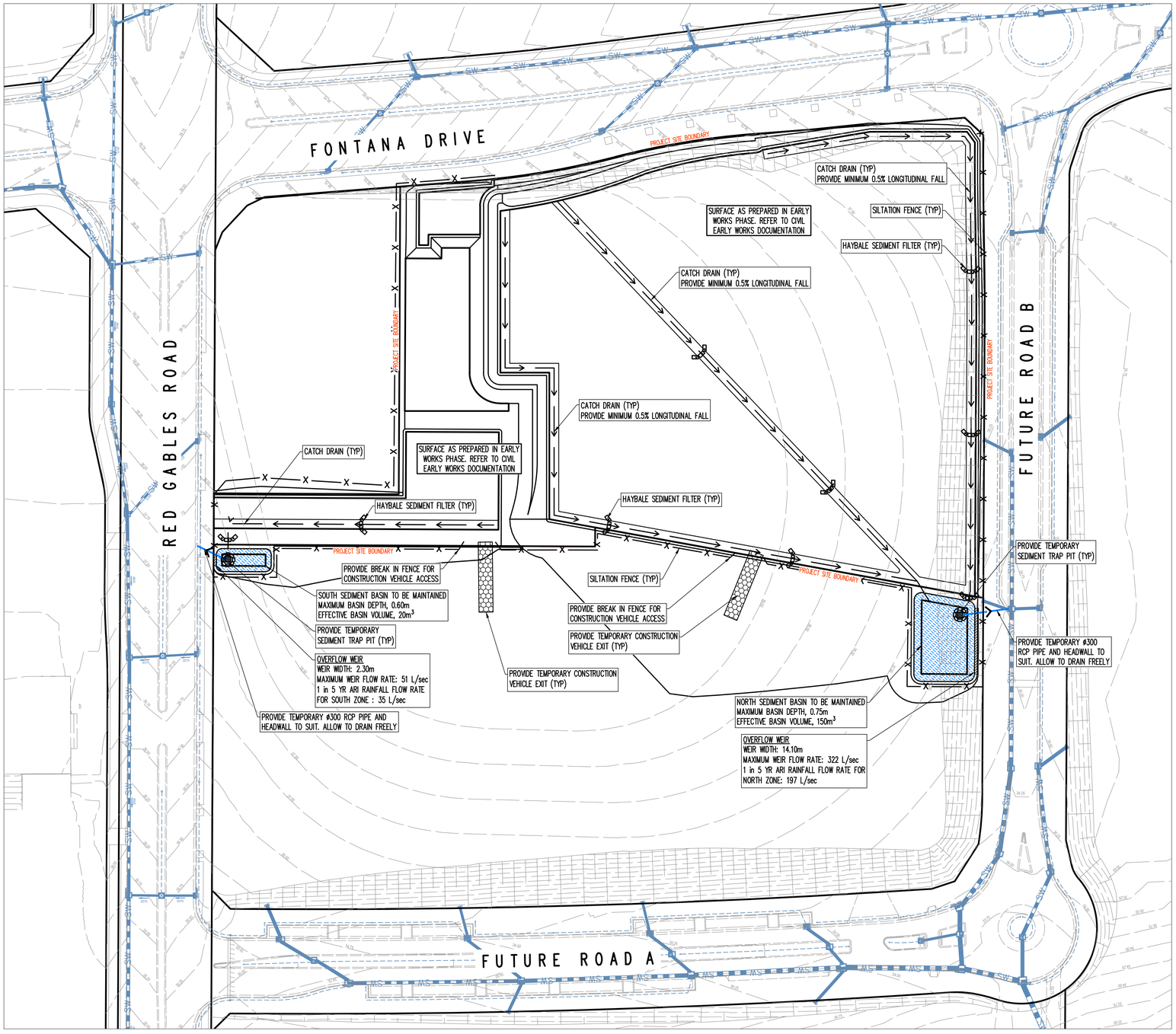
Audits are to be conducted on waste generated to ensure it is being disposed of as per the procedures set out in this Waste Management Plan.

8. Appendix 1 – Bingo Bins Waste Management Plan

9. Appendix 2 – Contamination Assessment

7.4 Appendix 4 – Construction Soil and Water Management Sub-Plan

THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT NOTES ON DRAWING **C001**

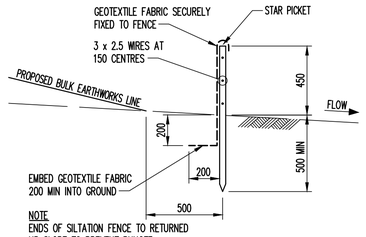


EROSION AND SEDIMENT CONTROL LEGEND

- Batter
- Siltation fence
- Stormwater pit with Geotextile filter surround
- Hay bale barriers
- Sandbag sediment trap
- Catch drain
- Overland flow path

CONTROLS FOR STORM EVENTS

1. Control and divert water from upstream such that it does not enter the disturbed site.
2. Sediment basins and erosion control devices are to be cleaned out every 5 day and after every storm event.
3. Runoff from surfaces to be diverted by catch drains and conveyed into the designated sediment basins.
4. Ensure temporary stormwater pits and pipes are free of blockages. Temporary stormwater pipes have been designed for rainfall events up to and including the 1 in 5 year ARI storm event.
5. Overflow weirs are to be provided from each sediment basin for the width as noted on the plan. The intent of the overflow weirs is to evenly distribute overflowing water from the basins in the event the stormwater outlet pit or pipe becomes blocked; this is to reduce scouring and erosion damage downstream of the development site. The overflow weirs are designed for rainfall events up to and including the 1 in 5 year ARI storm event.



NOTE
ENDS OF SILTATION FENCE TO RETURNED UP SLOPE TO PREVENT RUNOFF

SILTATION FENCE DETAIL

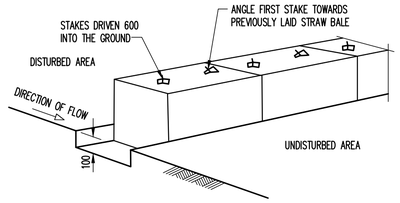
SCALE 1: 20

EROSION AND SEDIMENT CONTROL NOTES

1. All work shall be generally carried out in accordance with
   (A) Local authority requirements,
   (B) EPA – Pollution control manual for urban stormwater,
   (C) LANDCOM NSW – Managing Urban Stormwater: Soils and Construction ("Blue Book").
2. Erosion and sediment control drawings and notes are provided for the whole of the works. Should the Contractor stage these works then the design may be required to be modified. Variation to these details may require approval by the relevant authorities.
   The erosion and sediment control plan shall be implemented and adapted to meet the varying situations as work on site progresses.
3. Maintain all erosion and sediment control devices to the satisfaction of the superintendent and the local authority.
4. When stormwater pits are constructed prevent site runoff entering the pits unless silt fences are erected around pits.
5. Minimise the area of site being disturbed at any one time.
6. Protect all stockpiles of materials from scour and erosion. Do not stockpile loose material in roadways, near drainage pits or in watercourses.
7. All soil and water control measures are to be put back in place at the end of each working day, and modified to best suit site conditions.
8. Control water from upstream of the site such that it does not enter the disturbed site.
9. All construction vehicles shall enter and exit the site via the temporary construction entry/exit.
10. All vehicles leaving the site shall be cleaned and inspected before leaving.
11. Maintain all stormwater pipes and pits clear of debris and sediment. Inspect stormwater system and clean out after each storm event.
12. Clean out all erosion and sediment control devices every 5 days and after each storm event.

Sequence Of Works

1. Prior to commencement of excavation the following soil management devices must be installed.
1.1. Construct silt fences below the site and across all potential runoff sites.
1.2. Construct temporary construction entry/exit and divert runoff to suitable control systems.
1.3. Construct measures to divert upstream flows into existing stormwater system.
1.4. Construct sedimentation traps/basin including outlet control and overflow.
1.5. Construct turf lined swales.
1.6. Provide sandbag sediment traps upstream of existing pits.
2. Construct geotextile filter pit surround around all proposed pits as they are constructed.
3. On completion of pavement provide sand bag kerb inlet sediment traps around pits.
4. Provide and maintain a strip of turf on both sides of all roads after the construction of kerbs.



HAY BALE SEDIMENT FILTER

NTS

NOTE: STAKE TO BE EITHER TAR COATED STAR OR 50 x 50 HARDWOOD

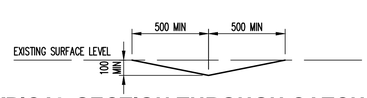
WATER QUALITY TESTING REQUIREMENTS

Prior to discharge of site stormwater, groundwater and seepage water into council's stormwater system, contractors must undertake water quality tests in conjunction with a suitably qualified environment consultant outlining the following:

- Compliance with the criteria of the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000)
- If required subject to the environmental consultants advice, provide remedial measures to improve the quality of water that is to be discharged into Councils storm water drainage system.This should include comments from a suitably qualified environmental consultant confirming the suitability of these remedial measures to manage the water discharged from the site into Councils storm water drainage system. Outlining the proposed, ongoing monitoring, contingency plans and validation program that will be in place to continually monitor the quality of water discharged from this site. This should outline the frequency of water quality testing that will be undertaken by a suitably qualified environmental consultant.

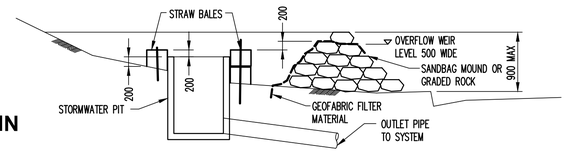
EROSION AND SEDIMENT CONTROL PUMP OUT NOTES

Any accumulated water contaminated with sediment, from a sediment basin or excavation pit, is to be flocculated or filtered in order to lower the suspended solid load to less than 50mg per litre
gypsum gas or other approved flocculant should be applied within 24 hours of the end of the storm event. The gypsum must be spread evenly over the entire water surface. Pumping is not to occur for at least 36 hours and preferably 48 hours after application. Clean water is to be discharged to the water table via a hale bail sediment filter in a way that does not pick up sediment that has dropped to the bottom.
Note: gypsum is a hydrated form of calcium sulphate and is available at many swimming pool shops and hardware stores.



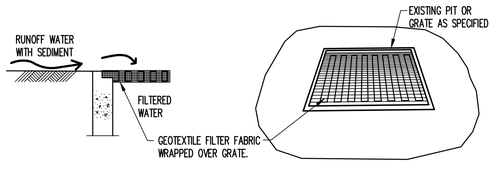
TYPICAL SECTION THROUGH CATCH DRAIN

SCALE 1: 20



SEDIMENTATION TRAP

NTS



GEOTEXTILE PIT FILTER

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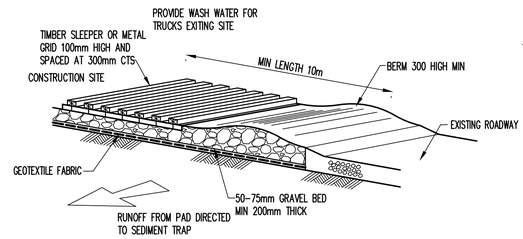

TEMPORARY CONSTRUCTION VEHICLE EXIT

NTS

0 5 10 15 20 25 30 35 40m

1:500 A1 1:1000 A3

FOR CONSTRUCTION CERTIFICATE

A1 0 1 2 3 4 5 6 7 8 9 10

Rev	Description	Eng	Draft	Date
B	ISSUE FOR CONSTRUCTION CERTIFICATE	DM	DM	29.05.20
A	ISSUE FOR CONSTRUCTION CERTIFICATE	DM	DM	30.04.20

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THE GABLES TOWN CENTRE

Sheet Subject
SEDIMENT AND EROSION CONTROL PLAN & DETAILS

Scale : A1 1:500 | Drawn DM | Authorised

Job No 181896 | Drawing No C010 | Revision B

Plot File Created: May 29, 2020 - 3:49pm

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7.5 Appendix 5 – Unexpected finds protocol for Aboriginal and non-Aboriginal heritage

The site is a greenfield site and has been cleared per the Contamination Assessment undertaken by JBS&G Australia Pty Ltd.

Should there be unexpected finds relating to heritage (Aboriginal and non-Aboriginal), the below Archaeologist should be contacted for further instruction and the below approved Aboriginal Heritage Impact Permit (AHIP).

All works should be undertaken in accordance with the approved permit AHIP C0001213.

Contact the project Archaeologist Dr. Matthew Kelleher

Dr Matthew Kelleher

Director / Archaeologist

Kelleher Nightingale Consulting Pty Ltd

Level 10, 25 Bligh Street, Sydney NSW 2000

p 02 9232 5373 f 02 9223 0680 m 0400 821 264

matthew.kelleher@knconsult.com.au

7.6 Appendix 6 – Community Issues Register

Complaints Register

Project	Santa Sophia Catholic College – SSD 9772
Address	The Gables, Box Hill
Project Manager	Mick Cafe
Site Manager	Ben Polding

Date	**Time**	**Recorded by**	**Issue raised by** (Name and number)	**Details of issue**	**Actions to resolve**	**Date Advised** (within 7 days)	**Date followed up** (within 2 weeks)