HANSENYUNCKEN

Construction Environmental Management Plan (CEMP)

Project: Murrumbateman Primary School

Job No: SC135 Monaro

Rev: 3 | December 2021

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EMP Preparation Checklist – Condition B14 – CEMP

Requirement	Plan Reference	Yes/No/Not Applicable
Document preparation and endorsement		
Has the EMP been prepared in consultation with all relevant stakeholders as per the requirements of the conditions of consent?	A.5 (CTPMSP), A.6 (CNVMSP), A.7 (CSWMSP) & A.8 (CWMSP)	Yes
Have the views of the relevant stakeholders been taken into consideration? Have appropriate amendments been made to the EMP and does the EMP clearly identify the location of any changes?	Section 5 mitigation strategies reflect sub-plans	Yes
Has the EMP been internally approved by an authorised representative of the proponent or contractor?	CEMP to be approved under Section 1.1	Yes
Version and content		
Does the EMP describe the proponent's Environmental Management System (EMS) (if any), and identify how the EMP relates to other documents required by the conditions of consent?	Section 4.3 Appendix A.2	Yes
Does the EMP include the required general content and version control information?	Section 1.2 A.5 (CTPMSP), A.6 (CNVMSP), A.7 (CSWMSP) & A.8 (CWMSP) – Document Control sections in sub-plans	Yes
Does the EMP have an introduction that describes the project, scope of works, site location and any staging or timing considerations?	Sections 4.1, 4.2 & 4.2.1	Yes
Does the EMP reference the project description?	Sections 4.2 & 5.4 A.3 & A.12	Yes
Does the EMP reference a Community and Stakeholder Engagement Plan (or similar) or include community and stakeholder engagement actions (if required)?	Section 5.18	Yes
Have all other relevant approvals been identified? Has appropriate information been provided regarding how each approval is relevant?	Section 1.1 A.5 (CTPMSP) & A.7 (CSWMSP)	Yes
Has the environmental management structure and responsibilities been included?	Sections 4.8 & 5.3	Yes
Does the EMP include processes for training of project personnel and identify how training and awareness needs will be identified?	Sections 4.4 & 5.1	Yes

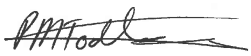
Requirement	Plan Reference	Yes/No/Not Applicable
Does the EMP clearly identify the relevant legal and compliance requirements that relate to the EMP?	Section 4.7.3 A.5 (CTPMSP), A.6 (CNVMSP), A.7 (CSWMSP) & A.8 (CWMSP) – Relevant compliance, legislative requirements, criterion, etc. identified in sub-plans	Yes
Does the EMP include all the conditions of consent to be addressed by the EMP and identify where in the EMP each requirement has been addressed?	Section 3	Yes
Have all relevant guidelines, policies and standards been identified, including details of how they are relevant?	Section 4.7.3 A.5 (CTPMSP), A.6 (CNVMSP), A.7 (CSWMSP) & A.8 (CWMSP) – Relevant guidelines, policies and standards identified in sub-plans	Yes
Is the process that will be adopted to identify and analyse the environmental risks included?	Sections 5.3 & 6	Yes
Have all the environmental management measures in the EIA been directly reproduced into the EMP?	Section 5 A.5 (CTPMSP), A.6 (CNVMSP), A.7 (CSWMSP) & A.8 (CWMSP) – Management/ mitigation measures outlined in sub-plans	Yes
Have any additional environmental management measures been included in the EMP?	Section 6	Yes
Have environmental management measures been written in committed language?	Section 5	Yes
Have project environmental management measures, including hold points, been identified and included?	Section 4.9	Yes
Are relevant details of environmental monitoring that will be carried out included?	Section 5.5.2 & 5.12.5	Yes
Have the components of any environmental monitoring programs been incorporated?	A.5 (CTPMSP), A.6 (CNVMSP) A.7 (CSWMSP) & A.8 (CWMSP) – Monitoring, recording and reporting requirements outlined in sub-plans	Yes
Are environmental inspections included?	Section 6.2	Yes

Requirement	Plan Reference	Yes/No/Not Applicable
Does the EMP document all relevant compliance monitoring and reporting requirements for the project?	Section 6.2.2	Yes
Does the EMP describe the types of plans or maps (such as environmental control maps) that will be used to assist with the management of environmental matters on site?	A.5 (CTPMSP), A.6 (CNVMSP), A.7 (CSWMSP) & A.8 (CWMSP) – Environmental control plans provided in sub-plans	Yes
Does the EMP list environmental management documents?	A.2, A.4, A.5 (CTPMSP), A.6 (CNVMSP), A.7 (CSWMSP), A.8 (CWMSP) & A.11	
Is an auditing program referenced?	Section 6.2	Yes
Does the EMP include the incident notification and reporting protocols that comply with the relevant conditions of consent?	Section 6	Yes
Does the EMP identify the project role/position that is responsible for deciding whether an occurrence is an incident?	Sections 4.8 & 6	Yes
Does the EMP describe a corrective and preventative action process that addresses the requirements?	Sections 6.2.1 & 6.2.2	Yes
Does the EMP include details of a review and revision process that complies with the requirements?	Sections 1 & 4.4	Yes

Contents

1 Document Information

1.1 Review & Approval

Review			
Position	**Name**	**Sign**	**Date**
Contracts Authorised Person			
Project Manager	Paul Todhunter		
Services Manager	Luke French		
Snr Contracts Administrator	Ronaldo Bermudez		
Contracts Administrator	Ben Hohua		
Site Manager	Michael Venables		
Foreman			
Site Safety Officer			
Project Engineer			
Site Engineer	Nick Gordon		
Site Engineer	Cameron Hough		
Site Engineer	James Golder		
Cadet			
Approval			
Project Manager	Paul Todhunter		14 Dec 2021

1.2 Change Information

Change Information			
Revision	**Description**	**Issued by**	**Issue date**
1	Preliminary	NG	25 Nov 2021
2	Draft	NG	3 Dec 2021
3	Final	NG	14 Dec 2021

2 Definitions

The following definitions and abbreviations have been used in this Environmental Management Plan. Further definitions and abbreviations are provided in referenced procedures and plans.

BIM360 Field	Cloud based QHSE field management software application designed specifically for the construction industry.
CEMP	Construction Environmental Management Plan (this document)
EPA	State Environment Protection Authority
ESD	Ecologically Sustainable Development
HSE	Health, Safety & Environment
HY	Hansen Yuncken Pty Ltd
HYWAY	An information management platform developed by HY utilising Microsoft SharePoint
NC	Non-Conformance
NGER	National Greenhouse and Energy Reporting
MPS	Murrumbateman Primary School
NVMP	Noise and Vibration Management Plan
OEH	Office of Environment and Heritage
PLN	HY Plan
PMP	Project Management Plan
POEO	The Protection of the Environment Operations Act
PROJ	Project Management
REO	Regional Environmental Officer
RMS	Roads and Maritime Services
S/C	Subcontract(s) or Subcontractor(s) as the context requires
SM	Site Manager
SSC	Site Safety Coordinator
SSA	Site Safety Advisor
SWMS	Safe Work Method Statement
CTPMP	Construction Traffic and Pedestrian Management Plan

3 Compliance with SSD-11233241 Conditions

Condition ID	Requirement	Reference
B14	Prior to commencement of construction and demolition of internal roadways, the Applicant must submit a Construction Environmental Management Plan (CEMP) to the Certifier and provide a copy to the Planning Secretary for information. The CEMP must include, but not be limited to, the following:	
B14(a)	(a) Details of:	
B14(a)(i)	(i) hours of work	4.2.1
B14 (a)(ii)	(ii) 24-hour contact details of site manager	4.2.2
B14 (a)(iii)	(iii) management of dust and odour to protect the amenity of the neighbourhood	5.7
B14 (a)(iv)	(iv) external lighting in compliance with AS 4282-2019 Control of the obtrusive effects of outdoor lighting	5.17 & A.11
B14 (a)(v)	(v) community consultation and complaints handling as set out in the Community Communication Strategy required by condition B9	5.18
B14 (b)	(b) An unexpected finds protocol for contamination and associated communications procedure to ensure that potentially contaminated material is appropriately managed	5.11.8
B14 (c)	(c) An unexpected finds protocol for Aboriginal and non-Aboriginal heritage and associated communications procedure	5.11.8
B14 (d)	(d) Construction Traffic and Pedestrian Management Sub-Plan (see condition B15)	A.5
B14 (e)	(e) Construction Noise and Vibration Management Sub-Plan (see condition B16)	A.6
B14 (f)	(f) Construction Waste Management Sub-Plan (see condition B17)	A.8
B14 (g)	(g) Construction Soil and Water Management Sub-Plan (see condition B18)	A.7

For all SSD-11233241 Consent Conditions, refer to Appendix A.10

4 Commitment & Policy

4.1 Scope & Application

The Construction Environmental Management Plan (CEMP) has been developed to demonstrate that the proposed Works will be executed in accordance with legislated safety and environmental requirements with minimal inconvenience to stakeholders including neighbours and the general public.

Hansen Yuncken, appointed as Principal Contractor in accordance with NSW WHS legislation, complies with the requirements detailed in this Construction Environmental Management Plan, as well as the requirements of any other legislation or statutory bodies.

The proposed development includes the design and construction of a Core 21 Public School inclusive of; teaching spaces, ancillary & sport spaces, hall, library, administration spaces, canteen, special programs space and unique areas.

A combination of offsite and onsite construction techniques will be used to deliver a high quality, future focused innovative, state of the art school. Meeting the current and future school and community needs whilst complying with the requirements as detailed in the Educational Facilities Standards and Guidelines (EFSG) and providing a high level of end user satisfaction.

This CEMP has been generated to satisfy the requirements of "ISO 14001:2015, Environmental management systems – Requirements with guidance for use" and the "NSW Government Environmental Management System Guidelines – 3rd edition". It establishes guidelines and controls for all HY activities that may impact the surrounding environment for the duration of the works, including but not limited to, air, water, land, natural resource use & waste, flora & fauna, and their respective interrelationship. Furthermore, it has been designed to embrace the environmental management requirements, both in terms of the Contract and generally, to demonstrate HY as an environmentally responsible organisation to the broader community.

4.2 Project Description

The project will deliver a new primary school at 2 Fairley Street, Murrumbateman NSW 2582 to cater for up to 370 students from Kindergarten to Year 6. In summary, the proposed works will include construction of:

- A two-storey building to the north of the site (Block A) which will include administration, library and special program spaces.
- Two-storey buildings to the east of the site (Blocks B & C) which will include teaching and flexible learning spaces.
- A single storey building to the west of the site (Block D) which include a hall and canteen.
- On-site parking lot with 40 spaces and a kiss-and-ride area.
- Outdoor sports court and play area.
- Landscaping, fencing and signage.

4.2.1 Hours of Work

The proposed hours of work for the project are as follows:

- Between 7am and 6pm, Mondays to Fridays inclusive; and

- Between 8am and 1pm, Saturdays.
- No work may be carried out on Sundays or public holidays.

The proposed hours align to Condition C4 of SSD-11233241.

The proposed restricted hours of work for the project, provided that noise levels do not exceed the existing background noise level plus 5dB, which aligns with Condition C5 of SSD11233241, are as follows:

- Between 6pm and 7pm, Mondays to Fridays inclusive; and
- Between 1pm and 4pm, Saturdays.

The proposed hours of work for the project for specific construction activities such as rock breaking, rock hammering and similar activities, which align to Condition C8 of SSD-11233241, are as follows:

- Between 9am to 12pm and 2pm to 5pm, Monday to Friday; and
- Between 9am to 12pm, Saturday

As per Condition C6 of SSD-11233241, Construction activities may be undertaken outside of the hours outlined in Conditions C4 and C5 if required:

- By the Police or a public authority for the delivery of vehicles, plant or materials; or
- In an emergency to avoid the loss of life, damage to property or to prevent environmental harm; or
- Where the works are inaudible at the nearest sensitive receivers; or
- For the delivery, set-up and removal of construction cranes, where notice of the crane-related works is provided to the Planning Secretary and affected residents at least seven days prior to the works; or
- Where a variation is approved in advance in writing by the Planning Secretary or his nominee if appropriate justification is provided for the works.

4.2.2 24 Hour Contact Details

The 24-hour contact details for the project is as follows:

Paul Todhunter (Project Manager)

M: 0400 841 276

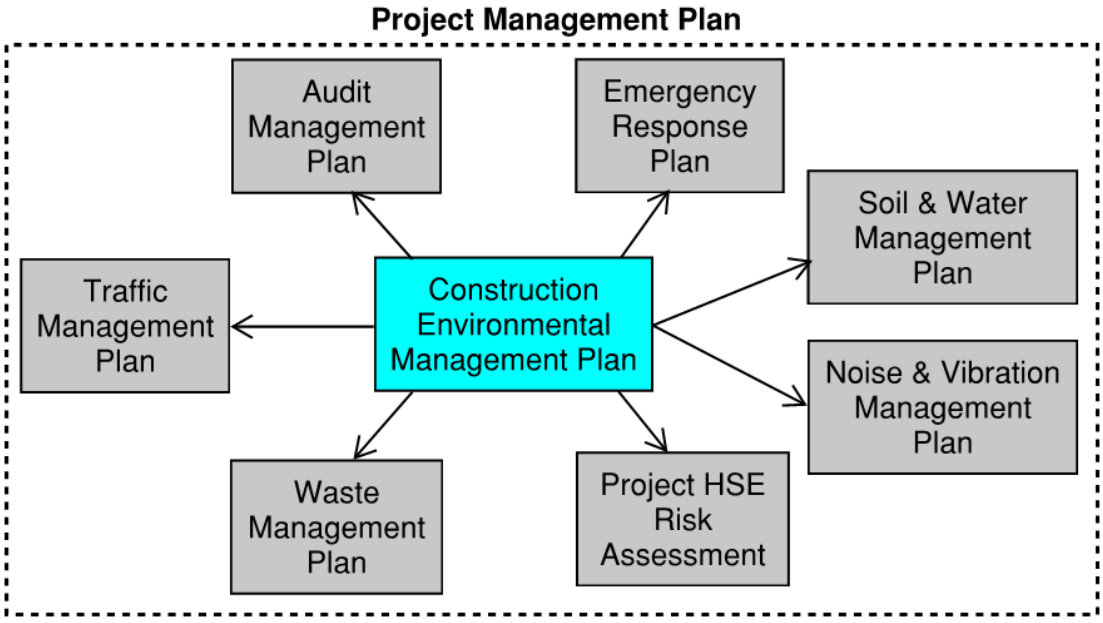
PTodhunter@hansenyuncken.com.au

4.3 CEMP Interrelationship with PMP

This CEMP forms part of Hansen Yuncken's Environmental Management and interfaces with the company's Quality & WHS Management Systems (refer Appendix A.2). Furthermore, this CEMP is an integral part of Murrumbateman Primary School PMP. The following plans referenced within this CEMP form part of the overall PMP for the project and contribute to the environmental management procedures:

- **Project Site Induction** – Ensures all workers onsite are aware of the Construction Environmental Management Plan & also trains all workers onsite on the requirements for controlling dust & windblown debris, dirt & debris on public roads, protection of stormwater drains, tool & equipment washout, chemical spills, noise disturbance, waste collection & disposal of rubbish, food scraps & excess concrete.

- **Project HSE Risk Assessment** – Identifies what subcontractor onsite are impacted by or the risk of; air quality/dust, archaeology & cultural heritage, chemical spill, flora & fauna, littering, noise disturbance, stormwater contamination & watercourse pollution each month. This will be monitored through task observations scheduled for each month.
- **Noise & Vibration Management Plan** – Identifies mitigation methods to minimise the risk of noise & vibration to the workers onsite and the surrounding properties.
- **Traffic & Pedestrian Management Plan** – Summarises how construction and pedestrian traffic will be managed on the project to minimise the impact on the existing facility and the neighbours surrounding to the project.
- **Site Layout Plan** – Identifies the location of sediment controls, access routes, truck washout, location of site bins, spill kits, concrete washout.
- **Emergency Response Plan** – Outlines the process to manage the following environmental emergencies; asbestos exposure, water pollution, fire, major fuel spill & chemical spill
- **Audit Management Plan** – Describes the frequency of internal and external environmental audits and the process for closing out any non-conformances raised.



4.4 Policy & Objectives

The HY Environmental Policy Statement provides the framework for the development of this CEMP (refer Appendix A.1), and details the company's commitment to "*providing a high quality environment, which meets the requirements and expectations of; Clients, Statutory Authorities, Employees and Community Groups*", through the application of "*sustainable development principles, to continually improve environmental performance in minimising impact on, and pollution of, the environment during the construction process"*.

The objective of the Construction Environmental Management Plan is to:

- Satisfy Client requirements related to environmental performance, set out in the Specification for the Works.

- Incorporate and provide mitigation strategies for environmental issues arising from site activities and as detailed in the Murrumbateman Primary School Environmental impact assessment document (Environmental Impact Statement SSD-11233241 by Mecone)
- Encourage best practice environmental management through planning, commitment and continuous improvement;
- Prevent and minimize adverse impacts on the environment;
- Identify the potential for, and respond to, environmental incidents and emergency situations and take corrective actions;
- Identify and control possible environmental hazards with the works and HY activities;
- Identify and protect any special environmental characteristics of the site including cultural heritage significance;
- Define roles and responsibilities and allocate the necessary resources
- Ensure environmental training and awareness programmes are provided to employees and subcontractors;
- Establish mechanisms to monitor, evaluate and report progress.

The HY Environment Policy commits the company to achieve the following goals:

- Develop and promote a culture of environmental leadership, responsibility and continual improvement across the HY business;
- Audit, monitor and ensure compliance with environmental legislative and regulatory obligations and other environmental commitments;
- Utilise the resources of HY to lead the way in defining and achieving best environmental practice; and
- Advance and disseminate environmental knowledge and applied environmental management through training, research and engagement with the wider community.

A copy of the Environment Policy is contained within the PMP and displayed at the project / site office and induction sheds. HY recognises this implementation will involve effective training of personnel to ensure they fully understand their responsibilities to comply with and monitor the management system. In addition, all site workers are consulted on HY environmental policies & procedures through the following mechanisms; site induction, notice board, site inspections, prestart meetings, subcontractor meetings, team meetings, toolbox talks.

4.5 Targets

4.5.1 Objective: Comply with all environmental legislation

KPI: Number of identified breaches of State or Commonwealth Environmental legislation

Target: Nil for duration of project.

Responsibility: HY & Subcontractors

4.5.2 Objective: Minimise impacts on the environment

KPI: Number of significant environmental incidents causing serious harm to the environment

Target: Nil for duration of project.

Responsibility: HY & Subcontractors

4.5.3 Objective: Conduct environmental site inspections to validate environmental conformance

KPI: Schedule and undertake regular site inspections

Target: > 90% of scheduled HSE inspections

Responsibility: HY

4.5.4 Objective: Minimise and manage environmental complaints

KPI: Consult with impacted neighbours and promptly address all complaints

Target: ≤ 1 complaint per significant construction milestone

Responsibility: Savills

4.6 ESD Vision & Principles

HY's Environmentally Sustainable Design (ESD) vision and principles involves:

- Identification and prioritisation of environmental risk based on AS/NZS ISO 31000:2009 and Guidelines HB158:2010, using qualitative likelihood vs. consequence methods.
- Development of management systems which build knowledge and capacity on environmental issues, principles and sustainable behaviours including training and communication.
- Reduced energy and water consumption as well as waste minimisation during the construction process.
- Environmental training and management of trade contractor's activities to ensure that the project ESD objectives are obtained.
- Efficient and effective use of natural resources in a way that maintains the ecological processes on which life depends
- Sustainable use of renewable energy resources.

HY's ESD vision and Principles align with the ESD objectives of the project which is targeting a certified 4 Star Green star rating through the consideration of key ESD strategies in design (as per the ESD Detailed Design Report prepared by Steensen Varming). As such, this project provides an opportunity for HY to expand its practical and theoretical knowledge of ESD to a level that is considered 'best practice' status.

4.7 Environmental Planning

In accordance with the contractual requirements, applicable legislation, and in keeping with proper environmental practices, Hansen Yuncken has instituted a methodology which is reflective of and observes the requirement, as set out in ISO 14001:2015.

4.7.1 Environmental Aspects & Impact

All activities related to the Murrumbateman Primary School, which are enacted by or on behalf of Hansen Yuncken, are identified in the "Project HSE Risk Assessment" (refer Appendix A.4). For each activity the environmental aspects and associated actual and potential impacts are identified as they relate to the following environmental elements:

- Location and Land Use;
- Noise & Vibration;
- Traffic and Access;

- Air Quality;
- Soils, Erosion and Water Quality;
- Terrestrial Flora and Fauna;
- Cultural Heritage;
- Site Contamination; and
- Waste Management.

Environmental impacts are detailed in the "Project HSE Risk Assessment" and assessed for significance by using the Risk Matrix. Each identified potential impact is rated (Risk rating) in relation to its predicted likelihood and consequence. Environmental Impacts as applicable to the Murrumbateman Primary School are summarised in the "Environmental Risk Register" contained within this CEMP (Section 5.3).

4.7.2 Work Method Statements

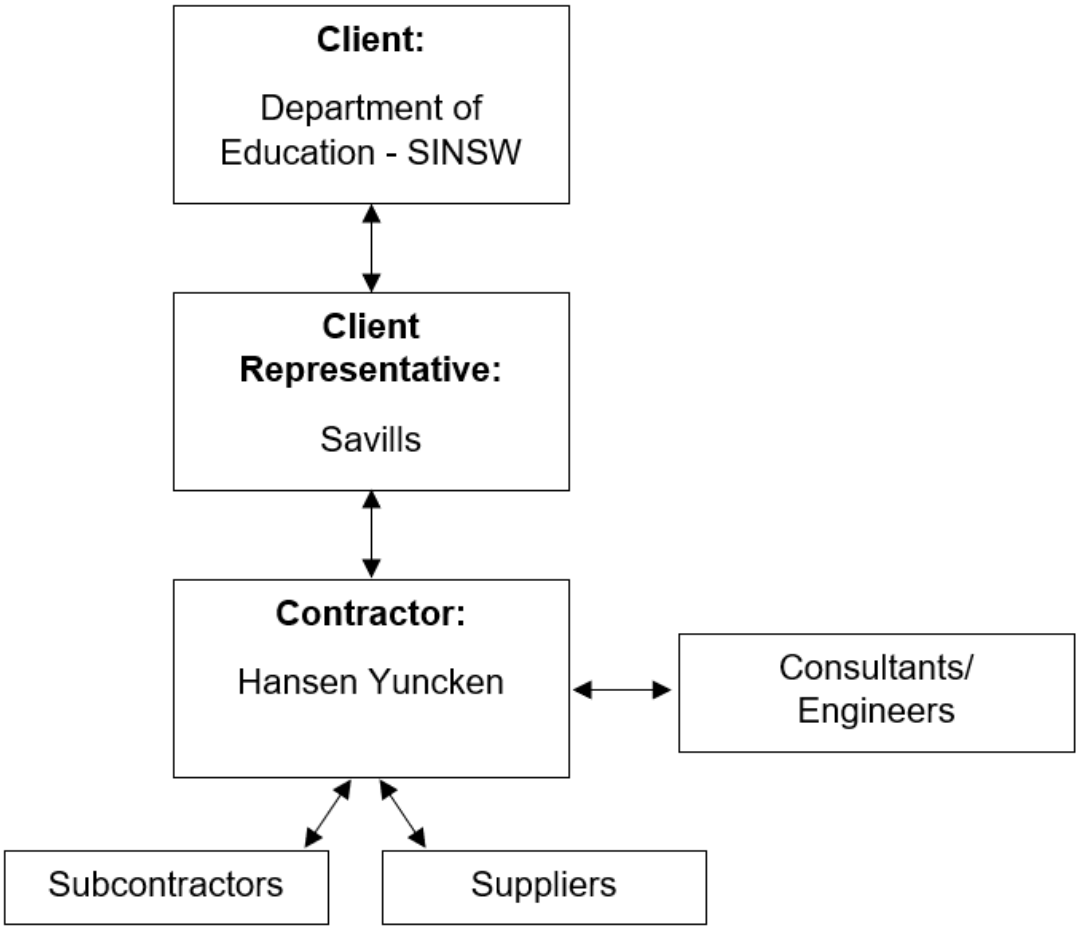
For each activity rated as a significant risk (i.e., Risk class >M/Medium) to the environment, a further Risk assessment is undertaken with the additional controls identified and contained within a Work Method Statement. This document details the; steps involved, hazards, control measures and persons responsible associated with the higher risk activity. A Toolbox talk is then completed with the relevant workers that will be completing the task to ensure that they comply with the Work Method Statement.

4.7.3 Legal Compliance and Other Requirements

Hansen Yuncken has developed a procedure ("Legislation Standards and Codes of Practice"), available on HYWAY to identify legal and other requirements that are applicable to the Murrumbateman Primary School and to ensure the accessibility of the information. The procedure shall be referenced and is applicable to those activities and functions that have the potential to interact with the environment. Furthermore (URL) links are supplied on HYWAY to regulatory body websites and relevant NSW legislation relevant to environmental aspects and management of the same.

4.8 Roles and Responsibilities

The below flow chart summarises the organisation structure for communication and reporting between Hansen Yuncken, it's suppliers/subcontractors and the principal.



Hansen Yuncken will collaborate with the project team to provide the following in ensuring we are achieving sustainable environmental management for the duration of the project:

- Engagement with project stakeholders including consultants and contractors
- Notifications and communications with adjacent property occupants and owners advising of the Works;
- Formal notices of road closures and related matters;
- Conveying enquiries and complaints regarding the works (including but not limited to traffic, dust and noise) to the client;
- Liaising with key stakeholders and local authorities regarding the works; and
- Environmental issues related to the works.

A summary of the roles and responsibility of each stakeholder with regards to environmental management for the project is summarised below:

- Client Representative – provides a medium of communication between the client and the contractor and is responsible for all community consultation and communication
- Contractor – responsible for delivering the project in accordance with the relevant legislation, including the enforcement of the CEMP for its subcontractors and suppliers.

- Consultants/Engineers – provide expert knowledge into the generation of aspects of the CEMP in line with industry standards and the relevant legislations.
- Subcontractor/Suppliers – responsible for abiding by the requirements of the CEMP when carrying out their contract works.

4.9 Environmental Hold Points

The below hold points relate to the environmental management of the Murrumbateman Primary School project site as per SSD-11233241:

- C19(a): Street trees must not be trimmed or removed unless it forms a part of this development consent or prior written approval from Council is obtained or is required in an emergency to avoid the loss of life or damage to property.
- C23: The prior written approval of Council must be obtained to connect or discharge site stormwater to Council's stormwater drainage system or street gutter.
- C27: (Unexpected Finds Protocol – Aboriginal Heritage) In the event that surface disturbance identifies a new Aboriginal object, works must halt in the immediate area and shall only recommence with the written approval of the Planning Secretary.
- C28: (Unexpected Finds Protocol – Historic Heritage) If any unexpected archaeological relics are uncovered during the work, then works must cease immediately in that area and may only recommence with the written approval of the Planning Secretary.

5 Implementation

5.1 Environmental Awareness

All HY and S/C employees shall receive an induction into the project in accordance with the Site Induction procedure including completing the Site Induction Record Form.

The induction shall include the requirements for the conduct of activities which have the potential for significant environmental impacts on the project which shall be outlined in the project specific Site Induction Handbook.

This document applies to all HY and S/C employees, environmental awareness is the responsibility of every person working on and associated with the project.

5.2 Environmental Impacts of Subcontractor Activities

The environmental impacts of subcontractor activities shall be assessed during the S/C pre-award meeting in accordance with pre-award meeting procedure and the project HSE risk assessment. The general structure of the environmental management of the following risks is contained within this section of the report under the following structure:

- Likely Impacts – outlines the impacts of the environmental issues that have been assessed in the environmental risk register
- Mitigation Strategies – outline the procedures/actions that will be taken to minimise the possibility of the impacts outlined above from occurring.

5.3 Environmental Risk Register

Environmental Risk Register Summary & Responsibilities		
Environmental Issue	Risk to Project	Responsible Personnel
Location & Land use Residential and other properties may be impacted with construction works due to construction noise and dust	Low	PM
Noise & Vibration Construction of the development may result in short term impacts during the project due to the use of heavy machinery, drilling and plant as well as construction personnel and vehicle movements.	Low	PM / SM
Traffic & Access During construction there will be impacts to traffic on public roads surrounding the project from construction vehicles and deliveries for site.	Medium	PM / SM

Environmental Risk Register Summary & Responsibilities		
Air Quality During the earthworks stage of the project, there is a risk of poor air quality generated by the construction works.	Low	SM
Soils, Erosion, & Water Quality There is a risk of soil leaving the site and potentially contaminating the stormwater system in the short-term during the earthworks stage of the project.	Low	SM
Terrestrial Flora & Fauna The removal of trees during construction works poses minimal risk to landscaped species throughout the area.	Low	PM / SM
Cultural Heritage It is unlikely that construction works will impact any undisturbed aboriginal artefacts given that an Aboriginal Cultural Heritage Assessment prepared by Eco Logical Australia concludes that no Aboriginal heritage sites will be harmed by the proposed development and that there are no archaeological mitigation measures required.	Low	PM / SM

PM - Project Manager, SM - Site Manager, FM - Foreman, S/C – Subcontractor, PCA - Private Certifier

5.4 Location and Land Use

5.4.1 Site Location

The site is located at 2 Fairley Street, Murrumbateman, in the local government area of Yass Valley Council. The site is formally described as Lot 302 DP1228766. The site is irregular in shape and has an area of approximately 15,434m².

Immediately surrounding the development includes a tourist hotel to the north across Fairley Street, Murrumbateman Library (located in the former Murrumbateman schoolhouse, a local heritage item) to the south, a health centre and childcare to the west, and rural land and equestrian facilities to the east across Barton Highway. There is also a cycling and equestrian pathway to the south between the site and library.

The site contains an existing parking lot in its northern end and a driveway along its western boundary. There is also a mound of soil at the southern end of the site. The site is otherwise cleared and vacant as per the image below.

The site is situated approximately 49km northwest of the Canberra Central Business District (CBD), and 22km southeast of Yass (refer to Appendix A.3 for further information regarding site location).

5.4.2 Likely Impacts

The construction works would be short term in nature and construction activities would be carried out with due diligence, duty of care and best management practices. Given the location of residential and other properties in vicinity of the works area, some impacts associated with construction traffic, noise/vibration and dust are likely to affect adjacent residents. These likely impacts will be addressed below.

5.4.3 Mitigation Strategies

- The neighbouring landowners are to be consulted regarding the construction works, predicted program and any access requirements.
- Land disturbance during construction is to be limited to that required to undertake the construction works
- Construction works to be undertaken in consideration of adjacent vegetation
- Areas disturbed during construction to be returned to the pre-construction condition

- The consent approval stipulates working times to minimise the impact on the community being generally Monday to Friday 7am-6pm, Saturday 8am-1pm, no work on Sundays or public holidays.

5.5 Noise and Vibration

5.5.1 Likely Impacts

Construction of the proposed development will result in short term noise impacts during the construction period. The predicted noise levels during the construction phase have been identified in the project Construction Noise & Vibration Management Plan along with associated mitigation strategies provided to minimise these impacts (refer Appendix A.6 for the Construction Noise & Vibration Management Plan), in accordance with condition B14(e) and B16 of SSD-11233241.

5.5.2 Mitigation Strategies

Construction noise and vibration will generally be managed in line with the Construction Noise and Vibration Management Sub-Plan (CNVMP). Noise and vibration mitigation measures include:

- Implement best-practice general mitigation measures onsite, aimed at reducing the effects of construction noise and vibration, such as,
  - regular toolbox talks to reinforce the need to minimise noise and vibration,
  - regular identification of noisy activities and adoption of improvement techniques.
  - Restricting construction activities to the hours specified under conditions C4, C5 and C8 of SSD-11233241.
  - Taking reasonable and feasible measures to minimise noise and vibration effects from plant and equipment where possible.
- Noise monitoring at the commencement of excavation and structural works to confirm measured levels are consistent with the predictions in the acoustic assessment, and to verify that the mitigation procedures are appropriate.
- Issue project updates to stakeholders on current and upcoming works, including advance warning of potential disruptions and noise intensive activities.
- Develop procedures for receiving and addressing complaints from affected stakeholders. Complaints to be investigated as soon as practicable and feasible measures to minimise noise will be implemented if required, in accordance with condition B16(f) of SSD-11233241.

5.6 Traffic & Access

5.6.1 Likely Impacts

Construction of the new site facilities shall see some increase in traffic in the local area. The increased traffic is not predicted to have an impact on local traffic flow, and only a minor inconvenience to local road users is expected. Construction vehicle routes have been developed with the intention of minimising the impact of construction traffic on the local streets in the immediate vicinity. Access to site will primarily be via Fairley Street, with an alternative access proposed via the Barton Highway to only be used as required towards the later stages of the project. In accordance with Condition B14(d) and B15(a)-(c) of the SSD-11233241, the management of construction traffic developed as a result of these works is outlined in the Construction Traffic and Pedestrian Management Plan (refer Appendix A.5).

5.6.2 Mitigation Strategies

The Construction Traffic and Pedestrian Management Plan (CTPMP) details the measures and strategies to be undertaken during construction works to minimise the effects on the surrounding road network, and to ensure the safety and efficiency of the community, workers, and road users, including:

- Construction activities and deliveries shall be restricted to the hours dictated in the consent SSD-11233241.
- Access to the site will primarily be via Fairley Street, with a secondary access via the Barton Highway to be reserved for larger vehicles towards the later stages of the project and only as required.
- Wire mesh temporary fencing will be erected around the perimeter of the site and maintained for the duration of the project to keep out unauthorised persons, with access gates closed outside of construction hours.
- Traffic management shall be undertaken in accordance with the methodology outlined within the Traffic Guidance Scheme (Appendix D of the CTPMP).
- Traffic and non-vehicle related road users will be directed around the worksite in order to physically separate the road user from any hazards within the worksite.
- The Modular Building System components used in the construction of this project will be delivered to site overnight and will arrive on site before sunrise.
- Deliveries will be scheduled to prevent queuing by ensuring adequate timeframes between trucks arriving and leave site.
- All vehicles transporting loose materials will have their loads covered or secured to prevent large items, excess dust or dirt particles depositing onto the road during travel to and from site. HY will monitor roads leading to and from the site and take necessary steps to rectify any road deposits caused by site vehicles.
- Public roads and access points will not be obstructed by any materials, vehicles, refuse skips or the like.
- A Construction Worker Transportation Strategy has been developed in accordance with Condition B19 of the SSD-11233241 (Appendix E of the CTPMP) and provides details regarding accommodation of contractor parking.
- Traffic Controllers will be used to supervise vehicle movements and for pedestrian and cyclist management when necessary during construction activities.
- HY will induct all subcontractors to ensure that procedures are met for vehicles entering and exiting the construction site.
- Due to the restricted parking onsite, HY will encourage carpooling to reduce single use vehicles travelling to site. HY will also allow workers to drop off tools onsite prior to parking and provide amenities to minimise the need for workers to return to their cars throughout the day.

A risk assessment has also been conducted as part of the CTPMP identifying the hazards and risks associated with the works and to determine the controls required for the protection of road workers and road users.

5.7 Air Quality & Dust Control

In accordance with condition B14a (iii) of SSD-11233241, repeated in part as follows; the Construction Environmental Management Plan (CEMP) must include, but is not limited to; (iii) management of dust and odour to protect the amenity of the neighbourhood. This section of the CEMP addresses this condition, outlining the likely impacts of air quality and dust control for the various aspects of the

construction works, along with the mitigation strategies that will be implemented to minimise these impacts on the neighbourhood.

5.7.1 Likely Impacts

The main impact of air quality during construction is expected to arise from the generation of airborne localised dust associated with earthworks. Given the proximity to neighbouring properties and existing buildings, there is the potential for impact by dust, particularly during windy conditions.

5.7.2 Mitigation Strategies

- Construction vehicles and equipment to be suitably serviced prior to commencement of construction activities and all necessary maintenance to be undertaken during the construction period to meet EPA air quality requirements.
- Excessive use of vehicles and powered construction equipment will be minimised where possible.
- All construction machinery will be turned off when not in use to minimise emissions where possible.
- Construction contractors to monitor dust generation progressively.
- Dust suppression methods will be adopted where required (i.e., on windy days when earthworks and vehicle movements are generating dust). Examples of dust suppression methods include:
  - water carts,
  - localised use of water to supress excavation activities as they are occurring to suppress dust, and
  - covering stockpiles.
- Any stockpiled spoil/fill will be protected to minimise dust generation to avoid sediment moving offsite.
- Vehicles transporting spoil from the site to be covered where required.
- The burning of waste materials will not be permitted on site.

5.8 Soil, Erosion & Water Quality

In accordance with condition B18 of SSD-11233241, this section of the CEMP addresses the likely impacts associated with stormwater runoff and the mitigation strategies that will be implemented to ensure that these impacts are minimised. Furthermore, in accordance with condition B14(g), refer to Appendix A.7 for the Construction Soil and Water Management Sub-Plan.

5.8.1 Likely Impacts

Earthworks and general ground disturbances associated with the site works may result in sediment and other materials leaving the site via wind or water movement. This may have the potential to result in the water pollution such as turbidity and nutrient inputs, should sediment wash into stormwater or natural drainage lines.

Aspects of the site identified as potentially impacting on water quality includes:

- Excavation for foundations and site levelling;
- Stockpiling and transportation of excess spoil; and
- General construction waste entering drainage lines.

5.8.2 Mitigation Strategies

Construction is to be undertaken in accordance with the Construction Soil and Water Management Sub-Plan, as per condition B18 of SSD-11233241. Prior to earthworks commencing, erosion and sediment control measures will be implemented generally in accordance with the Construction Certificate drawings and the 'Blue Book'. Control measures, as per the Construction Soil and Water Management Sub-Plan, include:

- Temporary site security/safety fence to be constructed around the site, the site office area and the proposed sediment basin.
- Sediment fencing to be provided downstream of disturbed areas, including any topsoil stockpiles.
- Dust control measures including covering stockpiles, installing fence hessian and watering exposed areas,
- Placement of hay bales or mesh and gravel inlet filters around and along proposed catch drains and around stormwater inlets pits within the site and Fairley Street.
- The construction of a temporary sediment basin designed to cater for a storm event up to and including the 1 per cent AEP storm event.
- Stabilised site access at the construction vehicle entry/exits.
- Stockpiled material to be located as far away as possible from any associated natural watercourses or temporary overland flow paths, with sediment fences installed to the downstream side of stockpiles and any embankment function.
- Erosion and sediment control devices shall be properly maintained for the duration of the work. Maintenance includes ensuring adequate settlement times or flocculation and pumping of clean water.
- Wet weather management - In the event of heavy rain, site inspections will be undertaken prior to work commencing, with inspections to focus on:
  - The suitability of pedestrian access to the amenities and into the construction work areas.
  - The suitability of access for plant and equipment.
  - The suitability of ground conditions for plant and equipment to operate.
  - Identifying the construction zones suitable for work to commence
  - Actions to remediate those areas not suitable for work to commence (e.g., de-watering, preparing ground conditions and access ways, etc.)

5.9 Terrestrial Flora and Fauna

5.9.1 Likely Impacts

As per the Environmental Impact Statement, the site is cleared and contains no significant vegetation or other natural features. This is supported by an Arboricultural Impact Assessment (AIA) carried out on the site confirming that the development site contains no vegetation that qualifies as a tree and there is no existing canopy coverage from trees on site.

However, two significant trees have been identified approximately three metres from the southern boundary fence on the adjacent property. Due to their proximity to the site and the tree protection zones extending into the development site, mitigation measures are required to prevent impacting these trees.

5.9.2 Mitigation Strategies

- Erect Tree Protection Zone fencing with signage prior to commencing demolition or earthworks, which is to remain in place during construction.
- Prohibit parking of vehicles or plant, and storage of materials within the Tree Protection Zones of the two trees.
- No trenching or excavation works to occur within the Tree Protection Zone without prior consultation with a Level 5 Arboricultural consultant to evaluate the impact on the trees.
- No vegetation removal or modification is to occur beyond the proposed works areas shown on the plans.
- Carry out landscaping in accordance with the landscape design

5.10 Archaeology & Cultural Heritage

5.10.1 Likely Impacts

An Aboriginal Cultural Heritage Assessment (ACHA) of the development site was completed by Eco Logical Australia in August 2021 and found that the site contains no Aboriginal archaeological sites. As such, the development site is determined to have nil to low archaeological significance and can proceed with caution. Notwithstanding, the following recommended mitigation strategies will be implemented in the event of an unexpected find onsite. This should be read in conjunction with the 'unexpected finds protocol' outlined in Section 5.11.8.

5.10.2 Mitigation Strategies

- If suspected Aboriginal objects are located during works, works will cease in the affected area and an archaeologist will be called in to assess the finds. If the finds are found to be Aboriginal objects, the NSW Department of Planning, Industry and Environment (DPIE) and Heritage NSW will be notified.
- In the extremely unlikely event that human remains are found, works will immediately cease, and the NSW Police will be contacted. If the remains are suspected to be Aboriginal, the DPIE and Heritage NSW will also be contacted to assist in determining appropriate management.
- Should either of the events above occur, the project team will take all necessary measures to protect the artefacts from being damaged or destroyed. Work will not re-commence in the area until a written instruction from the superintendent is received.

5.11 Site Contamination

5.11.1 Contaminated Soil Risk Assessment

A preliminary contamination investigation has been conducted by Douglas Partners as part of the Environmental Impact Statement (EIS) process to assess whether contamination has the potential to exist on the site and to determine whether further investigation is needed. The subsequent report concluded that the site is considered suitable for the proposed use, with the following mitigation measures recommended:

- Development of a Construction Environmental Management plan, including an unexpected finds protocol (refer Section 5.11.8).
- Should suspected asbestos containing materials be encountered on site, the affected area is to be fenced off and assessed by a licenced asbestos assessor.
- The fill material encountered beneath the site would be suitable for on-site reuse.

- Should any fill or stockpiled material be required to be disposed off-site, they must first be assessed in accordance with NSW EPA Waste Classification Guidelines Part 1 Classifying Waste (2014) and assigned a waste classification prior to off-site disposal.

The recommended measures will be implemented on the project where required. The Executive Summary from the Preliminary Site Investigation (Contamination) Report is provided at Appendix A.9 for reference.

5.11.2 Identification of Contaminated Soil

During construction, it shall be necessary to monitor soil contamination levels (if any), dust levels and water runoff quality, to ensure that health and environmental standards are not compromised. This is especially important as contaminated soil may be excavated and transported around the site.

Upon discovery of contaminated soil, the HY Site Manager shall arrange for works to be ceased immediately in the area and contact the Superintendent for further directions.

Contaminated waste shall be collected, contained, stored, handled and disposed of in accordance with relevant legislation and codes of practice.

5.11.3 Risk of Exposure

It is important to minimise the risk of exposure of construction personnel to soil contaminants by adopting appropriate site controls and industrial hygiene practices. Site controls may include:

- Defining certain areas as contaminated and restricting access to them;
- Appropriate signage;
- Training construction employees in industrial hygiene procedures;
- Keeping non-essential motor vehicles such as personal cars out of contaminated areas;
- Regular medical checks of construction personnel who are exposed to contaminated soils;
- Keeping stockpiles of contaminated material watered down to minimise dust generation in accordance with any water restriction requirements and ensure that runoff is not generated from excessive watering;
- Covering truck loads with tarpaulins and watering material when loading and unloading;
- Wheel washes for trucks and vehicle leaving the contaminated areas;
- Regular road sweeping and cleaning;
- Dust monitoring and adjustment of construction programs to accommodate high risk periods when conditions are windy or very dry; and
- Monitoring of concentrations of volatiles.

Industrial hygiene practices may include:

- Wearing long sleeved shirts and trousers or overalls to minimise dermal exposure;
- Wearing gloves when handling soils;
- Washing hands and faces before eating, drinking or smoking;
- Leaving overalls at site for laundering;
- Showering and washing facilities; and
- Wearing respiratory equipment during times of high dust or volatile emissions.

5.11.4 Groundwater Management

A report on Geotechnical Investigation by Douglas Partners has been prepared as part of the EIS process, which considers groundwater conditions across the site. The report notes that no free groundwater was observed during investigations, however groundwater was found in some boreholes after one to four hours and observed at depths between 5m to 6.7m. The report concluded that although excavations may encounter groundwater through seepages from silty/sandy soil layers and fractures in bedrock following rain, the development is not expected to have any adverse impacts on groundwater or involve activities that would result in contamination.

Based on the findings of the report, groundwater is not considered a risk to the site. Notwithstanding, the measures outlined in Section 5.11.5 will be adopted to mitigate the potential contamination of groundwater. Furthermore, the unexpected finds protocols outlined in Section 5.11.8 will be adopted if groundwater is encountered on site.

5.11.5 Release of Contaminants to Soil and Groundwater

Water spraying of stockpiles and of soils being loaded and unloaded from trucks, covering of truck loads with tarpaulins and other measures described in the previous section would minimise the potential for dust to be generated.

If heavily contaminated soil is placed in contact with clean soils, contaminants could be mobilized by rainwater or chemical / physical reactions and affect the clean soils to a limited extent.

Similarly, there is a risk that contaminated soil is not clearly differentiated from clean soil and that mistakes could occur which cause the materials to be mixed or wrongly handled or disposed of.

This shall be overcome by implementing a material tracking system for all contaminated soils and ensuring that construction staff are trained on how to use the system.

This shall involve documenting areas containing contaminated soil and putting signage near stockpiles that indicated the type of material present and its contamination status.

It shall also require supervision and documentation of all movements of contaminated materials around the site.

Avoiding contact between stormwater and contaminated soils is difficult to achieve if larger areas of a site are being exposed within a short period, because it does not allow for minimizing the amount of soil that is uncovered or placed in temporary stockpiles.

Therefore, it is necessary to manage stormwater in such a way that it does not mobilize contaminants and transfer them to clean areas.

This may be achieved by:

- Covering stockpiles of contaminated soil;
- Placing stockpiles of contaminated soil on bitumen or other sealed areas;
- Installation of adequate bunding or other approved method to contain runoff;
- Collecting stormwater run-off from stockpile areas; and
- Analytical testing of collected stormwater prior to its release.

Erosion and sediment control procedures in accordance with the relevant Code of Practice may also be applied, but with the additional objective of keeping water that is exposed to contaminated soils separate from water that has only come into contact with clean soils.

Groundwater could potentially be impacted by contaminants mobilized from stockpiled contaminated soil or by buried material.

Minimising runoff from stockpiles, as outlined above would reduce the risk to groundwater.

Land filling of contaminated material which is below the relevant criteria for soil contamination above the water table and capping the landfill area with low permeability material would minimise the risk of groundwater contamination from infiltration of stormwater into buried soils.

5.11.6 Heavy Metal Contamination

Any suspicious industrial wastes encountered will be immediately isolated to enable these assumptions to be confirmed by analytical testing.

5.11.7 Mitigation Strategies

If unexpected conditions are encountered during development work or between sampling locations which may pose a contamination risk, all works should stop and an environmental consultant shall be engaged to inspect the site and address the issue.

5.11.8 Unexpected Finds

In accordance with Conditions B14(b) and (c) of SSD-11233241, unexpected finds protocols must be included within the CEMP to outline the process and associated communications procedure to be followed if unexpected contamination and/or Aboriginal heritage is found through the duration of the project. Unexpected Finds shall be addressed in compliance with the Hansen Yuncken's Unexpected Finds protocol listed below:

Unexpected Finds Protocols – Aboriginal and non-Aboriginal heritage items

In accordance with Condition C27 of SSD-11233241, if a suspected Aboriginal heritage item is discovered:

1. Immediately cease work in the immediate area to prevent any further impacts to the object(s) and contact the Site Manager.
2. Site Manager to construct temporary barricading to prevent worker access to the unexpected find.
3. Site team to contact Client and arrange inspection by the Aboriginal Cultural Heritage consultant or suitably qualified person to determine the significance of the object(s).
4. Aboriginal Cultural Heritage consultant to undertake detailed inspection, sampling and analysis.
5. If the findings assessed are presenting to be of Aboriginal Cultural Heritage significance, the following steps should be in accordance with the Aboriginal Cultural Heritage consultants' direction.

The DPIE and Heritage NSW will also be contacted in accordance with Section 5.10.2, EIS and ACHA requirements.

6. Works in that area will only recommence with the written approval of the Client/Planning Secretary and following confirmation that the findings assessed are not presenting to be of Aboriginal Cultural Heritage significance.

In accordance with Condition C28 of SSD-11233241, if relics of historic heritage are discovered:

1. All works will cease immediately in the area where the object(s) are found.
2. The Client will be contacted, and notice given to Heritage NSW and the Planning Secretary.
3. Depending on the possible significance of the relics, an archaeological assessment and management strategy may be required before further works can continue in that area as determined in consultation with Heritage NSW.
4. Works will only recommence in that area with the written approval of the Client/Planning Secretary.

Unexpected Finds Protocol – Asbestos and contamination

If asbestos is detected in unexpected areas prior to, or during, site development works the following 'Unexpected Finds Protocol' will apply:

a. Upon discovery of suspected asbestos containing material, the Site Manager is to be notified and the affected area closed off using barrier tape and warning signs. Warning signs shall be specific to Asbestos Hazards and shall comply with the AS1319-1994 – Safety Signs for the Occupational Environment.

b. An Occupational Hygienist is to be notified to inspect the area and confirm the presence of asbestos and to determine the extent of remediation works to be undertaken. A report detailing this information would be compiled by the Occupational Hygienist and provided to the Principal (or their representative) and the site manager.

c. The location of the identified asbestos material would be surveyed using sub-meter Differential Global Positioning System (DGPS).

d. If the impacted soil is to be disposed offsite, it should be classified in accordance with the DECCW's Waste Classification Guidelines (2008) and disposed of, as a minimum, as asbestos contaminated waste to a suitably licensed landfill. In dry and windy conditions, the stockpile would be lightly wetted and covered with plastic sheet whilst awaiting disposal.

e. All work associated with asbestos in soil would be undertaken by a contractor holding a class ASA Licence. SafeWork NSW must be notified 7 days in advance of any asbestos works.

f. Monitoring for airborne asbestos fibres is to be carried out during the soil excavation in asbestos contaminated materials.

g. Documentary evidence (weighbridge dockets) of correct disposal is to be provided to the Principal (or their representative).

h. At the completion of the excavation, a clearance inspection is to be carried out and written certification is to be provided by an Occupational Hygienist that the area is safe to be accessed and worked. If required, the filling material remaining in the inspected area can be covered/sealed by an appropriate physical barrier layer of non-asbestos containing material prior to sign–off.

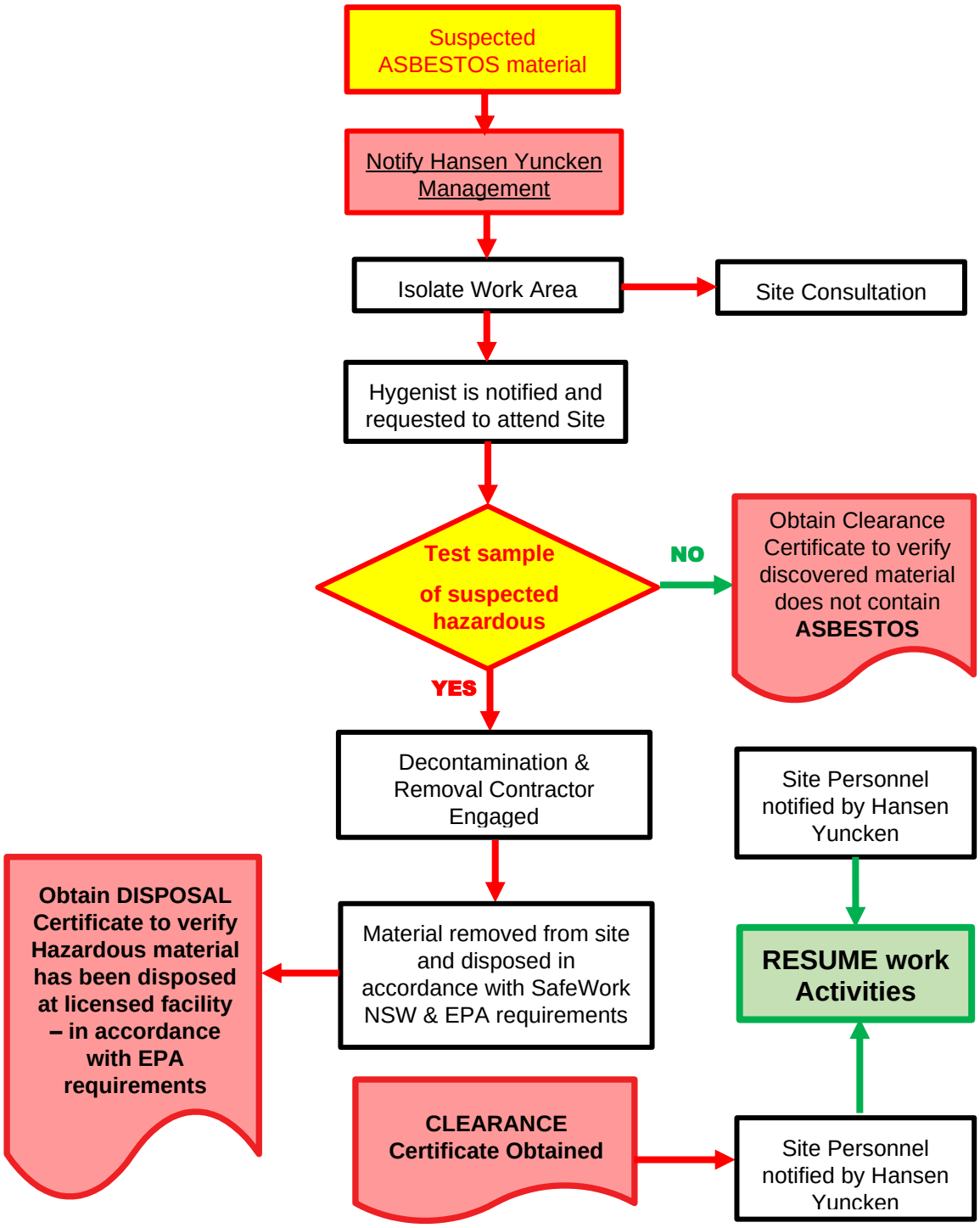
i. Validation samples would be collected from the remedial excavation to confirm the complete removal of the asbestos containing materials. If the asbestos pipes/conduits are uncovered, then sampling density would typically comprise one sample per 10-20 linear meter (depending on the length of the pipe). If asbestos debris are found, then the sampling density would typically comprise 1 sample per 5 metre x 5 metre grid.

j. The sampling locations should be surveyed using a sub-meter DGPS.

k. Details are to be recorded in the site record system.

l. Following clearance by an Occupational Hygienist, the area may be reopened for further excavation or construction work.

Unexpected Finds Protocol - ASBESTOS



Unexpected Finds Protocol - Buried Structures

In the unlikely event that buried structures such as Underground Storage Tanks (USTs) are encountered during site works, the structure(s) and any associated pipework should be managed/removed as follows:

a. Upon discovery of structure, the site foreman is to be notified and the area barricaded;

b. Visual identification of the tank and associated pipework;

c. Remove and dispose of the structure and associated pipework by a qualified contractor. In the case of an UST, the tank must be removed in accordance with Australian Institute of Petroleum (AIP) Code of Practice and Australian Standards;

d. Excavate and stockpile impacted materials (based on field observations) for classification;

e. Validation of the remedial pit by a qualified environmental consultant for the contaminants of concern at the following sampling density:

   i) Base of tank pit excavation - 1 sample per 25 m^2 (i.e., 5m x 5 m grid);

   ii) Side of tank pit excavation - 1 sample per 10 linear metre (minimum of 1 sample per side) and 1 sample per 2m – 3m depth interval;

   iii) Fuel feed lines/pipe-work - 1 sample per 10 linear metre and 2 - 3 depth interval; and

f. If required, “chase out’ all of materials in the remediation pit identified to be impacted by petroleum/hydrocarbons and further validation sampling and analysis as required to assess appropriate removal of impacted materials;

g. Waste classification and off-site disposal of impacted materials in accordance with Section 4.12 of this plan on Waste Management and

h. Inclusion of validation, waste classification and disposal documents (including landfill dockets and, in the case of USTs, tank and pipe work destruction certificates) in the validation report.

5.12 Waste Management

In accordance with Condition B14(f) of SSD-11233241, the Construction Waste Management Plan (CWMP) has been completed for the project and is contained within (Appendix A.8). The CWMP contains detailed information regarding the types, estimated quantities and proposed treatment methods of different waste types throughout the project. Waste management requirements to be adhered to on the project include:

- Maintaining obstruction free access routes between work site and waste storage area, and for waste collection vehicles.
- All waste not being reused on site will be removed during, or at the completion of the construction stage.
- Waste to be collected during hours of approved construction work.
- All vehicles entering or leaving site will be required to have their loads covered.
- The site will be left clear of waste and debris at completion of works.

In accordance with Condition B17(a), the waste classification for the project is contained within Appendix A.9. Detailed information regarding the treatment and allocation of waste for the duration of the project is contained within the CWMSP.

5.12.1 Waste Reduction

It is likely that some excess building materials will be produced due to the construction work such as miscellaneous waste associated with packaging and transport of plant and equipment and various other manufactured items forming part of the augmentation works. Waste generated as a result of construction will be minimised, recycled, reused or recovered, where practical.

HY has accepted the challenge to reduce waste on construction projects, particularly in materials transferred to landfill.

The strategy for reducing the waste on the project will be made up of three strategies as detailed below in order of priority. The prime objective is to minimise the amount of materials transferred to landfill from this project.

1. Reduce the amount of waste material produced on the project by ensuring that only enough materials required to perform the works are ordered.
2. Any excess materials from particular work areas are to be retained and incorporated into other work areas where practical.
3. Encourage “just in time” delivery of construction materials (minimum storage on site) to reduce the potential of loss / waste due to damage prior to usage.

5.12.2 Waste Generation – Fill Material

Excavated Natural Material (ENM) generated during earthworks will be retained and reused on site where possible. However, there will be a balance of approximately 235m³ in excavated material that will need to be disposed offsite in accordance with the Bulk Earthworks Cut & Fill Plan (Rev A). In accordance with the Construction Waste Management Sub-Plan (Appendix A.8) and the Douglas Partners Report on Preliminary Site Investigation (Contamination) (Appendix A.9), fill material required to be disposed off-site will first be assessed and assigned a waste classification prior to off-site disposal.

5.12.3 Non-Recyclable Waste

Non-recyclable waste will be disposed of at an EPA approved landfill or transfer station.

5.12.4 Waste Collection & Disposal

Appropriate waste bins are to be provided by HY and made available to all S/C

All S/C shall be directed to place waste in the bins provided. This shall be included in the Site Induction.

Waste collection points are nominated on the Site Layout Plan.

Waste collection and disposal is in accordance with Condition B17(b) of SSD-11233241

5.12.5 Waste Reporting

Waste generation is monitored by HY on a monthly basis to ensure that the company’s waste reduction objectives are achieved. Waste disposal quantities are monitored monthly by HY to ensure compliance.

The Project Administrator shall record waste disposal data on BIM360 Field using the waste record checklist.

Waste quantities from the PMR shall be entered into the State HSE Database for analysis and reporting against HY Waste reduction targets.

5.12.6 Concrete Waste & Washout

Concrete trucks and pumps shall be washed out at designated locations as shown on the site layout plan. Washout of concrete pumps and AGI's in other areas will not be permitted.

Washout shall be captured using membranes or other suitable means and allowed to set.

Waste shall be placed in bins for disposal with site waste.

Excess concrete shall be returned to the concrete plant for disposal or re-use.

5.12.7 Mitigation Strategies

- Accurate written records are to be kept such as:
  - Who transported the waste (company name, ABN, vehicle registration and driver details, date and time of transport, description of waste)
  - Copies of waste dockets/receipts for the waste facility (date and time of delivery, name and address of the facility, it's ABN, contact person).
- The construction contractor is to ensure that waste generated by the works is transported to a place that can lawfully accept it as per Section 143 of the *Protection of the Environment Operations Act* 1997.
- The removal of any asbestos containing material if found is only to be undertaken by an appropriately licenced contractor as per SafeWork NSW requirements and current guidelines.
- All waste, including excess spoil be recycled where practicable
- Trucks transporting spoil off site to be covered.
- The EPA is to be notified immediately of any pollution incidents or harm to the environment (as defined under Part 5.7 of the POEO Act).

5.13 Visual

The project has minimal visual impact to neighbouring properties. The visual impact has been assessed through the SSDA within the Environmental Impact Statement (EIS).

5.14 Environmental Complaints

Complaints received regarding HY's Environmental Impacts or performance shall be recorded as a complaint in accordance with Hansen Yuncken's HSE Incident Procedure. Actions are then to be taken to address the complaint.

5.15 Fuel & Chemical Spills

Response to major fuel spills shall be implemented in accordance with the fuel spill procedure in the Emergency Response Plan. The requirements for storage of large fuel and chemical quantities are not expected for this project.

A spill kit shall be located adjacent to fuel and chemical storage and dispensing areas.

5.16 Hazardous Materials

Hazardous materials shall be controlled in accordance with Hazardous Materials procedures.

5.17 External Lighting

In accordance with condition B10 & B14a (iv) of SSD-11233241, the external lighting to the proposed Murrumbateman Primary School complies with AS1158.3.1:2005 – Lighting for Roads and Public Spaces and AS4282-2019 – Control of the Obstructive Effects of Outdoor Lighting. A copy of this certificate verifying the compliance with these Australian Standards is provided at Appendix A.11.

5.18 Community Consultation and Complaints Handling

In accordance with condition B14(a) (v) of SSD-11233241, community consultation and complaints handling is primarily the responsibility of the Client. Hansen Yuncken will provide assistance where possible to ensure that the client is complying with the requirements of the Community Communication Strategy developed for the Murrumbateman Primary School in accordance with condition B9 of SSD-11233241.

5.18.1 Community Consultation

Community consultation is primarily the responsibility of the client. Hansen Yuncken will ensure that the relevant strategies/outcomes are incorporated within the relevant management plans and construction process where possible. The client will use a number tools and techniques to keep stakeholders and the local community involved, including:

- 1300 community information line
- Call centre scripts
- Community contact cards
- CRM database
- Display boards
- Door knocks
- Face-to-face or virtual meetings/briefings
- FAQs
- Information booths
- Information sessions (drop in)
- Information pack
- Media releases/events
- Notifications and updates
- Photography, time-lapse photography and videography
- Presentations
- Priority correspondence
- Project Reference Group
- Project signage
- Site visits
- School Infrastructure NSW email address
- School Infrastructure NSW website
- Welcome pack/thank you pack

5.18.2 Complaints Handling

Hansen Yuncken will provide assistance through the complaints handling process. During the project delivery phase, a complaint is defined as in regards to construction impacts – *such as* – safety, dust, noise, traffic, congestion, loss of parking, contamination, loss of amenity, hours of work, property damage, property access, service disruption, conduct or behaviour of construction workers or other environmental impacts. If a complaint is made directly to Hansen Yuncken, it will be redirected to the following SINSW communication channels:

- Phone: 1300 482 651
- Email: schoolinfrastructure@det.nsw.edu.au
- Website: schoolinfrastructure.nsw.gov.au

Upon receipt of the complaint, Hansen Yuncken will endeavour to close out the complaint in a timely manner. The complaint will be logged to ensure that the impact of future construction works that may impact the community in a similar manner are minimised.

6 Measurement & Evaluation

6.1 Environmental Incidents & Emergencies

6.1.1 Environmental Incidents

Incidents resulting in potential or actual environmental damage shall be reported and investigated in accordance with the Hansen Yuncken's HSE Incident Procedure and recorded on BIM360 using the HSE incident report

6.1.2 Environmental Emergencies

Preparation for and response to the environmental impacts of emergency events shall be conducted in accordance with Hansen Yuncken's project Emergency Response Plan (ERP). The environmental impacts controlled in the ERP are;

Asbestos Exposure

If during works, personnel become accidentally exposed to asbestos, the following procedures shall be followed:

1. Personnel in the immediate affected area shall cease work and immediately go to the emergency showers on site.
2. All contaminated clothing is to be removed and placed into a thick plastic bag. The plastic bag must then be tightly sealed and labelled as "Asbestos Contaminated Clothing".
3. Personnel are to immediately decontaminate themselves in a shower and a clean set of clothes to be re-issued.
4. Asbestos contaminated clothing is to be industrially cleaned or disposed of appropriately

Water Pollution

An incident involving actual or potential harm to human or environmental health must be reported immediately to the EPA.

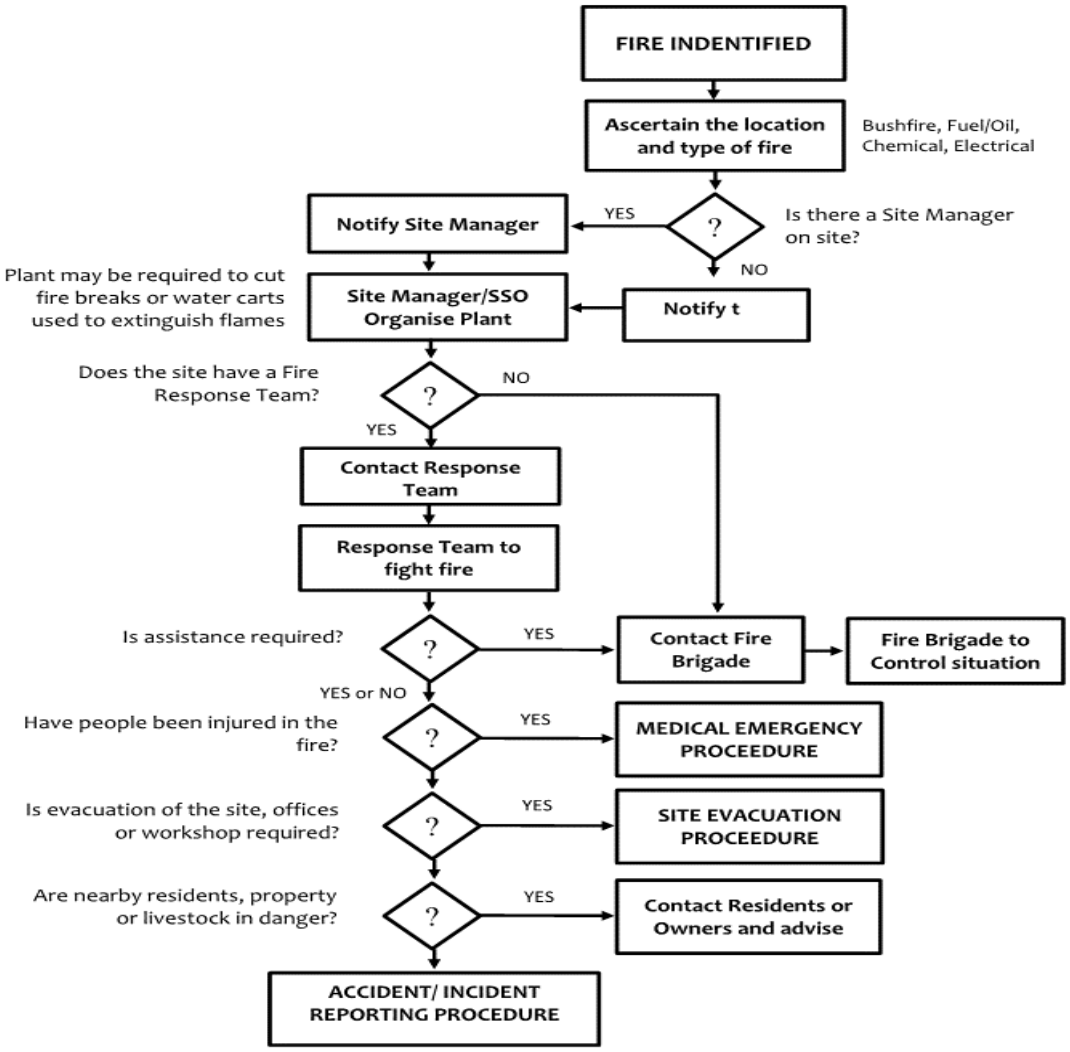
Firstly, call 000 if the incident presents an immediate threat to human health or property. Fire and Rescue NSW, the NSW Police and the NSW Ambulance Service are the first responders, as they are responsible for controlling and containing incidents.

If the incident does not require an initial combat agency, or once the 000 call has been made, notify the HY Site Manager who will notify the relevant authorities in the following order. The 24-hour hotline for each authority is given when available:

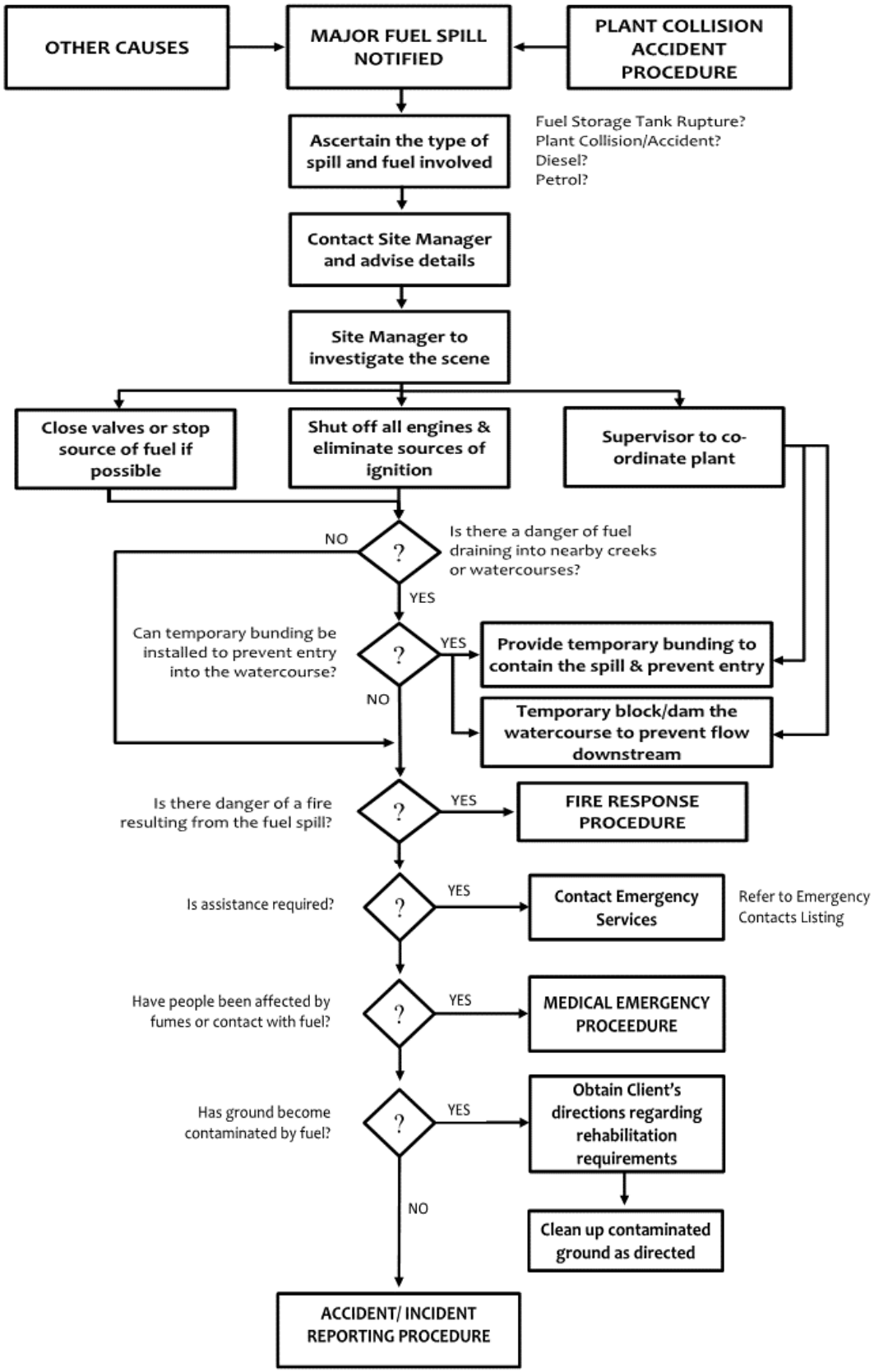
EPA Environment Line on 131 555

SafeWork NSW Authority – phone 13 10 50 (Where appropriate)

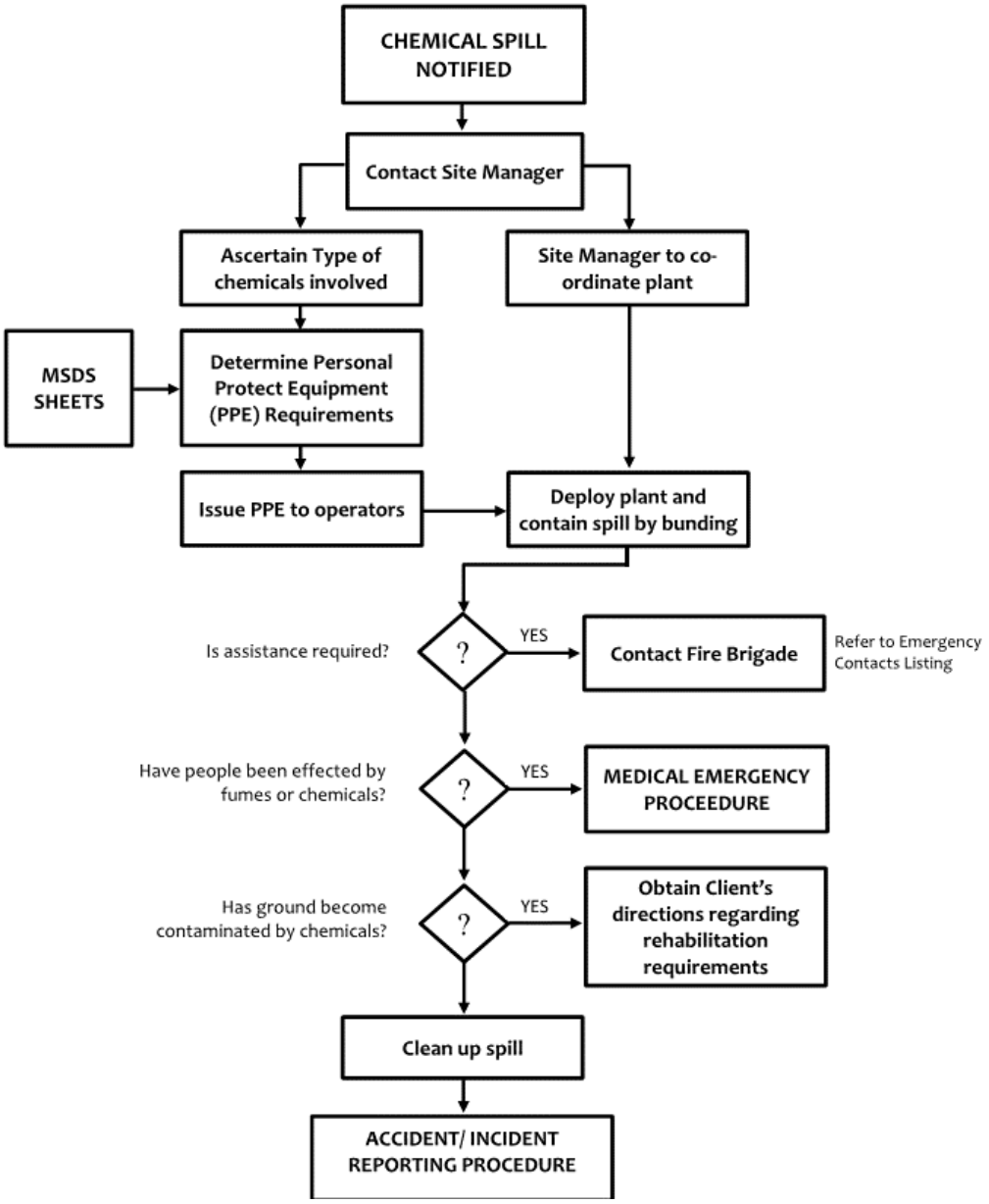
Fire


FIRE INDENTIFIED
Ascertain the location and type of fire
Bushfire, Fuel/Oil, Chemical, Electrical
Is there a Site Manager on site?
YES
NO
Notify Site Manager
Plant may be required to cut fire breaks or water carts used to extinguish flames
Site Manager/SSO Organise Plant
Notify t
Does the site have a Fire Response Team?
NO
YES
Contact Response Team
Response Team to fight fire
Is assistance required?
YES
Contact Fire Brigade
Fire Brigade to Control situation
YES or NO
Have people been injured in the fire?
YES
MEDICAL EMERGENCY PROCEEDURE
Is evacuation of the site, offices or workshop required?
YES
SITE EVACUATION PROCEEDURE
Are nearby residents, property or livestock in danger?
YES
Contact Residents or Owners and advise
ACCIDENT/ INCIDENT REPORTING PROCEDURE

Major Fuel Spill



Chemical Spill



6.2 Environmental Inspections & Audits

Inspections & audits of the site including environmental controls shall be conducted in accordance with the procedure for Site HSE Inspections & the project Audit Management Plan. The following inspections will be conducted onsite throughout the time on the project:

- Fortnightly site inspections,
- Monthly task observations,
- 3 monthly internal audits, and
- External audits in line with the contract requirements and as required under Condition A25 of SSD-11233241.

6.2.1 Non-Conformances

Where an item has been assessed as Non-Conformance (NC) during any internal inspection an issue shall be raised in BIM360 Field to bring the activity or process into compliance with requirements. The issue(s) shall be recorded in BIM360 Field and allocated to the relevant contractor/subcontractor.

The independent consultant in writing shall raise all items assessed as non-conformance during external audits and HY will address all issues and close out within the time frame advised.

HY shall ensure that product/ works which does not conform to specified requirements are identified and controlled to prevent its unintended use or delivery. A nonconformance shall be raised when:

- Works/products not meeting specified requirements are identified; and/or
- Works have not been inspected or tested in accordance with specified requirements (frequency, method, authority); and/or
- A systematic and/or repeated omission/error that may result in a time or cost implication to the project.

6.2.2 Reporting & Corrective Actions

All nonconformities will result in corrective action being undertaken. The significance of nonconformities shall be evaluated in terms of their impact on:

- operating costs,
- cost of nonconformity and its correction,
- product performance,
- regulatory requirements,
- client satisfaction, and
- any other risks

HY project management shall undertake the following actions to investigate the causes of nonconformities specific to the project in order to prevent recurrence.

- identify nonconformities that relate to products, QMS processes, resources, subcontractors and outsourced work, and client complaints;
- review and determine the causes of nonconformities using problem solving tools such as the root cause analysis process - Process Workflow flowchart - to determine the underlying root cause(s) of the nonconformity;
- evaluate the need for corrective action to minimise the occurrence of identified nonconformities;
- determine and implement the corrective action needed; and
- monitor the corrective actions taken and record the results to determine if further improvement is necessary to get it right.

Actions taken to eliminate the cause of nonconformity must flow from the root cause analysis and may involve changes to product, process, resources, methods, equipment, etc. or any combination of these. Records of the actions taken and follow-up activities shall be monitored and maintained by the project to ensure timely completion of any open corrective action. Corrective action records shall be monitored on an ongoing basis for any recurrence of the nonconformity where corrective action was taken.

Communication and reporting channels will generally be in accordance with section 4.8. Notwithstanding, HY will provide appropriate notification to Savills and SINSW as described below:

- Site conditions –
  - If the Contractor becomes aware of Adverse Site Conditions, the Contractor will notify the Principal in writing as soon as possible and in any event within 7 days after becoming aware of the Adverse Site Conditions. Where practicable, the notification should be given before the Adverse Site Conditions are disturbed. The notification must include details of:
    1. the Site Conditions the Contractor claims are Adverse Site Conditions,
    2. the reasons why the Contractor claims that the Site Conditions are Adverse Site Conditions, including any information supporting the contention,
    3. the effect on the works,
    4. the effect on achieving completion,
    5. the additional work and resources involved and the Contractor's estimate of its entitlement to any adjustment to the contract price, and
    6. any other matters the contractor considers relevant.
- Notify the Principal immediately upon discovering any damaged services or services that obstruct the works and are not shown in the Principal's documents.
- WHS –
  - The Contractor is to notify the Principal and Project Manager of an incident that has occurred onsite by submitting a high-level written correspondence within the same day of occurrence and follow up with a detailed final report within 48 hours of occurrence of any incident.
  - Notify the Principal of any notifiable incident and any incident requiring medical treatment or involving lost time as soon as reasonably practicable after the incident. Provide a written report to the Principal within 24 hours after the incident, giving details of the incident and evidence that requirements of the WHS Act have been met.
  - Immediately notify the Principal of any Prohibition, Improvement, Non-disturbance or Penalty Notice issued by SafeWork NSW for any work under the contract.
- Hazardous substances discovered unexpectedly on the site –
  - If any nominated hazardous substance is discovered unexpectedly on the site, the Contractor must suspend all work that may result in exposure to the substance and notify the Principal immediately of the type of substance and its location.
  - Not less than 7 days prior to starting any asbestos removal work, notify the local office of SafeWork NSW and the Principal of the intention to carry out that work.
- Environmental Management –
  - Immediately notify the Principal of any pollution incident that may cause material harm to the environment, providing evidence that notification requirements of the POEO Act have been met, where applicable.

The client is responsible for all appropriate notifications to DPIE.

6.3 National Greenhouse & Energy Reporting (NGER)

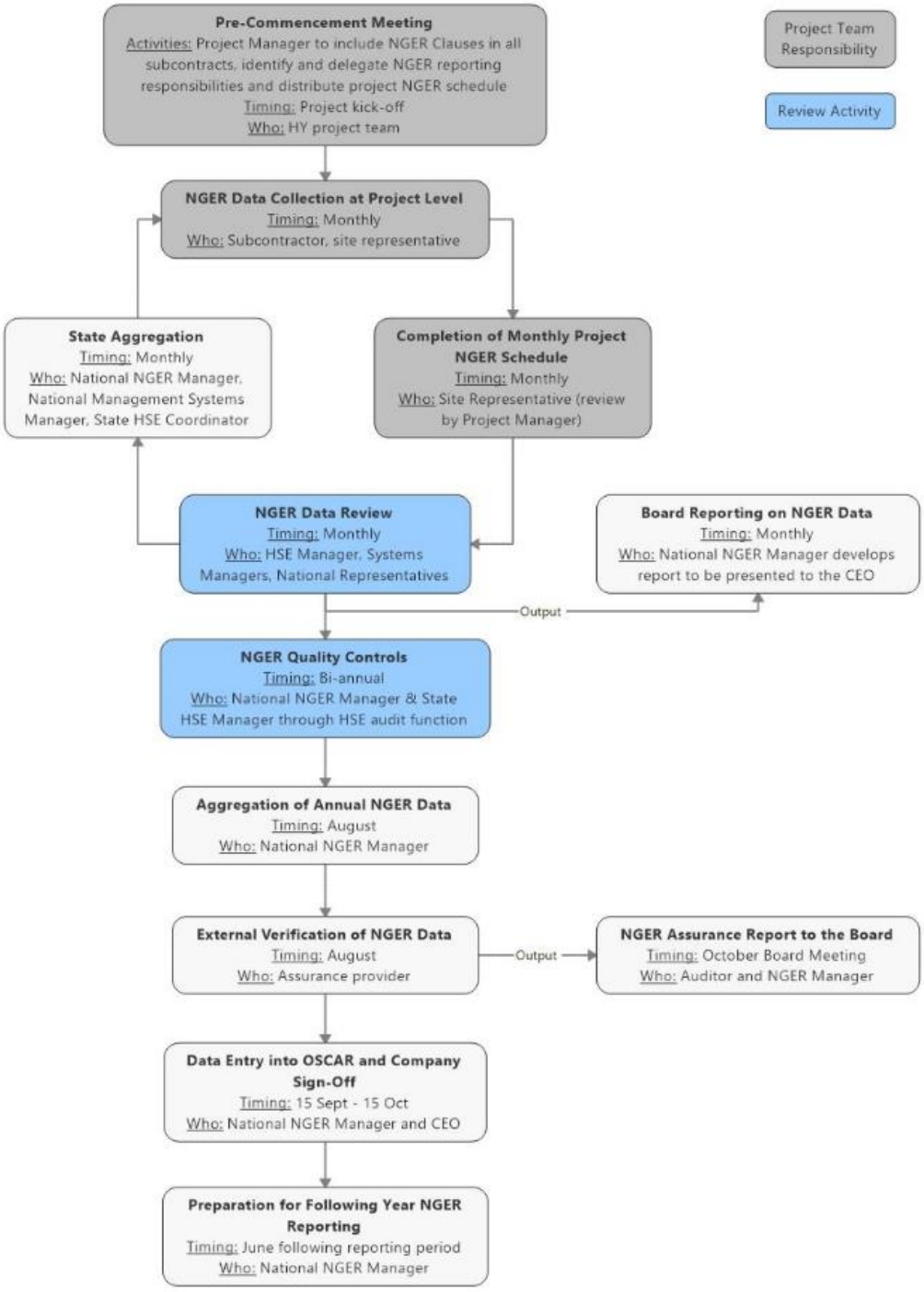
6.3.1 National Reporting Guidelines

The purpose of the National Greenhouse and Energy Reporting Guidelines is to help corporations understand their obligations under the National Greenhouse and Energy Reporting Act 2007 (the Act).

6.3.2 Reporting Thresholds

Hansen Yuncken's has been assessed and determined to be below the corporate group reporting thresholds – detailed in the below table. Notwithstanding this, all natural gas and electricity consumption is recorded monthly on BIM360 Field and collated for national reporting. Furthermore, all site mobile plant and equipment fuel consumption is registered on BIM360 Field and incorporated in the HY greenhouse gases (CO2-e) annual report (NGER).

6.3.3 NGER Reporting Process



6.3.4 NGER Data Collection

NGER data shall be collected and recorded on BIM360 Field using the Site Electricity and Natural Gas Usage Checklist.

7 References

Environmental Planning and Assessment Act 1979 No 203

Environmental Planning and Assessment Regulation 2000

Protection of the Environment Operations Act 1997 (NSW)

Protection of the Environment Operations (General) Regulation 2009

ISO 14001; 2015 Environmental management systems - Requirements with guidance for use

AS/NZS ISO 31000:2009 Risk management – Principles and guidelines

HB158:2010 Delivering assurance based on ISO 31000:2009 – Risk management – Principles and guidelines

NSW Government Environmental Management System Guidelines (edition 3 - August 2013)

NSW Government Environmental Management Plan Guideline (April 2020)

8 Appendices

A.1 Hansen Yuncken Environmental Policy Statement

HANSENYUNCKEN

ENVIRONMENT POLICY

Hansen Yuncken Pty Ltd is committed to providing a high quality environment in the building and construction industry, which meets the requirements and expectations of Clients, Statutory Authorities, Employees and Community Groups.

Hansen Yuncken recognises that impacts on the environment in the building and construction industry relate not only to the process of construction but also to the design and subsequent use of the buildings constructed. Hansen Yuncken affirms its commitment to applying sustainable development principles to all facets of the building and construction process and to continually improve our performance in minimising the impact on, and pollution of, the environment during the construction process.

In achieving this Hansen Yuncken is committed to the implementation, maintenance and improvement of a Management System meeting the requirements of Australian and International Standard AS/NZS ISO 14001.

The National Executive Committee shall review Environmental objectives and set performance targets each year. State Managers, through their line management structure, are accountable for ensuring all employees and subcontractors achieve these objectives and targets.

The Company's Environmental performance shall be monitored against established performance targets and the results reported to the Board of Directors on the regular basis.

Hansen Yuncken affirm that they have a legal obligation to comply with relevant Environmental legislation, standards and codes of practice as the minimum level of performance and a professional obligation to acknowledge the views of Environmental and Community Groups.

Hansen Yuncken acknowledges that environmental excellence can only be achieved and maintained by a clear unequivocal direction of all levels of management, stimulating a participative atmosphere and sense of pride in our environmental achievements by all employees and trade contractors, and through recognition by concerned groups in obtaining this.

Peter Salveson
Chief Executive Officer
May 2018

Page 1 of 1

A.2 Environmental Management Accreditation - ISO14001

CERTIFICATE OF REGISTRATION

Hansen Yuncken Pty Ltd

SCP, Building 1, Level 3, 75-85 O'Riordan Street, Alexandria NSW 2015 Australia
Suite 12, 125 Bull Street, Newcastle West NSW 2302 Australia
and transient sites
ABN 38 063 384 056

complies with the requirements of

ISO 9001:2015
Quality Management Systems – Requirements
and
ISO 14001:2015
Environmental Management Systems – Requirements with guidance for use

for the following capability:

This registration covers the Quality and Environmental Management Systems for the provision of project management and the design and construction of commercial, industrial and institutional buildings and civil engineering works.

Registered by:
Quality Control Services (Environmental) Pty Ltd
ABN 85 102 935 195
10 Rosina Street Woodcroft South Australia 5162 Australia

This certificate is subject to the Terms and Conditions for Certification, and relevant program rules. Currency of certification can be validated at www.qcse.com.au/certified-register, and www.jas-anz.org/our-directory/certified-organisations; it remains the property of QCSE Pty Ltd and must be returned upon request.

Certificate Number: 160052022
Issue Date: 26 February 2019

Original Certification: 23 February 2010
Expiry Date: 22 February 2022

CAStone

Cheryl Stone
Certification Manager

QMS/EMS Certified Company
Licence Number: Q0160

QMS 010

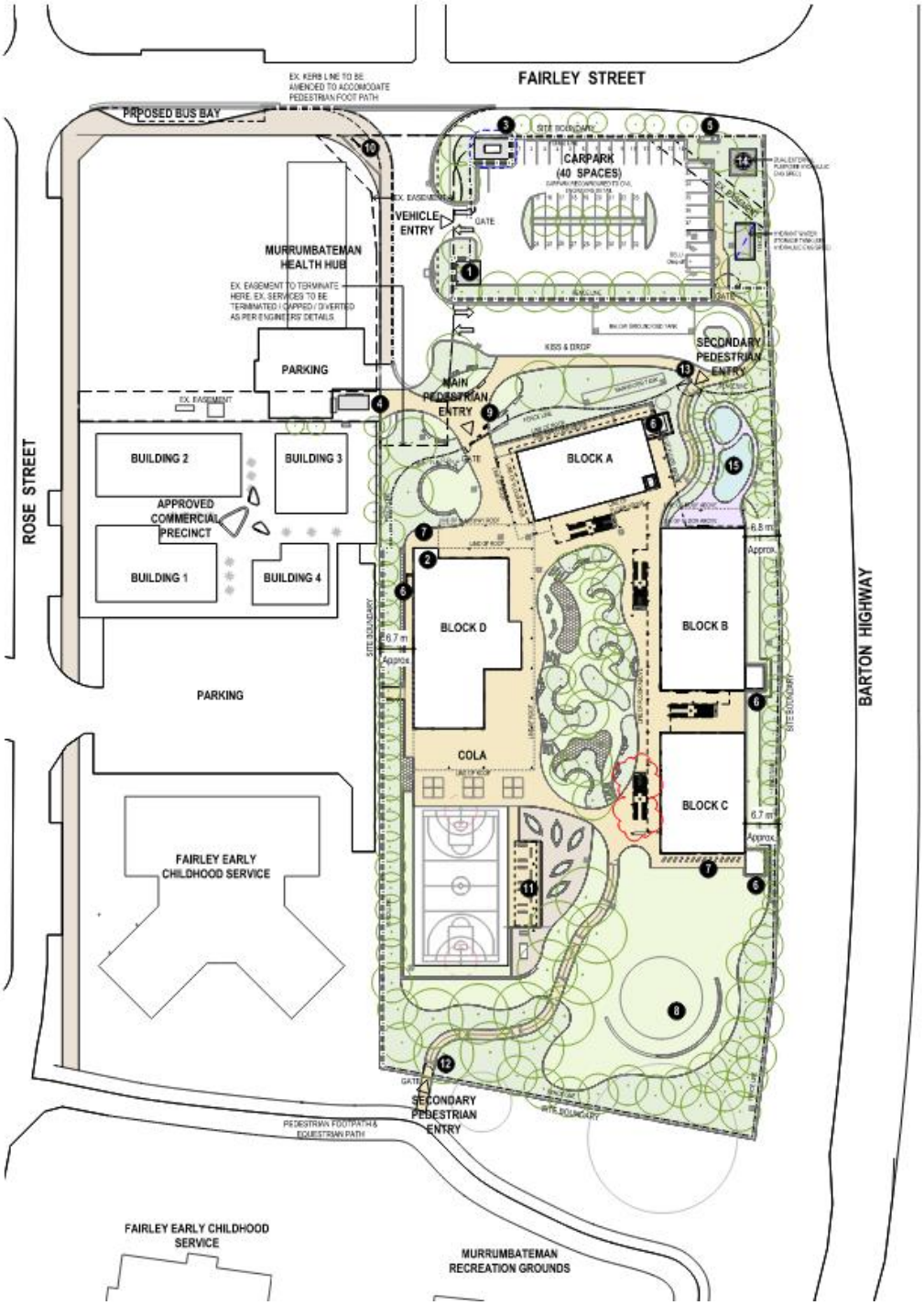
Quality Control Services QCS ENVIRONMENTAL

JAS-ANZ

www.jas-anz.org/register

A.3 Site Location

2 Fairley Street, Murrumbateman, NSW 2582



A.4 HSE Project Risk Assessment

HANSENYUNCKEN

PROJECT HSE RISK ASSESSMENT

This Project HSE Risk Assessment is to beused as aguide when completing the monthly Project High Risk Identification assessment on HYWAY Site Management Dashboard in accordance with the Project HSE Risk Assessment procedure and should be conducted at the time of Construction programme statusing to assess hazards and risks for next month. Hazards with residual risk from the Design WHS Risk Assessment (if applicable) are also to be considered.

RELEVANT PROCEDURE:	Project HSE Risk Assessment
PROJECT:	New Primary School in Murrumbateman
JOB NO:	SC135
ASSESSED BY:	Paul Todhunter
ASSESSMENT DATE:	3-Dec-21

RISK ASSESSMENT TABLE

Likelihood		Consequence 1 Significant	2 Major	3 Moderate	4 Minor	5 Insignificant
A	Very Likely	High	High	High	Medium	Medium
B	Likely	High	High	Medium	Medium	Medium
C	Possible	High	Medium	Medium	Medium	Low
D	Remotely Possible	Medium	Medium	Medium	Low	Low
E	Very Unlikely	Medium	Medium	Low	Low	Low
NA	Not applicable	NA	NA	NA	NA	NA

	RISK ASSESSMENT			CONTROLS (to be established in the following order of priority 1st=High Level Risks; 2nd = Medium Level Risks; 3rd = Low Level Risks)	
HAZARD (Include additional project specific hazards as required)	**L**	**C**	**Class**	**Legislation, Standards & Codes of Practice**	**Enter Details of Specific Controls Required**
Amenities					
Access	A	4	Medium	SafeWork NSW Code Of Practice: Managing the work Environment and Facilities	Gravel, all weather footpaths have been installed for safe access to all amenities in the compound area. The compound area is fenced off to protect workers from moving plant, trucks and vehicles
Location and nature of workplace	A	4	Medium	SafeWork NSW Code Of Practice: Managing the work Environment and Facilities	All amenities are set up in a compound area at the main entry to site making it easy for access and egress in emergency situations
Housekeeping	A	4	Medium	SafeWork NSW Code Of Practice: Managing the work Environment and Facilities	A cleaner is engaged twice a week to manage and maintain all amenities.
Seating	A	4	Medium	SafeWork NSW Code Of Practice: Managing the work Environment and Facilities	Sufficient seating is in place for all workers to rest, take breaks and eat lunch
Lighting (Poor)	A	4	Medium	SafeWork NSW Code Of Practice: Managing the work Environment and Facilities	Lighting is setup in all amentities for safe access
Air Quality	A	4	Medium	SafeWork NSW Code Of Practice: Managing the work Environment and Facilities	Windows, fans and airconditioning are installed to all site sheds
Hot and Cold Environment	A	4	Medium	SafeWork NSW Code Of Practice: Managing the work Environment and Facilities	Air conditioning installed to all lunch sheds
Drinking water	A	4	Medium	SafeWork NSW Code Of Practice: Managing the work Environment and Facilities	Bubbler set up at lunch sheds and varoius locations throughout site
Dining Facilities	A	4	Medium	SafeWork NSW Code Of Practice: Managing the work Environment and Facilities	Clean and tidy tables are available in all lunch sheds. There is sufficient space for all workers to site down and have lunch
Hand washing	A	4	Medium	SafeWork NSW Code Of Practice: Managing the work Environment and Facilities	Warm water, soap and hand dryers are available in the toilets
Shower Facilities	A	4	Medium	SafeWork NSW Code Of Practice: Managing the work Environment and Facilities	Hot showers are provided on site
Change Room	A	4	Medium	SafeWork NSW Code Of Practice: Managing the work Environment and Facilities	Change rooms with benching and coat hooks are proivded on site for workers to change clothes
Air Quality					
Dust from plant & truck movements	C	4	Medium	WHS Plan	Water cart to conduct regular laps of the site spraying water on the ground to keep dust settled particularly where there is high plant and truck movements. Temporary water has been installed at several locations around site.
Refuelling of plant and equipment	B	4	Medium	AS/NZS 1715 Selection, use and maintenance of respiratory protective devices AS/NZS 1716 Respiratory protection devices	All refuelling is to be conducted in well ventilated areas only. Refuelling to be conducted clear of any hot works on site such as grinding, welding etc
Concrete cutting / coring	E	5	Low	NSW Cutting & Drilling Concrete & Other Masonry Products 1996	Water must be used to minimise dust. Demolition saws take preference over dry cutting with a masonry blade on an angle grinder. Rubble to cleaned up immediately. Slurry to be cleaned up immediately
Access/ Egress and movements around site					
Workers entering site without Hansen Yuncken permission would be unaware of any specific site hazards eg, asbestos, gas lines, high risk construction work etc	A	2	High	SafeWork NSW Code Of Practice: WHS Consultation, coordination and cooperation	All workers must be site inducted by Hansen Yuncken prior to entering site. This is clearly marked on the contact details sign at the main entry to site. Subcontractors must give Hansen Yuncken site staff sufficient notice prior to workers attending site to be site inducted. All workers on site to display a HY photo ID at all times and sign into the site attendance register on a Daily Basis after they have been Inducted.
Unauthorised access to Site	B	3	Medium	SafeWork NSW Code Of Practice: WHS Consultation, coordination and cooperation HY procedure - Site Establishment Hansen Yuncken HYer Standard 09 Site Establishment	Install safety/warning signage e.g. Construction Site Authorised Persons Only, All visitors report to site office Where a security fence is used to control unauthorised entry onto a construction site, they should: • be constructed from suitable, dedicated materials with no holes or gaps; • be a suitable height to deter entry (for example, at least 1.8 metres high) • be soundly constructed (for example, gates and joints) • be secure and not present a weak point for entry • be stable and able to withstand anticipated loads or forces (for example, strong winds, persons attempting to climb the fence) • be difficult to gain access under the fence and to scale the fence Where a fence is comprised of discrete panels, the joints should not weaken it and should provide the same level of security as the panels Sheets of reinforcing mesh should not be used as site fencing because it may allow adequate hand and foot hold for children to climb over the protruding ends Fencing with signage and shade cloth type coverings may require additional support to resist wind loadings. Gates should not represent a weak point and the closed gate should provide the same level of security Gates to have locks and chains fitted Gates to be kept locked where required, e.g. vehicle access points, or traffic controllers in place Undertake regular inspections to ensure integrity of fences and gates After Hours Security on Site
Unauthorised access to work areas / Work areas not secured	B	4	Medium	SafeWork NSW Code Of Practice: WHS Consultation, coordination and cooperation HY Procedures - Work Permits, Excavations and Trenches, Working at Heights, Inexperienced workers	Barricading of excavations and trenches Signage in place (danger/caution/mandatory) Work Permit systems Exclusion zones Lock access to roof areas HRCW SWMS Safe access to work areas Communication of work areas/exclusion zones at daily prestart meetings Site specific induction
Visitors entering site without Hansen Yuncken permission would be unaware of site hazards eg, asbestos, gas lines etc	C	5	Low	SafeWork NSW Code Of Practice: WHS Consultation, coordination and cooperation	All visitors must sign in at the site office prior to entering site. Signs have been erected clearly stating this. Visitors must display a ID card and be escorted by an inducted guide at all times. Visitors entering site must have approval from the Site Manager.

HANSENYUNCKEN

PROJECT HSE RISK ASSESSMENT

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	RISK ASSESSMENT			CONTROLS (to be established in the following order of priority 1st=High Level Risks; 2nd = Medium Level Risks; 3rd = Low Level Risks)	
HAZARD (Include additional project specific hazards as required)	**L**	**C**	**Class**	**Legislation, Standards & Codes of Practice**	**Enter Details of Specific Controls Required**
Pedestrians/ workers walking around site being struck by vehicles/trucks/ plant moving around site	D	1	Medium	SafeWork NSW Code of Practice: Managing the risks of plant in the workplace SafeWork NSW Code of Practice - Moving Plant on Construction Sites	Bunted/fenced off pedestrian pathways have been erected on site to keep pedestrians clear of areas where there are high movements of vehicles/ trucks and plant. All subcontractors using moving plant must have a HRCW SWMS which details how to protect other workers in the area from being struck by the plant. All plant must have a flashing light, horn and reversing beeper. Vehicles/ trucks must turn their flashing lights on. There is a 10km/h speed limit on site. All workers have been told at the site induction to be aware of moving plant on site and keep clear whenever possible. Only workers who are involved with the task are to be in the vicinity of the plant. HY have instructed all subcontractors to train their workers through pre-start meetings on how to approach moving plant and equipment. Haul roads for plant and vehicles are to be maintained. Pedestrians are to avoid walking on haul road whenever possible. Plant operators are to keep reversing to a minimum. Pedestrians that need to approach moving plant are to do so from the front of the machine and are to gain the operators attention by waving arms and yelling out to the operator. No person is to approach the machine until the operator has stopped moving the machine and signalled that it is safe to approach. Spotters working with machines must always stand in an area where they are visible to the operator. A site spotter/ delineation plan has been proposed to and approved by the site safety committee. This plan states areas where a spotter is mandatory for all plant and vehicle movements. This plan is posted on the site notice board.
Public being struck by trucks entering and exiting site	D	3	Medium	SafeWork NSW Code Of Practice: How to manage work health and safety risks	Gate keeper is in place managing vehicle and pedestrian movements at main entry to site
Subcontractors bringing vehicles onto site without Hansen Yuncken permission	B	4	Medium	Traffic Construction Traffic Management Plan	All subcontractors must seek approval from the Hansen Yuncken Site Manager prior to bringing vehicles/ trucks onto site.
Workers slipping/ tripping over on muddy/ uneven ground	c	3	Medium	WHS Management Pan	Pedestrian pathways have been constructed to minimise slip and trip hazards. Wheel ruts, eroded ground, muddy haul roads and pathways are to be bladed back to solid ground as required. On rain days the foreman & safety committee (when established) is to walk the site prior to work commencing and determine which areas are safe for work and which areas are no go zones.
Vehicles becoming bogged or losing traction whilst entering/ exiting and driving around site	E	4	Low		Vehicles to be driven on solid ground only. No vehicles will be allowed to drive on muddy terrain
Collisions between plant on site	E	3	Low		Sufficient distance to be kept between all plant on site. Flashing light, horn and reversing beeper must be working. Plant and vehicles to stay on haul roads whenever possible. Site speed limit is 10km/h
Too many vehicles parked on site creating restricted access around site	NA	4	NA		A Parking area on site has been established. Vehicles are not permitted to park outside of the car park area.

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PROJECT HSE RISK ASSESSMENT

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E	Very Unlikely	Medium	Medium	Low	Low	Low
NA	Not applicable	NA	NA	NA	NA	NA

HAZARD (Include additional project specific hazards as required)	RISK ASSESSMENT L	C	Class	CONTROLS (to be established in the following order of priority 1st=High Level Risks; 2nd = Medium Level Risks; 3rd = Low Level Risks) Legislation, Standards & Codes of Practice	Enter Details of Specific Controls Required
Asbestos					
Workers being exposed to the asbestos contaminated soil (ACM) at various locations around site	NA	3	NA	Working with asbestos guide 2008	A contamination report for the sites has been produced and has not identified any ACM. An unexpected finds protocol is to be implemented
Unidentified finds of asbestos	B	3	Medium	HY Procedure SafeWork NSW Code of Practice: How to manage and control asbestos in the workplace SafeWork NSW Code of Practice: How to safely remove asbestos	If asbestos is found stop work immediately and notify HY site staff immediately whom will arrange for a hyienist to assess the area. Area to be closed off with bunting/ red white tape and warning signage. Air monitors to be installed and all workers in the area must wear appropriate PPE as defined in SWMS.
Atmosphere - Contaminated/ Flammable					
Flammable fumes from fuel containers	A	4	Medium	SafeWork NSW NSW Code of Practice: Managing risks of hazardous chemicals in the workplace	Fuel to be stored in fuel storage areas only. Fuel drums are to be placed back in the fuel storage area after refuelling has been completed. No refuelling near any hot works being undertaken. All subcontractors must have a 'refuelling SWMS'
Unsafe storage of fuel	C	4	Medium	AS/NZS 2430 Classification of hazardous areas	Fuel must be stored in ventilated cages. No fuel to be stored in shipping containers
Fumes from spray selear application to carpark slab	D	4	Low	AS1318 Use of colour for the marking of physical hazards and the identification of certain equipment in industry	Applicators must wear mask whilst spray painting. Warning signage to be erected and all other personnel not involved with the task are to be clear of the area
Biological Hazards					
Disease from unhygienic facilities and amenities	E	4	Low	SafeWork NSW Code Of Practice: Control of work related exposure to Hepatitis and HIV (blood borne) viruses WHS Management Plan SafeWork NSW: Code Of Practice: Managing the work Environment and Facilities	A cleaner has been engaged by Hansen Yuncken to clean amenities on a bi-weekly basis. Amenities to be kept clean and tidy at all times
Bomb Threat					
Persons unaware of what to do in the event of an emergency	E	5	Low	HY Emergency Response Plan AS 2293 Emergency escape lighting and exit signs for buildings AS 3745: 2002 Emergency Control Organisation and Procedures For Buildings, Structures and Workplaces	Emergency response procedure is explained to all workers at the site induction. HY to practice emergency drills every 6 months to ensure the system is working.
Changes in design					
Changes in design could result in new hazards not being identified	D	4	Low	WHS Management Plan	All design changes must be risk assessed by HY and Consultants. Subcontractor SWMS will be reviewed by HY as required
Craning & Hoisting Operations					
Persons/ other trades on site walking into the crane slew area may be struck by crane or load	B	1	High	AS 2550: Cranes, hoists & winches - Safe Use WHS Plan	The work area around all cranes must be fully barricaded eg bunting and signposted to keep other workers clear.
Slings or chains failing resulting in loss of load	A	1	High	AS 1418.1: Cranes, hoists and winches – General Requirements AS 4991 Lifting Devices WHS Plan	Subcontractors must keep an up to date register of all chains and slings. All equipment must be visually checked daily prior to use.
Crane out riggers sinking in ground resulting in crane rolling over	A	1	High	NWHSC 1010: National Standard for Plant WHS Plan	Subcontractor SWMS to detail craning and hoisting operations. Subcontractor to communicate with HY staff and obtain a plant setup permit prior to setting up cranes to ensure outriggers are not set up over underground services or in unstable ground conditions.
Crane striking structures whilst slewing	A	2	High	AS 1418.10(Int): Cranes, hoists and winches - Elevating work platforms WHS Plan	Dogman and crane operator to constantly communicate with each other. Crane operator to take directions from dogman only.

HANSENYUNCKEN

PROJECT HSE RISK ASSESSMENT

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NA	Not applicable	NA	NA	NA	NA	NA

	RISK ASSESSMENT			CONTROLS (to be established in the following order of priority 1st=High Level Risks; 2nd = Medium Level Risks; 3rd = Low Level Risks)	
HAZARD (Include additional project specific hazards as required)	**L**	**C**	**Class**	**Legislation, Standards & Codes of Practice**	**Enter Details of Specific Controls Required**
Concrete					
Concrete Pumping - overload formwork structure	A	2	High	WHS Plan	Spotter to be used when positioning boom over formwork
Trip hazard after excess concrete has cured	A	4	Medium	Environmental Protection Act 1994	Back to plant policy for large amounts of excess concrete
Slip hazard from excess water and slurry on the ground/ concrete washout	A	4	Medium	WHS Plan	Concrete washout to be set up in area where water will not run over pedestrian pathways. Generally plastic is rolled out on the ground. The hopper is washed out onto the plastic, the concrete cures then is placed in a skip bin the following day
Slurry and wet concrete entering stormwater drains	B	5	Medium	WHS Plan	The concrete washout area will constantly move on site to suite site conditions. The HY site foreman will determine where the wash out area will be on the day of any concrete pours.
No designated washout area could result in truck drivers washing out wherever they please leaving the site messy and untidy	D	4	Low	WHS Plan	Excess concrete from washing out the pump is to be placed onto plastic, allowed to set then placed into the skip bin with a telehandler
Concrete cutting / coring - dust	B	4	Medium	WHS Plan	Water must be used to minimise dust. Demolition saws take preference over dry cutting with a masonry blade on an angle grinder. Rubble to cleaned up immediately. Slurry to be cleaned up immediately
Strike PT cables whilst cutting concrete	B	4	Medium	WHS Plan	Review As Constructed Drawings, consult Structrular engineer and obtain permission to proceed. Enact Cutting and Coring Permit prior to any works commencing
Confined Space					
Poor ventilation inside in-ground pits	C	4	Medium	NWHSC 1009: Safe Working in a Confined Space AS 2865: Confined Spaces SafeWork NSW Code of Practice: Confined spaces	No chemicals are to be used inside in-ground pits. Close supervision of all men working inside pits at all times. Lid to be kept open at all times. Sparging up of pits is to be conducted as pit risers are installed to minimise the need to enter the pit afterwards
Workers unable to easily enter and exit trenches	D	3	Medium	WHS Plan	All trenches over 1.5m must be benched at 1:1 at a maximum of 1.5m or battered at 45 degrees. A ramp or steps must be cut into the trench for easy pedestrian access.
Workers being overcome by fumes building up in open trenches	D	3	Medium	NSW WHS Regulation 2017: Part 4.3 Confined spaces	All open trenching has good ventilation. Refuelling does not occur inside open trenches. Oxy acetylene equipment is kept clear of open trenching.
Contaminated Soil					
Exposure to contaminated soil which has not been identified	C	3	Medium	AS 4482: Guide to the investigation & sampling of sites with potentially contaminated soil NSW Environment Operations Act 1997	All subcontractors that will excavate onsite to have a SWMS for 'unexpected finds'. All workers have been instructed at the site induction to stop work immediately and notify Hansen Yunken site staff whom will take action to make the area safe.
Exposure to contaminated soil which has not been identified	C	3	Medium	WHS Plan	Unexpected finds protocal
Deliveries To Site					
Delivery vehicle drivers unaware of site hazards	A	4	Medium	SafeWork NSW Code of Practice: Moving Plant On Construction Sites: 2004	All delivery drivers must complete a 'delivery driver induction' prior to entering site.
Delivery vehicle unloading in an unsafe area eg. in an area where there is mobile plant or pedestrians frequently moving past	C	2	Medium	WHS Plan	The subcontractor supervisor must have good communication with the delivery driver and escort him to the work area where the delivery is to be unloaded. The s/c supervisor must take charge and assist the driver to unload materials from the truck. Exclusion zones to keep people clear of loading/unloading areas will consist of flagging on bollards with Danger Loading/unloading area – no go zone signage Delivery Driver Safe Zone Three pedestrian control barriers will be installed off the exclusion zone "bollards and flagging" where the delivery driver will remain during loading/unloading activities. This driver safe zone must be on the same side of the vehicle where mobile plant is operating so the operator has line of sight with the delivery driver at all times. A "driver safe zone" sign will be attached to the barriers.
Pedestrians/ other workers in the area being struck by materials as they are being unloaded from the truck	A	4	Medium	WHS Plan	All delivery drivers are told at the 'delivery driver induction' to be aware of any pedestrians/ other workers in the area. Delivery drivers must ensure they have enough space to unload/ load materials from trucks safely. If they have any problems they must notify HY staff immediately whom will assist the driver to undertake their task safely. Subcontractors must manage and supervise their deliveries on site. Subcontractors must spot the driver whilst materials are being unloaded and warn other workers in the area to keep well clear.
Untrained delivery drivers using plant to unload goods	E	3	Low	WHS Plan	SWMS must be in place for subcontractors using plant to unload their delivery
Drugs & Alcohol					
Persons under the influence of drugs or alcohol are at high risk of injuring themselves or others	E	4	Low	Alcohol and other drugs in the workplace guide - 2006 Drug and Alcohol Management Plan	Persons assumed to be under the influence of drugs or alcohol will be stopped from working immediately. Their employer will be notified who will investigate and take appropriate action as per their drug and alcohol policy.

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JOB NO:	SC135
ASSESSED BY:	Paul Todhunter
ASSESSMENT DATE:	3-Dec-21

RISK ASSESSMENT TABLE

	Likelihood	Consequence 1 Significant	2 Major	3 Moderate	4 Minor	5 Insignificant
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	RISK ASSESSMENT			CONTROLS (to be established in the following order of priority 1st=High Level Risks; 2nd = Medium Level Risks; 3rd = Low Level Risks)	
HAZARD (Include additional project specific hazards as required)	**L**	**C**	**Class**	**Legislation, Standards & Codes of Practice**	**Enter Details of Specific Controls Required**
Dust					
Disruption/ nuisance to neighbours and client	D	5	Low	SafeWork NSW Code of Practice: Managing the risks of hazardous chemicals in the workplace Environmental Engagement Plan	Shade cloth installation to site perimeter fence to contain all dust within the construction site.
Eye injuries and respirable damage to workers	D	4	Low	AS/NZS 1336 Recommended practices for occupational eye protection	Water carts and hoses used to keep dust to a minimum. Plant and trucks to move at low speeds to keep dust settled. Eye protection to be worn for any task that creates large amounts of dust
Dust from wall chasing	NA	4	NA	AS/NZS 1715 Selection, use and maintenance of respiratory protective devices	Dust must be minimised whilst wall chasing by way of vacuum system. Workers must wear dust mask whilst wall chasing. Rooms are to be swept frequently to minimise dust
Concrete cutting / coring	E	4	Low	AS/NZS 1716 Respiratory protection devices NSW Cutting & Drilling Concrete & Other Masonry Products 1996 WHS Plan	Water must be used to minimise dust. Demolition saws take preference over dry cutting with a masonry blade on an angle grinder. Rubble to cleaned up immediately. Slurry to be cleaned up immediately . HY Cutting amnd Coring permit in place.
Electricity					
Electrocution from faulty/ damaged electrical equipment	D	1	Medium	AS/NZS 3017: Electrical installations - Testing & inspection guidelines SafeWork NSW: Code Of Practice: Managing Electrical Risks	All power tools/ leads must be visually checked daily and tested and tagged monthly. Damaged leads and power tools are not to be used on site. Lead are to be elevated off the ground to minimise risk of electrical leads being damaged.
Electrocution from faulty/ damaged Distribution boards	NA	1	NA	WHS Plan SafeWork NSW: Code Of Practice: Managing Electrical Risks	HY DB Board checklist to be completed for all DB boards. All temporary distribution boards will be inspected, tested and tagged monthly. All RCD's to be padlocked and only reset by a qualified electrician.
Workers tripping on leads	C	4	Medium	AS/NZS 3199 Approval & test specification for cord extension sets SafeWork NSW: Code Of Practice: Managing Electrical Risks	All power leads must be elevated off the ground. A maximum of 5m may be on the ground for general movements in the area whilst using the power tool.
Electrocution from temporary construction wiring being damaged	B	1	High	SafeWork NSW: Code Of Practice: Managing Electrical Risks	All temporary construction must be labelled with 'yellow temporary construction wiring tape'. All temporary construction wiring will be inspected and recorded on the site HSE inspection report weekly.
Working around energised live Substation	B	2	High	AS/NZS 3000: Electrical Installations SafeWork NSW: Code Of Practice: Managing Electrical Risks	All subcontractors conducting excavation works must obtain a ground works permit from HY site staff. A plan with existing underground services must be attached to the permit to dig.
Workers piggy backing leads	C	3	Medium	AS 3012: Electrical Installations - Construction & Demolition Sites SafeWork NSW: Code Of Practice: Managing Electrical Risks	Portable generators must be used if electrical leads cant reach from the DB board to the work area so a power source is close to the work area.
Emergency Services Unavailability					
Injured person may not receive first aid treatment in a sufficient amount of time	E	3	Low	WHS Act 2011 SafeWork NSW Code of Practice: First Aid in the Workplace HY emergency response plan	Emergency contact details are displayed on the site safety notice board in the lunch shed and in the first aid room. HY site staff have senior first aid training. There are first aid kits in the site office. The first aid facilities have been setup in accordance with SafeWork NSW Code Of Practice: First Aid in the Workplace taking into account the number of workers on site, response times and types of injuries which may occur on site.
Site Emergencies	B	3	Medium	WHS Regulation 2017	HY emergency response plan details actions to be taken for different types of emergencies
Erosion/ Loss of Topsoil					
Sediment entering stormwater systems	E	4	Low	Environmental Protection Act 1994 Northrop Water Stormwater Managemetn Plan	All stormwater pits to be covered with sediment control fabric. Sediment barrier to be erected around the low perimeter of site perimeter fencing in accordance with the site sediment control plan. Sediment control to be inspected weekly and recorded on the site HSE inspection report. All de-watering of site must be discharged in accordance with the stormwater management plan. The water must be flocked, tested and approved by HY prior to being pumped into the existing stormwater system.
Erosion causing perimeter scaffolding to become unstable	NA	3	NA	Environmental Management Plan	All perimeter scaffolding to be checked following significant rainfall and rectified by scaffolder as required.

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HAZARD (Include additional project specific hazards as required)	RISK ASSESSMENT L	C	Class	CONTROLS (to be established in the following order of priority 1st=High Level Risks; 2nd = Medium Level Risks; 3rd = Low Level Risks) Legislation, Standards & Codes of Practice	Enter Details of Specific Controls Required
Existing services					
Damage to existing services could cause major disruption to the client eg. live power, security cables etc.	E	5	Low	SafeWork NSW Code Of Practice: Excavation Work WHS Plan	Subcontractors are available to repair services in the event they are damaged. HY to notify client
PLANT OPERATORS STRIKING UNDERGROUND SERVICES WHILST UNDERTAKING TRENCHING/ EXCAVATION WORKS	C	1	High	Ausgrid National Standard NS 156 - Working near or around underground cables WHS Plan	A ground works permit system is in place on this site. All known existing services have been marked up on the site plans. Pot holing and hand digging must occur when working around existing services. Striking existing underground services has been listed as a hazard on all subcontractor SWMS involving excavation works
Explosive Powered Tools					
Eye and hearing damage	E	4	Low	WHS Plan	Eye and hearing protection must be worn. Workers must be closely supervised by their supervisor
Excavations					
Excavation over 1.5m	C	3	Medium	SafeWork NSW Code Of Practice: Excavation Work	All trenches over 1.5m must be benched at 1:1 at a maximum of 1.5m or battered at 45 degrees unless stated otherwise by a geotechnical engineers report. A ramp or steps must be cut into the trench for easy pedestrian access.Shoring boxes to be used for trenches greater than 1.5 m deep if benching is not possible
Excavation under 1.5m	C	4	Medium	SafeWork NSW Code Of Practice: Excavation Work	Accessing trenches under 1.5M Supervisor is to inspect trenches daily and ensure that ground condtions are suitable and that workforce access trenches safely and not to jump into trenches, only step down into them.
Large stockpiles of spoil creating blind spots for plant operators and truck drivers	E	3	Low	NSW Code Of Practice: Moving Plant On Construction Sites 2004	Plant operators must neatly stockpile all spoil and limit the height of the stockpile to maintain good vision. Plant operators are to avoid stockpiling spoil next to bends on haul roads.
Trench collapse trapping workers	C	1	High	AS 2763 Vibration and shock - hand transmitted vibration - guidelines for measurement and assessment of human exposure	Any trenching in unstable ground is to be benched/ battered. If the excavation reaches rock or shale and benching/ battering is not practical geotechnical engineers signoff is required. A ramp must also be cut into the end of trench for emergency access/ egress.
Plant eg. mobile crane set up too close to a trench could result in trench collapse and plant roll over	C	2	Medium	WHS Management Plan	All plant must be set up clear of the zone of influence
Plant outriggers sinking into ground resulting in plant roll over.	C	1	High	AS 3798 Guidelines on earthworks for commercial & residential developments	Plant must only be set up on solid ground and sufficient pig sty packing/ sole plates placed underneath out riggers. Sole plates are to be used underneath EWP stabilizers if the ground is soft. Ground conditions to be constantly checked during and after rain fall.
Open trenches restricting access for vehicles and pedestrians around site	C	4	Medium	NSW Dial Before U Dig Legislation	Pedestrian / vehicle/ plant access must be kept clear at all times around site. Alternative access routes are to be set up prior to trenching across pathways and roadways.
Building materials/ stockpiles stored near trench could result in trench collapse	C	3	Medium		Materials and equipment must not be stored within the 'zone of influence'
Different trades working in the same area at the same time could strike each other with mobile plant	A	2	High		Daily pre-starts and SWMS detail how to work around moving plant on site including plant used by other trades eg. spotters, barricade the work area, signage etc
Damage to existing buildings from vibrations caused by machinery	NA	4	NA		Vibration from earthworks to be monitored by HY and subcontractors
Formwork					
Formwork collapse	B	1	High	SafeWork NSW Code of Practice: Formwork	Formwork must be certified by a qualified engineer that it is structurally sound and able to safely support loads that may be applied by the concrete pour, workers, reinforcement & crane lifted loads. Once engineer's inspection complete ensure any additional back propping is installed if required. Place plant and materials on formwork and falsework only where allowed for by the design and when the structure or deck is sufficiently constructed so it is able to bear the load
Fall from heights	A	1	High	SafeWork NSW Code of Practice:Managing the risks of falls at the workplace	Spread first section of joist on beam from intermediate work platform and only access the deck to start laying ply once the joist are down and handrail is in place. Use scaffold to gain access to deck to start laying plywood When you sheet up to 1.8m from end of joist lay next section of joist NEVER sheet to the end of the joist even if there is a catch deck in place Lay joist across bearers fixed at a spacing of 450 maximum to prevent any possibility of falls while construction of the deck. Establish working areas for steelfixers & other trades. A 'formwork only' zone should be maintained behind the leading edge. This zone should be clearly demarcated by signage and a barrier. Protect open penetrations with edge protection (e.g. handrails) or cover securely. Cast5in metal mesh with a small aperture (e.g. 50 x 50 mm mesh size or smaller) for small penetrations. Paint ply covers with appropriate warnings (e.g. "PENO" or similar) and fasten securely.
Cuts/ impalement on starter bars	B	3	Medium		Safety caps to be fitted to all starter bars wherever there is a risk that a person may fall on one.
Fall prevention/ arrest equipment					
Failure of fall arrest equipment	B	1	High	HY emergency response plan AS/NZS 1891: Industrial fall arrest systems and devices	All safety harnesses and lanyards must be visually checked daily. Safety harness is the last form of control and other forms of fall protection should be used such as perimeter scaffolding, EWP, handrails etc Maintenance and inspection records in subcontractor safety management plans to be kept up to date Roof anchor points must be certified prior to use Rescue procedure for rescuing persons in fall arrest must be developed prior to persons using safety harnesses

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HAZARD (Include additional project specific hazards as required)	RISK ASSESSMENT L	C	Class	CONTROLS (to be established in the following order of priority 1st=High Level Risks; 2nd = Medium Level Risks; 3rd = Low Level Risks) Legislation, Standards & Codes of Practice	Enter Details of Specific Controls Required
Fall from heights					
Workers falling into open trenches	C	3	Medium	AS 1418.1: Cranes, hoists and winches – General Requirements	All open trenches must be bunted off at least 1m from the edge of the trench. Where there are high movements of pedestrians an plant then a solid barrier such as a temporary mesh
Workers falling into open penetrations (eg in-ground pits)	C	3	Medium	WHS Regulation 2017 Part 4.4 Falls	All penetrations to be covered and secured and the wording "peno" or "do not remove" sprayed onto the plywood/metal plate.
Workers falling from ladders	C	3	Medium	SafeWork NSW Code Of Practice: Managing the risk of falls at workplaces	Ladders are to used in accordance with the HY ladder policy. Ladders are the last resort for height access and other means of height access should be used eg EWP's, mobile scaffolding, platform ladders etc. Standard A frame ladders can be used but only for short duration works or tight restricted spaces such as small rooms where a scissor lift will not fit. Ladders with 4 steps or less are not permitted on site
Bricklayers falling from trestle scaffold	C	1	High	AS 4576: Guidelines for scaffolding	Bricklayers must install a handrail to the scaffold and a ladder for safe access/egress. Trestle scaffold must be set up correctly on solid ground
Fall from scaffold	E	3	Low	AS 1576: Scaffold general requirements	Modular stairs to be installed at the same time as decks are installed for safe access to each deck. Handrails must be installed from deck below prior to accessing the deck above. Ends must be closed off with trannys. Scaffolder will erect 'danger scaffold incomplete' signage until the scaffold is ready for use and a handover certificate has been issued to HY. All trades have been made aware not to alter the scaffold under any circumstance.
Personnel falling into open trenches or off the edges of batters and excavations	D	3	Medium	Emergency Response Plan	All open trenches and along the top edge of batters must be bunted off at least 1m from the edge of the trench. Deep trenching must be benched every 1.5m so that a person can only fall a maximum of 1.5m.
Fall from mobile scaffold	B	3	Medium	Scaffold erection guide (comes with scaffold)	All mobile scaffolding must be built as per the manufacturers instructions. Handrails and midrails must be in place. Any scaffold where a person can fall more than 4m must be erected by a licenced scaffolder.
Workers falling from heights	C	2	Medium	WHS Plan	Roof access permit must be obtained by the roofer prior to accessing the roof. Perimeter scaffold or handrail must be in place for fall protection. Safety mesh must be installed correctly as per Code Of Practice: Safe Work On Roofs: Part 1
Falls into bored piers	B	2	High	AS/NZS 1892 Portable Ladders	Bored piers must be fully covered with plywood or mesh to eliminate risk of workers falling into the hole. Deep excavation signs are to be erected and the are fully bunted off. Best practice is to fill the hole with concrete as soon as possible.
Falling objects					
Pallets of blocks stacked too high could tip over and injure a person	A	4	Medium	Workcover Bricklayers guide	Pallets of blocks must be stacked on level ground no more than 2 pallets high
Scaffold parts could fall/ be knocked off the deck and injure workers below	NA	2	NA	AS 1576: Scaffold general requirements	All excess scaffold material must remain on the ground. No excess scaffold material is to be left lying on scaffold decks
Formwork and reo materials falling from deck onto persons below	B	2	High		All materials must be stacked neatly clear from edge of deck and kick boards must be put in place
Building material and tools falling from scaffold decks	NA	2	NA	WHS Plan	Edge boards to be fitted to all scaffold decks. Materials stored on scaffolding is to be kept to a minimum and removed from decks daily. If possible do not store materials on scaffold at all.
Falling materials from EWP's	A	1	High	AS/NZS 2210 Occupational protective footwear	No worker is to walk underneath an elevated EWP. All EWP operation must have a spotter or the area must be fully barricaded off with red/white tape, bunting or flagging or signage in place
Loose materials and rocks from walls of trenches falling onto workers within the trench	D	3	Medium	AS/NZS 1800 Occupational protective helmets - Selection, care & use	No access to any open trenches for workers unless the walls of the trench are stable. Geotech sign off required for trenching over 1.5m
Materials left behind after works finish eg. loose bolts, off cuts etc	B	1	High	AS/NZS 1801 Occupational protective helmets	Work areas at heights must be checked daily and loose items brought down to ground level.
Fauna (protected or endangered species)					
Snakes and insects in long grass	B	3	Medium	Environmental Protection Act Environmental Management Plan	Weeds and long grass alongside pedestrian pathways around the site are to be cut back with a whipper snipper
Fire					
Chemical and fuel spills may cause a fire	E	1	Medium	Emergency Response Plan	A;BE Powder type fire extinguishers are installed at several locations strategically placed around the site
Sparks from hot works eg welding, grinding may cause a fire	D	3	Medium	AS 2444: Portable fire extinguishers & fire blankets - selection and location AS/NZS 1850 Portable fire extinguishers - Classification, rating and performance testing	All subcontractors must obtain a hot works permit from HY staff. The permit will detail any controls required for undertaking the task
Flammable materials stored on site may ignite from hot works in the area	D	2	Medium	SafeWork NSW Code of Practice: Managing the risks of hazardous chemicals in the workplace	Hazardous materials must be stored in cool, dry areas away from ignition sources and flammable material signage installed.
Fuel drums could catch on fire from sources of ignition	B	4	Medium	AS 3745 Emergency control organisation and procedures for buildings, structures and workplaces	Fuel drums are to be put away when not in use in a storage cage in a well ventilated area
Workers could be seriously injured whilst attempting to extinguish fire	E	1	Medium	AS 2444 Portable fire extinguishers and blankets - Selection & location	All workers are told at site induction not to place themselves at risk and not to try and fight the fire
Time taken to obtain fire extinguisher in the event of an emergency	D	1	Medium	AS/NZS 1841 Portable fire extinguishers	Fire extinguishers are places strategically around site for easy/ fast access. Locations of fire extinguishers are on the site layout plan
Poor maintenance of fire extinguishers	E	1	Medium	AS 2375 Guide to the selection, care & use of clothing for protection against heat & fire	Fire extinguishers are to be tagged every 6 months by a competent person

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First aid					
Persons unaware of what to do if an individual requires first aid	E	5	Low	WHS Regulation 2017	Emergency response plan posted on site notice board. All workers explained of the location of the first aid room and contact details for site first aiders.
Injured person not receiving first aid treatment quickly enough due to the site being so large	D	3	Medium	Work injury management and workers compensation act 1988	Site staff to communicate by way of mobile phones and 2 way radios. A first aid room is set up in the HY amenities. Within the first aid room is a fixed type A kit and portable type A kit for rapid response.
It may not be possible to take the injured person to the first aid room because of the seriousness of their injuries	E	4	Low	SafeWork NSW Code of Practice: First aid in the workplace:	Access routes to be kept clear around site for emergency vehicles
Inadequate first aid supply's	E	3	Low	WHS Plan	First aid room to be set up with portable and fixed first type A first aid kits, stretcher, defibrillator, ice packs, sun cream, eye wash and examination couch as per SafeWork NSW Code of Practice: First aid in the workplace
Inadequately trained first aiders/ insufficient number of first aiders	E	3	Low	Emergency Response Plan	HY Site Foreman must have Apply First Aid type certification. HY Safety Officer must have Occupational First aid certificate
Persons working alone unable to raise the alarm	E	3	Low	Emergency Response Plan	No person is to work alone. There must be another person in the area at all times. This is told to all workers at site induction
Heart attack/ stroke	E	1	Medium	Emergency Response Plan	Defibrillator to be kept in first aid room
Number of buildings	E	5	Low	Emergency Response Plan	5 - all easily accessible for pedestrians or vehicles
Maximum Number of levels on each building	E	5	Low	Emergency Response Plan	3 - All have internal stair access
Time taken to walk to furthest point on site	D	4	Low	Emergency Response Plan	5 minutes - from first aid room to furthest point on site
Nearest Hospital	D	4	Low	Emergency Response Plan	Yass District Hospital
Nearest Medical centre	D	4	Low	Emergency Response Plan	Murrumbateman Health Hub
Maximum time to medical service	D	4	Low	Emergency Response Plan	10 min
Maximum number of workers	D	4	Low	Emergency Response Plan	>100
Site hours	E	5	Low	Emergency Response Plan	7:00am - 6:00pm Monday - Friday 8:00am - 2:00pm Saturday. No Works on Sundays or Public Holidays. A first aid qualified person from Hansen Yuncken is on site at all times
Average hours worked by a worker	E	5	Low	Emergency Response Plan	Workers generally work 8-9 hours per day
Remote or isolated works	E	4	Low	Emergency Response Plan	Workers are not permitted to work alone. There must be atleast 2 workers in the same area at all times. Due to the nature of the site it is unlikely any worker will be isolated or work alone
Types of injuries over the last 12 months	E	4	Low	Emergency Response Plan	Majority of types of injuries include: cuts and abrasions, minor eye injuries, insect bites, sprains and strains, back injuries and dislocations
Incidents not resulting in injury	E	5	Low	Emergency Response Plan	Incidents have occurred where excavator operators have struck existing live underground electrical cables - defibrillator will be required in the event persons are electrocuted
Cuts and abrasions	C	4	Medium	Emergency Response Plan	Type A first aid kit has contents for treating these types of injuries
Sprains and strains	D	4	Low	Emergency Response Plan	Ice packs and instant cold packs to be available
Eye injuries	D	3	Medium	Emergency Response Plan	Eye wash facilities will be made available
Burns	E	4	Low	Emergency Response Plan	Burn cream and non adherent wound dressings
Fractures	D	4	Low	Emergency Response Plan	Type A first kit and a stretcher for moving injured workers
Dislocations	D	4	Low	Emergency Response Plan	Type A first aid kit has triangle slings
Poisoning and toxic effect of substances	E	5	Low	Emergency Response Plan	Safety data sheets available for all substances used.
Heat stroke	D	4	Low	Emergency Response Plan	Ice packs and cold water on standby. Subcontractors have been addressed at side induction to take breaks, work in shade wherever possible., job rotation etc

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HAZARD (Include additional project specific hazards as required)	**RISK ASSESSMENT** L	C	Class	**CONTROLS (to be established in the following order of priority 1st=High Level Risks; 2nd = Medium Level Risks; 3rd = Low Level Risks)** Legislation, Standards & Codes of Practice	Enter Details of Specific Controls Required
Ground Collapse/poor ground					
Plant roll over from sinking in unstable ground conditions	C	3	Medium	WHS Plan	Subcontractors to complete a plant risk assessment prior to operating plant. Plant will not be operated in unstable ground conditions. If the ground is too soft or uneven then the ground will be bladed back to solid ground prior to plant operating on it. All subcontractors must obtain a HY plant setup permit prior to operating plant with outriggers. Concrete boom pumps and mobile cranes must obtain a geotechnical engineers report stating the ground is stable and able to take the weight of the crane and load being lifted. Site to be inspected by the Site Manager and subcontractor WHS representatives following heavy rain prior to work commencing the next day
Vehicles/ plant could become bogged in soft muddy ground	D	4	Low	National Standard For Plant: 10:10 (1994)	Temporary roadways have been rolled and compacted to keep ground stable, No plant to work on unstable ground accessed in wet weather prestart to be conducted after each inclement weather event
Pedestrian slip and trip hazards from muddy/ uneven ground	E	3	Low	WHS Plan	Crusher dust has been spread over pedestrian pathways to minimise slip and trip hazards. Plant is to be used to blade back ruts and muddy ground to minimise slip and trip hazards for workers in the area particularly on rain days
Trucks and vehicles tracking mud and dirt onto road from muddy tyres	E	3	Low	WHS Plan Environmental Management Plan	Shaker grid installed at site entrance. High pressure water blaster to be used to wash tyres if required
Pedestrians/ workers tripping over in deep wheel ruts left by plant movements	E	3	Low	WHS Plan	Wheel ruts are to be bladed/ levelled out to minimise trip hazards around site
Hazardous Chemicals					
Spillage of fuels and chemicals	C	3	Medium	AS 1940: The storage and handling of flammable and combustible liquids Environmental Management Plan	A spill kit is kept in the site office. Any drums of fuel larger than 20 litres must be bunded. All trades are to set up a hazardous substance storage are next to their site containers with signage erected 'no smoking', 'Danger Fuel Storage area' etc
Unsafe storage of oxy acetylene equipment	C	3	Medium	AS 4332 The storage and handling of gases in cylinders Environmental Management Plan	Oxygen and acetylene bottles are to be stored in separate ventilated cages 3m apart at the end of each day and appropriate warning signage erected.
Mix matched storage of hazardous substances could cause a chemical reaction	C	3	Medium	NWHSC 2017 - 2001 Storage & Handling of Dangerous Goods	Only substances of the same class can be stored together as per the Safety Data sheet for the products
Heat stress					
Sun burn	D	4	Low	SafeWork NSW Code Of Practice: How to manage work health and safety risks	Sun cream is available in the site office. Singlets are banned. Workers are encouraged at the site induction to wear long sleeve pants and shirts.
Hot temperatures may cause persons to become dehydrated resulting in illness, headaches, fainting etc	E	4	Low	NSW Hot & Cold Environments 2001	Air conditioned lunch sheds. Subcontractors to work in shaded area wherever possible.
Heavy lifting (over normal crane operation)					

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PROJECT HSE RISK ASSESSMENT

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RELEVANT PROCEDURE:	Project HSE Risk Assessment
PROJECT:	New Primary School in Murrumbateman
JOB NO:	SC135
ASSESSED BY:	Paul Todhunter
ASSESSMENT DATE:	3-Dec-21

RISK ASSESSMENT TABLE

	Likelihood	Consequence 1 Significant	2 Major	3 Moderate	4 Minor	5 Insignificant
A	Very Likely	High	High	High	Medium	Medium
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	RISK ASSESSMENT			CONTROLS (to be established in the following order of priority 1st=High Level Risks; 2nd = Medium Level Risks; 3rd = Low Level Risks)	
HAZARD (Include additional project specific hazards as required)	**L**	**C**	**Class**	**Legislation, Standards & Codes of Practice**	**Enter Details of Specific Controls Required**
Manual handling injuries	E	4	Low	WHS Regulation 2017 Part 4.2 Hazardous Manual Tasks	Team lifts for heavy items. Mechanical lifts wherever possible
Back injuries	E	3	Low	WHS Plan	Bend knees, keep a straight back, don't twist
Block and tackle use	NA	4	NA	NCOP for Manual Tasks 2007 National Standard for Manual Tasks - 2007 NCOP for the Prevention of Musculoskeletal Disorders Caused From Performing Manual Tasks	Use of block, tackle and slings is to be used in accordance with SWMS. Slings are to wrapped around a solid structure only. Slings to be wrapped by dogman and riggers only
Hot Works					
Sparks from welding, grinding or using oxy acetylene may cause a fire if flammable materials are in the area	C	4	Medium	AS 1674: Safety in welding and allied processes	A hot works permit must be obtained by the subcontractor.. All sources of ignition to be removed from the area prior to hot works occurring
Fire and injury to others from persons using angle grinders	A	4	Medium	hot works permit	Conduct all grinding away from flammable materials and other workers I the area. Be ware of direction of flying sparks
Welders flash to other trades	B	4	Medium	WHS Plan	Welding screens and warning signage must be erected to protect other trades from welders flash if others are within a 10m radius of the work area
Hygiene (poor)					
Unhygienic facilities could result in workers becoming ill and contracting diseases	D	4	Low	SafeWork NSW Code Of Practice: Managing the work environment and facilities	A cleaner has been engaged by Hansen Yuncken to clean amenities on a bi-weekly basis. All amenities to be kept clean and rubbish bins emptied daily
Trades not putting rubbish and off cuts in bins provided creating trip hazards	D	4	Low	SafeWork NSW Code Of Practice: Managing the work environment and facilities	Improvement notices to be issued to subcontractors who do not keep the site neat and tidy
Inadequate facilities for general site rubbish	D	4	Low	WHS Plan	Skip bins to be placed on site at various locations and changed over regularly
Lifting Over Public/outside site					
Injury to pedestrians/ public	NA	4	NA	AS 1742.3-2009: Manual of uniform traffic control devices - Traffic control for works on roads WHS Plan Traffic Management Plan Road Management Act 2004	No lifting of building materials outside of the construction fence unless traffic control and diversions are in place and the subcontractor has seeked approval from the HY Site Manager.
Manual Handling					
Back injuries/sprains and strains	C	3	Medium	HY Glove and clip policy	Team lifts for heavy items. Mechanical aids eg. telehandler to be used wherever possible. Building material to be dropped off as close to the work area as possible to minimise carrying distance.
Cuts to hands	C	4	Medium	WHS Regulation 2017 Part 4.2 Hazardous Manual Tasks	Gloves to be worn for manual handling tasks as per Hansen Yuncken glove & clip policy

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	RISK ASSESSMENT			CONTROLS (to be established in the following order of priority 1st=High Level Risks; 2nd = Medium Level Risks; 3rd = Low Level Risks)	
HAZARD (Include additional project specific hazards as required)	**L**	**C**	**Class**	**Legislation, Standards & Codes of Practice**	**Enter Details of Specific Controls Required**
Mobile Plant					
Mobile plant could strike a pedestrian worker on site	C	1	High	NWHSC 1010: National Standard for Plant	All trades are warned of moving plant at the site induction. High vis vests are to be worn at all times. All workers on site must keep well clear of plant on site and gain the operators attention prior to approaching any plant. Only workers involved with the task are to be with in the work areas of plant. People working within the work area of plant must be visible to the operator at all times.
Mobile plant could crash into a structure or open trench	D	3	Medium	WHS Plan	Trained, experienced, qualified workers to operate plant only. Plant operator competency statement to be issued to HY for any plant which does not require a legislated ticket.
Pedestrians/ workers being struck by mobile plant	C	1	High	AS 2294 Earth moving machinery - Protective Structures AS 4602 High Visibility Safety Garments	A combination of controls must be put into place and detailed in sub contractors SWMS eg. barricade the area, erect signage, use a spotter etc. Bunted off pedestrian pathways have been erected on site to keep pedestrians clear of areas where there are high movements of vehicles/ trucks and plant. All subcontractors using moving plant must have a SWMS which details how to protect other workers in the area from being struck by the plant. All plant must have a flashing light, horn and reversing beeper. Vehicles/ trucks must turn their flashing lights on. There is a 10km/h speed limit on site. All workers have been told at the site induction to be aware of moving plant on site and keep clear whenever possible. Only workers who are involved with the task are to be in the vicinity of the plant. HY have instructed all subcontractors to train their workers through pre-start meetings on how to approach moving plant and equipment. Access routes for plant and vehicles are to be maintained. Pedestrians are to walk along the side of access routes whenever possible. Plant operators are to keep reversing to a minimum. Pedestrians that need to approach moving plant are to do so from the front of the machine and are to gain the operators attention by making verbal conatct and eye contact with the operator. No person is to approach the machine until the operator has stopped moving the machine and signalled that it is safe to approach. Spotters working with machines must always stand in an area where they are visible to the operator.
Plant roll over on unstable ground	E	3	Low	SafeWork NSW Code of Practice - Managing the Risks of Plant in the Workplace	Plant operator and HY site staff must assess conditions and determine if the ground is stable for plant. If the plant has out riggers then they must be fully extended. Subcontractors must obtain a 'plant setup permit' from Hansen Yuncken prior to setting up any plant with outriggers eg. concrete boom pumps, cranes, frannas etc
Possibility of scissor lift being driven off edge of concrete slab resulting in scissor lift tipping over	NA	2	NA	SafeWork NSW Code of Practice - Managing the Risks of Plant in the Workplace	A timber bump stop must be installed to the edge of the slab whenever EWP's are used close to the edge of a slab
Crushing Injury from scissor or boom lift	NA	1	High	SafeWork NSW Code of Practice - Managing the Risks of Plant in the Workplace	Provide onsite training, Instruction and supervision Pre starts and Toolbox talks to be done as consultation with person's affected by the controls outlined. Only person's with EWP ticket to operate Scissor Lift No Person to work isolated or alone on an EWP 2 person team as a minimum , whilst using a EWP, 1 person to spot and also assist with task All Personnel to be trained by a qualified person from the hire company on the specific EWP, as not all EWP's are the same. Prior to use, completion of a logbook check is to be done All faults are to be immediately reported to supervisor and machine is to be tagged out Personnel using EWP must be aware of the emergency response protocol of that specific EWP Person operating scissor lift must be able to communicate clearly to spotter/work partner(team)
Needle stick Injury					
Injured person could contract a disease	E	2	Medium	SafeWork NSW Code Of Practice: Control of work related exposure to Hepatitis and HIV (blood borne) viruses	Workers injured by needle stick to be sent to the nearest medical centre
Workers unaware of what to if a needle is found	E	4	Low	WHS Plan	Workers to be told at site induction that if they find a needle on site they are not to touch it and report it to HY staff immediately
Inadequate disposal facilities for needles found on site	E	4	Low	SafeWork NSW NSW: Code Of Practice: Managing the work environment and facilities	Sharps clean up kit to be kept in site office at all times
Noise					
Hearing damage from general construction noise eg. power tool usage, jack hammering etc.	B	3	Medium	AS/ANZ 1269: Occupational Noise Management Acoustic Dynamics Construction Noise and Virbation Management Plan	Hearing protection to be worn when using power tools or loud equipment. Signage to be erected to warn other trades of excessive noise. A noise monitor is available in the site office. The noise monitor is available for use on site safety walks
Disruption to client and neighbours	D	5	Low	NWHSC 1007 - 2000 National Standard for Occupational Noise NWHSC 2009 - 2004 Noise Mgt & Protection of Hearing at Work	Notice of disruption to be issued to client if required. Work to be conducted within approved hours of DA contract only
Overhead Power lines					
Power lines over Construction zone	A	1	High	WHS Plan	All plant and workers must keep clear of overhead power lines as per SafeWork NSW Code Of Practice: Work near overhead power lines
				SafeWork NSW Code of Practice: Work near overhead power lines 2006	Tiger Tails to be installed prior to and hoarding installation and cranage

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RELEVANT PROCEDURE:	Project HSE Risk Assessment
PROJECT:	New Primary School in Murrumbateman
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ASSESSED BY:	Paul Todhunter
ASSESSMENT DATE:	3-Dec-21

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HAZARD (Include additional project specific hazards as required)	RISK ASSESSMENT L	C	Class	CONTROLS (to be established in the following order of priority 1st=High Level Risks; 2nd = Medium Level Risks; 3rd = Low Level Risks) Legislation, Standards & Codes of Practice	Enter Details of Specific Controls Required
Plant & Equipment					
Plant failure may cause serious injury to workers	D	3	Medium	NWHSC 1010: National Standard for Plant	HY plant verification reports to be completed for all plant. Maintenance records to be submitted to HY as evidence machine is safe for operation. Plant risk assessments to be conducted for all high risk work. Plant operators must conduct pre-start safety inspections of their machine daily and report faults to their supervisors
Poorly maintained ladders and scaffolding failing/ collapsing	D	3	Medium	AS/NZS 1892: Portable Ladders	No timber ladder on HY sites. Ladders must be in good condition. Electricians must use fibre glass ladders. All workers are aware of the HY ladder policy posted on the wall in the lunch shed. Extension ladders must be tied off at the top landing. Scaffolding to be visually checked daily and full inspection monthly or after adverse weather
Use of damaged ladders	D	3	Medium	AS 4576: Guidelines for scaffolding	Ladders to be checked for damage weekly on the site safety walk
Lifting gear failure	D	1	Medium	AS/NZS 4994: Temporary edge protection	All lifting gear: soft slings, lifting chains must be visually checked daily prior to use for damage. Damaged lifting gear is to be withdrawn from service. Lifting gear register to be supplied to Hansne Yuncken. Hansne Yuncken Sling verification checklist to be completed for soft slings if not captured on lifting register.
Scaffold collapse/ fall from scaffold	NA	1	NA	AS/NZS 1891.1 2007 Industrial fall arrest systems - harnesses and ancillary equipment	Scaffold handover certificate to be issued to HY prior to anyone accessing the scaffold. Scaffold to be inspected minimum monthly and after heavy rain. Scaffold will also be inspected on weekly safety walks. Mobile scaffolds to be built as per manufacturers instructions. Scaffold where a person can fall more than 4m must be erected by a licenced scaffolder. No person is to alter the scaffold what so ever. Any issues with scaffold is to be reported to the Site Manager immediately.
Multiple mobile plant interaction/ contact	D	1	Medium	WHS Plan	Plant operators must communicate by way of 2 way radios, eye contact and spotters
Vehicle and plant exhaust fumes	D	4	Low	HY ladder policy	Use of electric scissor lifts inside buildings only. All other diesel powered machines are used in open well ventilated areas
Post Tensioning					
Accidental drilling or cutting into PT cable	D	2	Medium		All subcontractors to obtain permit to cut concrete/ core. This permit will detail location of PT cables if applicable
Plant & Equipment Washout					
Water from cleaning plant and equipment creating a muddy/ slippery surface	D	4	Low	Environmental Protection Act 1994	Washout area to be determined on a daily basis as the site changes. The wash out area must not allow water to flow over pedestrian foot paths
Muddy and contaminated water entering stormwater system	D	4	Low	HY environmental management plan	Sediment control to be placed around the washout area
Pressurised Gas Mains					
Excavator buckets striking UNDERGROUND GAS LINES	E	1	Medium	SafeWork NSW Code Of Practice: Excavation Work	A permit to dig system is in place on this site. All known existing services have been marked up on the site plans. Pot holing must occur when working around existing services. Only toothless buckets are to be used when digging in the vicinity of gas lines. Striking existing underground services has been listed as a hazard on all subcontractor SWMS involving excavation works
Scaffold					
Fall from heights over 2m	C	2	Medium	WHS Regulation 2017: Part 3.1 Managing risks to health and safety	
Fall from heights whilst forming up and pouring concrete	C	2	Medium	AS4576: Guidelines for scaffolding	
Insufficient egress from building in the event of an emergency	B	5	Medium	WHS Plan	
Inadequate development of scaffold plan	D	5	Low		
Possible scaffold overload resulting in scaffold collapse - materials and workers	C	4	Medium		
Scaffold sinking into soft ground compromising structural integrity	D	3	Medium		
Sediment and erosion control					
Mud, dirt and sediment polluting stormwater systems	C	4	Medium	Environmental Protection Act 1994	Northrop sediment and erosion control plans
Mud, dirt and sediment polluting stormwater systems	C	4	Medium	Environmental Management Plan	Silt barriers to be installed around low areas of site to catch all rain fall. All stormwater pits to be covered in silt control. All vehicles tyres must be washed clean of mud prior to leaving site. Silt socks to be placed in front of stormwater drains in gutters. Inspections to be carried out weekly by HY using the Site HSE inspection report

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	RISK ASSESSMENT			CONTROLS (to be established in the following order of priority 1st=High Level Risks; 2nd = Medium Level Risks; 3rd = Low Level Risks)	
HAZARD (Include additional project specific hazards as required)	**L**	**C**	**Class**	**Legislation, Standards & Codes of Practice**	**Enter Details of Specific Controls Required**
Site Lighting					
Sun glare restricting plant operators visibility	C	4	Medium	WHS Regulation 2017	Sunglasses to be worn by plant operators as required. Certain tasks may also be conducted at different times of the day to stop the sun becoming an issue.
Lighting (Poor)	NA	5	NA	SafeWork NSW Code Of Practice: Managing the work Environment and Facilities	Ensure that task area has adequate natural light and if natural light is not adequate provide artificial lighting
Slips/Trips					
Workers slipping or tripping on rough/ uneven/ muddy/ slippery ground	C	3	Medium	AS/NZS 2210 Occupational protective footwear WHS Plan	Pedestrian pathways to be kept clear of rubbish and material. Safe access around site to be maintained at all times. Gravel/ crusher dust to be placed on slippery/ muddy surfaces. Blading back of ruts and muddy ground conditions to be conducted as required. Bunted off pedestrian pathways are installed around main access routes throughout site for safe pedestrian access, this way people can use the pathway then branch out to their specific work area with minimal risk of slipping over in muddy conditions
Structural Support					
Masonry walls collapsing in high winds	D	1	Medium	National Code of Practice for Precast, Tilt Up and Concrete Elements in Building Construction 2008	Masonry walls must be adequately braced with timbers every 2m until core filled
Formwork collapse	D	1	Medium	AS 3850:Tilt Up Concrete Construction	Engineers sign off required to pouring of any concrete
Precast concrete panel collapse if structural steel is inadequately braced	D	1	Medium	NSW Code of Practice: Formwork 1998	Structural steel must be signed off by engineer prior to installation of precast concrete panels
Structural steel collapse	D	1	Medium	AS 4991: Lifting devices	Structural steel must be erected by qualified dogmen and riggers. Subcontractor must submit ITP's to Hansen Yuncken. Hansen Yuncken to complete QC Compliance audit report: Structural Steel checklist
Synthetic fibres					
Unsafe handling of roof insulation	D	4	Low	SafeWork NSW Code of Practice: Safe use of synthetic mineral fibres	Install roof insulation as per Safety Data Sheet and SWMS
Temperature Extremes					
Dehydration	E	3	Low		Workers are encouraged to drink plenty of water. Water bubbler available at site lunch sheds
Sunburn	C	3	Medium		Workers must wear are shirt on site. Singlets are not allowed. Sun cream is available to everyone and is kept in the site office
Heat stress	E	3	Low		Workers are encouraged to work in the shade wherever possible and take regular breaks whenever required.
Tilt –up or Precast Concrete Work					
Structural steel support collapse	C	1	High	AS 3850:Tilt Up Concrete Construction	HY precast panel installation checklist must be completed and all relevant documentation submitted, reviewed and approved by HY prior to installation of precast panels
Injury to other workers/ trades	B	1	High	AS 4991: Lifting devices	Precast panel installation must be closely monitored by HY Management and conducted in accordance with SWMS . The work area around the crane must be clearly closed off to other trades with bunting, flagging or red/white tape. Spotters must be used to
Plant failure	C	1	High	National Code of Practice for Precast, Tilt Up and Concrete Elements in Building Construction 2008	All maintenance records and plant safety verification reports must maintained and kept up to date
Failure of lifting points on precast panels	C	1	High	AS 2550: Cranes, hoists & winches - Safe Use	Subcontractor ITP's must be submitted and reviewed by HY prior to erection of precast panels , engineered lifting points used to install precast. Lifting gear register in place
Concrete may not have cured to specified strength	C	2	Medium		HY precast panel installation checklist must be completed and all relevant documentation submitted, reviewed and approved by HY prior to installation of precast panels
Crane roll over on unstable ground	B	1	High	AS 1418.1: Cranes, hoists and winches – General Requirements	Plant setup permit must be obtained by subcontractor prior to standing crane
Exceed SWL of crane	B	2	High	AS 2321: Short link chain for lifting purposes	Work to SWL chart for crane at all times
Lifting gear failure	A	3	High	National Code of Practice for Precast, Tilt Up and Concrete Elements in Building Construction 2008	Riggers must inspect all lifting gear prior to use. Damaged lifting equipment must not be used. Lifting gear registers and certificates must be issued to HY prior to use.
Poor communication between crane operator and dogmen	C	3	Medium		Dogman and crane operator to constantly communicate with each other. Crane operator to take directions from dogman only.

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Traffic Management					
Vehicles/ trucks speeding on site	B	3	Medium	AS 1742.3-2009: Manual of uniform traffic control devices - Traffic control for works on roads	10km/h speed limits signs are erected around site. Drivers must give way to pedestrians. Delivery driver inductions for all drivers entering site. Hazard or flashing lights must be turned on All these controls need to be identified on site layout plan and communicated to all workers at site induction.
Vehicles parking and blocking access roads	B	4	Medium		Vehicles to be used for loading/unloading purposes only and are to be parked off site if not required for work purposesAll these controls need to be identified on site layout plan and communicated to all workers at site induction
Blind spots creating collisions between vehicles	E	3	Low		Warning signs to be erected at blind spots All these controls need to be identified on site layout plan and communicated to all workers at site induction.
Pedestrians entering site being struck by trucks and vehicles	A	2	High		A fenced off pathway with signage has been installed along the driveway from the street to the site office to keep all pedestrians off the road used by plant and trucks. Pedestrians and vehicles have been seperated theough entry/ exit by way of concrete jersy kerbs. All these controls need to be identified on site layout plan and communicated to all workers at site induction.
Tree lopping					
Tree lopping	A	4	Medium		Area to be delimeated and HRCW for falling from heights and Plant and Equipment
Vehicle & plant exhaust fumes					
Workers overcome by exhaust fumes from plant	E	1	Medium	SafeWork NSW Code of Practice: Managing risks of hazardous chemicals in the workplace	Plant to be operated in open areas with good ventilation only. Electric scissor lifts to be used inside buildings only. No petrol/ diesel powered equipment used inside buildings
Ventilation (poor)					
Workers overcome by fumes when using chemicals	E	1	Medium	SafeWork NSW Code of Practice: Managing risks of hazardous chemicals in the workplace AS/NZS 1715 Selection, use and maintenance of respiratory protective devices AS/NZS 1716 Respiratory protective devices	MSDS to be read and understood by all workers prior to work commencing
Violence					
Workers arguing and fighting	D	4	Low	Violence in the workplace guide 2002	Zero tolerance for fighting on site - instant dismissal
Waste Management/ Littering					
Inadequate bins on site to dispose of rubbish	E	3	Low	WHS Act/ Regulation 2017 Zoic Construction Waste management Plan	Skip bins to be placed at various locations around site which are easy to access. Bins for food scraps are to be placed at the front of all lunch sheds
Bins attracting rodents	D	4	Low		Food scrap bins to be bagged and changed regularly
Having to walk long distances to dispose of rubbish	D	4	Low		Numerous skip bins to be on site close to all work areas
Workers littering the site with rubbish and off cuts instead of disposing of rubbish in bins provided	D	4	Low		Suspension/ improvement notices to be issued to subcontractors who leave the site untidy
Water Contaminants					
Clean water around site becoming contaminated with mud	E	4	Low		Clean rain water is diverted around site by way of swales and sediment control
Working at Height above 2m					
Workers dropping tools and material onto persons below	C	1	High	SafeWork NSW Code of Practice; Managing the risk of falls in the workplace NSW Code of practice: Safe work on roofs part 1	"Danger workers above" signage to be erected. If there are other trades in the immediate area then red/white tape will be erected to create an exclusion zone.
Scaffolders falling from heights during erection process	B	1	High	WHS Regulation 2017 Part 4.4 Falls	Install handrail, mid-rails and toe-boards where scaffolders are working from deck below while building using the approved control methods such as the 1m rule or Advanced guardrail systems
Perimeter scaffold collapse	E	1	Medium	AS 4576: 1995 Guidelines for scaffolding	Check and confirm the suitability of the subgrade prior to basing out the scaffolding Confirm areas where trenches have been laid Visually check ground for stability, use sole boards where required or get others to compact areas Do not allow scaffold to exceed 4.0 m in height without being tied to the structure and braced or stabilised to an approved design Do not allow standards to be erected and left unsupported Each standard will be braced in a minimum of two directions. A brace is defined as a ledger or transom Scaffolds from which a person can fall more than 4 metres must be constructed and certified by a licensed scaffolder. Secure materials at height & isolate area below where there is risk of falling objects causing injury to persons below. No scaffold alterations are to be undertaken except by licensed scaffolder. Close off access to incomplete scaffolds, for example, install tube barricades and warning signs "Scaffold Incomplete" Ensure all scaffold is checked and secure before issuing handover docket and attaching Scafftag.
Workers falling from roof	A	1	High	HY HSE procedure 9.46 Working at height	Roof access permit must be obtained by the workers prior to accessing the roof. Perimeter scaffold or handrail must be in place for fall protection. Safety mesh must be installed correctly as per SafeWork NSW Code Of Practice: Safe Work On Roofs: Part 1
Mobile scaffold collapse	B	1	High	SafeWork NSW Code of Practice: Managing the risk of falls at workplaces	
Workers falling from perimeter scaffold	NA	1	NA	AS 1577 Scaffold Planks	Perimeter scaffolds to be inspected weekly using the site HSE inspection report. All workers are advised at site induction strictly not to alter any scaffolding
Fall from ladder	C	3	Medium	AS/NZS 4488 Industrial rope access systems - Selection, use & maintenance	Ladders must be used in accordance with HY ladder policy. An Aconex has been issued on ladder use to all subcontractors. EWP's, mobile scaffold and platform ladders take first preference over standard A frame ladders.
Fall from EWP/ boom lift	B	1	High	AS/NZS 1891 Industrial fall arrest systems & devices AS/NZS 4994 Temporary edge protection	WP ticket required to operate boom lift >11m . EWPAA yellow car required for EWP <11m. Ground conditions to be checked prior to operation. Harnesses and lanyards must be maintained and kept in good condition
Fall from scissor lift	B	1	High	NWHSC - Prevention of Falls in General Construction 2008	Timber or angle to be installed to the edge of concrete slabs to stop scissor lifts accidently being driven off edge of slab. Scissor lift operators must have a EWPAA yellow card or WP type ticket. Stabilizers and sole plates must be used for rough terrain scissors used on soft ground

HANSENYUNCKEN

PROJECT HSE RISK ASSESSMENT

This Project HSE Risk Assessment is to beused as aguide when completing the monthly Project High Risk Identification assessment on HYWAY Site Management Dashboard in accordance with the Project HSE Risk Assessment procedure and should be conducted at the time of Construction programme statusing to assess hazards and risks for next month. Hazards with residual risk from the Design WHS Risk Assessment (if applicable) are also to be considered.

RELEVANT PROCEDURE:	Project HSE Risk Assessment
PROJECT:	New Primary School in Murrumbateman
JOB NO:	SC135
ASSESSED BY:	Paul Todhunter
ASSESSMENT DATE:	3-Dec-21

RISK ASSESSMENT TABLE

	Likelihood	Consequence 1 Significant	2 Major	3 Moderate	4 Minor	5 Insignificant
A	Very Likely	High	High	High	Medium	Medium
B	Likely	High	High	Medium	Medium	Medium
C	Possible	High	Medium	Medium	Medium	Low
D	Remotely Possible	Medium	Medium	Medium	Low	Low
E	Very Unlikely	Medium	Medium	Low	Low	Low
NA	Not applicable	NA	NA	NA	NA	NA

HAZARD (Include additional project specific hazards as required)	**RISK ASSESSMENT** L	C	Class	**CONTROLS (to be established in the following order of priority 1st=High Level Risks; 2nd = Medium Level Risks; 3rd = Low Level Risks)** Legislation, Standards & Codes of Practice	Enter Details of Specific Controls Required
Inadequately installed roof perimeter handrail	B	1	High	NSW Identification Tool for Aluminium Mobile Scaffolds 2008	Installation certificate must be issued to HY prior to any worker accessing roof. Installation manual to be available on site so it can be confirmed the handrail has been installed as per the manufacturers specifications.

HANSENYUNCKEN

PROJECT HSE RISK ASSESSMENT

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D	Remotely Possible	Medium	Medium	Medium	Low	Low
E	Very Unlikely	Medium	Medium	Low	Low	Low
NA	Not applicable	NA	NA	NA	NA	NA

	RISK ASSESSMENT			CONTROLS (to be established in the following order of priority 1st=High Level Risks; 2nd = Medium Level Risks; 3rd = Low Level Risks)	
HAZARD (Include additional project specific hazards as required)	**L**	**C**	**Class**	**Legislation, Standards & Codes of Practice**	**Enter Details of Specific Controls Required**
Potential Emergencies - preparation for and response to potential emergency events assessed high or medium risk to be defined in the Emergency Response Plan					
Arrested fall in a harness	B	2	High	HY Procedure for Emergency Response	All subcontractors using harnesses in boom lifts must have a rescue procedure as part of their SWMS. Generally rescue will be by using the ground controls at the base of the machine or by using a second boom lift to retrieve the suspended casualty.
Bomb threat	E	4	Low	HY Procedure for Emergency Response	Procedure for bomb threats is part of the HY Emergency Response Plan
Confined Space Rescue	E	3	Low	HY Procedure for Emergency Response	Procedure for confined space rescue is part of the HY Emergency Response Plan
Cyclone	NA			HY Procedure for Emergency Response	N/A
Drowning	E	5	Low	HY Procedure for Emergency Response	Trenches are to be de-watered prior to any person working in around the area.
Electric shock	D	1	Medium	HY Procedure for Defibrillators	Electric shock procedure detailed in the HY Emergency response plan
Emergency services unavailability				HY Procedure for Emergency Response	N/A
Fire	D	2	Medium	AS 3745 Emergency control organisation and procedures for buildings, structures and workplaces AS/NZS 1221 Fire hose reels AS/NZS 1841 Portable fire extinguishers AS/NZS 1850 Portable fire extinguishers - Classification, rating and performance testing AS 1851 Maintenance of fire protection systems & equipment AS 2375 Guide to the selection, care & use of clothing for protection against heat & fire AS 2444 Portable fire extinguishers and blankets - Selection & location	Fire procedure detailed in the HY emergency response plan
First Aid (inadequate resources)	E	3	Low	HY Procedure for Emergency Response	First aid room to be set up with portable and fixed first type A first aid kits, stretcher, defibrillator, ice packs, sun cream, eye wash and examination couch as per Code of Practice: First Aid . (Refer to first aid assessment)
Gas line contact or damage	D	2	Medium	HY Procedure for Emergency Response	Jemena contact details are part of the HY Emergency response plan
Major rock fall/landslip	E	4	Low	HY Procedure for Emergency Response	Rockall procedure detailed in the HY Emergency response plan
Major Fuel/Chemical Spill	E	3	Low	HY Procedure for Emergency Response	Fuel/ Chemical spill is part of the HY emergency response plan
Medical Emergency	D	3	Medium	HY Procedure for Emergency Response	Medical emergency is part of the HY emergency response plan
Overhead power line contact or arcing	B	3	Medium	HY Procedure for Emergency Response	Contact with overhead power lines is part of the HY emergency response plan
Precast Panel Collapse	D	1	Medium	HY Procedure for Emergency Response	Precast panel collapse is part of the HY emergency response plan
Structural failure/collapse	D	1	Medium	HY Procedure for Emergency Response	Structural collapse is part of the HY emergency response plan
Trench collapse	D	1	Medium	HY Procedure for Emergency Response	Trench collapse is part of the HY emergency response plan

A.5 Construction Traffic and Pedestrian Management Sub-plan (CTPMSP)

Construction Traffic and Pedestrian Management Plan

Murrumbateman Public School – 2 Fairley Street, Murrumbateman

14/12/2021
P1669r03

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Document Control

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Project	Murrumbateman Public School
Client	Hansen Yuncken Pty Ltd
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Revision History

Revision No.	Date	Details	Author	Approved by
-	9/11/2021	Draft	W. Zheng M. Tangonan	D. Choi
I	3/12/2021	Version 01	W. Zheng	D. Choi
II	9/12/2021	Version 02	W. Zheng	D. Choi
III	14/12/2021	Version 03	W. Zheng	D. Choi

Contents

Contents Continued

Figures

Tables

APPENDICES

1 Introduction

1.1 Introduction

Ason Group has been commissioned by Hansen Yuncken Pty Limited to prepare a Construction Traffic Management Plan (CTMP) to support the development of a new public school in Murrumbateman at 2 Fairley Street, Murrumbateman (the Site). The works relate to the construction of a primary school facility with a student teaching capacity of up to 368 students.

This CTMP details the measures and strategies to be undertaken during road works construction to minimise the effects of work on the industrial site and the surrounding road network, and to ensure the safety and efficiency of the community, all workers, and all road users.

This report is to be read in conjunction with the Construction Worker Transportation Strategy in Appendix E.

1.2 Project Representatives & Stakeholders

This report has been prepared by a consultant who holds a SafeWork NSW Work Health & Safety Traffic Control Work card, accredited for the 'Prepare a Work Zone Traffic Management Plan'. Details of the accredited consultant is provided below:

- Dora Choi Ticket No. TCT0021456
- Wendy Zheng Ticket No. TCT1015144

This Construction Traffic Management Plan has been prepared to meet the requirements outlined in Appendix A and Appendix E, Section E.2 of the Transport for NSW Traffic Control at Work Sites Technical Manual (Issue No. 6, 2020).

Through the preparation of this CTMP, the project representatives and stakeholders consulted in the development of the traffic management strategy are listed below:

TABLE 1: PROJECT REPRESENTATIVES AND STAKEHOLDERS

Organisation	Name	Role
Hansen Yuncken	Paul Todhunter	Project Manager
Ason Group	Dora Choi	Principal Lead: Traffic Management & Operations
	Wendy Zheng	Senior Traffic Design Engineer

1.3 Project Details

1.3.1 Proposed Construction Activity / Works

The proposed construction activities are part of the detailed construction phasing, and as such, this CTMP shall outline the works involved and the applicable traffic management measures.

TABLE 2: STAGES & PHASES OF CONSTRUCTION

Stage	Timeline	Description
1	16.12.21 to 14.01.22	Demolition of road and car park
2	14.01.22 to 07.02.22	Strip site and bulk earthworks
3	07.02.22 to 25.02.22	Substructure works
4	25.02.22 to 09.05.22	Structure works
5	21.03.22 to 20.06.22	Internal & external finishes / service works
6	20.04.22 to 28.07.22	External works

1.3.2 Site Location

The site is located at 2 Fairley Street, Murrumbateman, in the Yass Valley Council LGA. It is formally identified as Lot 302, DP 1228766 and has a footprint of 15,435 m^2.

The location is situated within a predominantly low-density regional residential setting and is neighboured by housing and a small commercial core for the township to the south. East of the Site across the Barton Highway is the Murrumbateman Oval and Village Market.

Currently, the southern portion of the Lot has no existing structures. The existing access road sits within the western segment of the Site, in addition to a car park to the north.

1.4 Authority Requirements

This CTMP forms part of this process and outlines the proposed construction traffic management arrangements associated with the construction phases for the development in accordance with Condition B15 of the approval as follows:

The Construction Traffic and Pedestrian Management Sub-Plan (CTPMSP) must be prepared to achieve the objective of ensuring safety and efficiency of the road network and address, but not be limited to, the following:

- *a) be prepared by a suitably qualified and experienced person(s);*
- *b) be prepared in consultation with Council and TfNSW;*
- *c) detail:*
  - *i. measures to ensure road safety and network efficiency during construction in consideration of potential impacts on general traffic, cyclists and pedestrians and bus services;*
  - *ii. measures to ensure the safety of vehicles and pedestrians accessing adjoining properties where shared vehicle and pedestrian access occurs;*
  - *iii. detail heavy vehicle routes, access and parking arrangements;*

iv. *the swept path of the longest construction vehicle entering and exiting the site in association with the new work, as well as manoeuvrability through the site, in accordance with the latest version of AS 2890.2; and*

v. *arrangements to ensure that construction vehicles enter and leave the site in a forward direction unless in specific exceptional circumstances under the supervision of accredited traffic controller(s).*

TABLE 3: RESPONSE TO SSD-11233241 CONDITION B15

Condition No.	Condition	Response
B15 a)	be prepared by a suitably qualified and experienced person(s);	Refer to Section 1.2 and Appendix F
B15 b)	be prepared in consultation with Council and TfNSW;	Refer to Section 1.6.3
B15 c) i	measures to ensure road safety and network efficiency during construction in consideration of potential impacts on general traffic, cyclists and pedestrians and bus services;	Refer to Section 3
B15 c) ii	measures to ensure the safety of vehicles and pedestrians accessing adjoining properties where shared vehicle and pedestrian access occurs;	Refer to Section 3
B15 c) iii	detail heavy vehicle routes, access and parking arrangements;	Refer to Sections 2.3, 2.6 and 3.2
B15 c) iv	the swept path of the longest construction vehicle entering and exiting the site in association with the new work, as well as manoeuvrability through the site, in accordance with the latest version of AS 2890.2; and	Refer to Appendix A
B15 c) v	arrangements to ensure that construction vehicles enter and leave the site in a forward direction unless in specific exceptional circumstances under the supervision of accredited traffic controller(s).	Refer to Appendix C

Note that the Construction Worker Transportation Strategy addressing Condition B19 is provided in an accompanying document.

1.5 Site Related Data

1.5.1 Road Details

The key roads surrounding the Site are as identified within Figure 1 and summarised below:

TABLE 4: LOCAL ROAD NETWORK

Road	Class	Speed Limit	Parking
Barton Highway	State Highway	100 km/h 50 km/h within Murrumbateman township	no
Fairley Street	Local Road	50 km/h	indented parallel parking, subject to parking restrictions
Rose Street	Local Road	50 km/h	indented parallel parking, subject to parking restrictions
Hercules Street	Local Road	50 km/h	uncontrolled

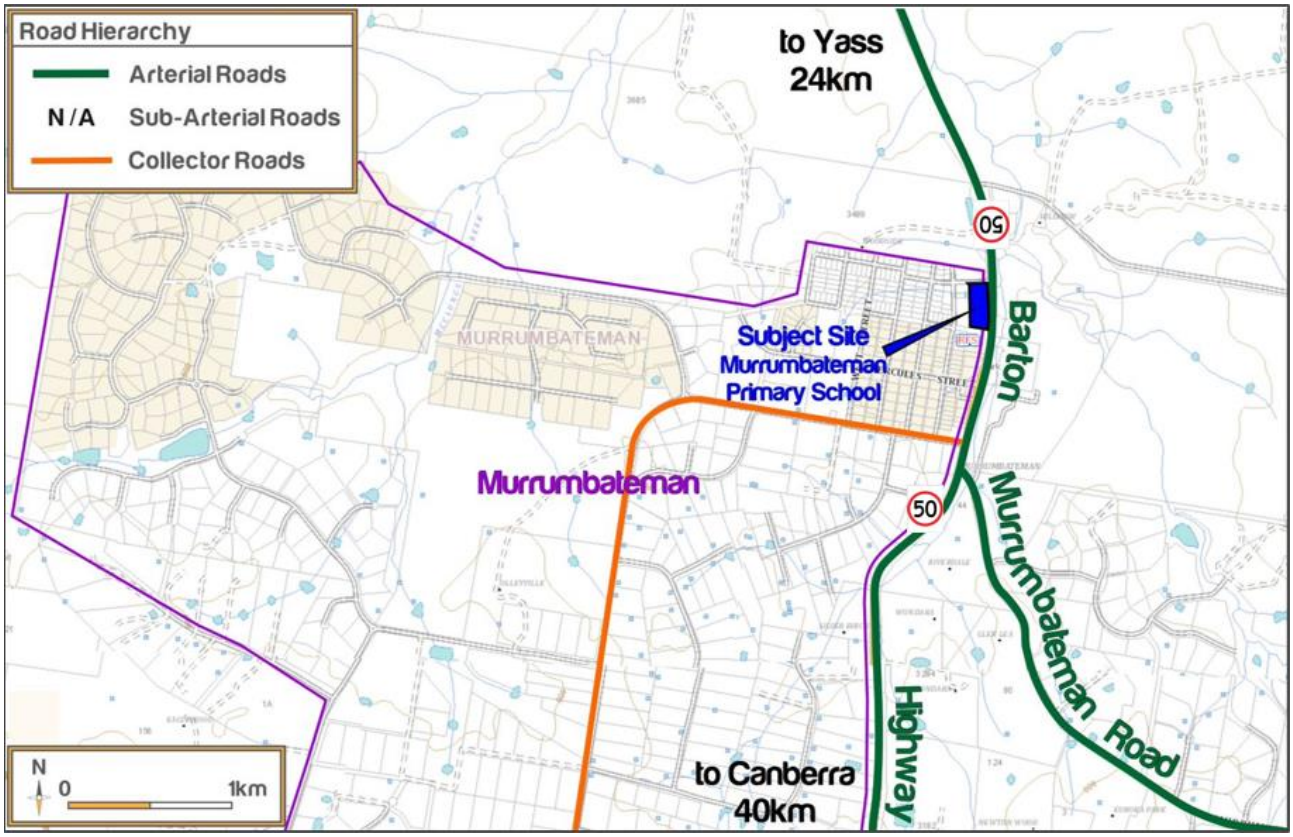

Figure 1: Road Hierarchy and Site Appreciation

1.5.2 Crash History

A review of the TfNSW *Centre for Road Safety* database has been undertaken to establish the crash history within the immediate vicinity of the Site. The results are based on crashes over a five-year period between 2014 and 2019. The locations of recorded crashes are shown in **Figure 2** and details summarised in **Table 5:** .

Figure 2: Crash Locations

TABLE 5: CRASH INFORMATION

Reporting Year	Lighting	RUM Description	Location	Injury
2019	Daylight	45 - Reversing	Fairley Street / Rose Street Intersection	Non-casualty

It can be concluded from the single incident above, that the local road network within the immediate vicinity of the site is operating in a relatively safe manner.

1.5.3 Vulnerable Road Users

Vulnerable road users (VRU) are road users not in a car, bus or truck. In the event of a crash, VRUs have little to no protection from crash forces, therefore, need to be addressed within this CTMP. **Table 6** provides context to VRU's surrounding the Site.

TABLE 6: VULNERABLE ROAD USERS

Road Name	Pedestrian	Cycling	Public Transport
Barton Highway	Partial Dedicated footpath for segments of road	No No dedicated cycle/shared path	Yes
Fairley Street	Partial Dedicated footpath for segments of road	No No dedicated cycle/shared path	No
Rose Street	Partial Dedicated footpath for segments of road	No No dedicated cycle/shared path	No
Hercules Street	Partial Dedicated footpath for segments of road	No No dedicated cycle/shared path	Yes bus stops along roadway

1.6 Stakeholder Engagement

1.6.1 Stakeholder Engagement Plan

Hansen Yuncken will liaise with relevant stakeholders regarding construction schedules and trucks routes and will raise any potential conflict with stakeholders at the earliest instance. Stakeholder consultation actions required by Hansen Yuncken are detailed below.

1.6.2 Stakeholder Notification

In the event that any disruptions to roadways / footpath occur as a result of construction works, the procedure outlined below is to be followed:

- If any planned or unplanned disruptions to roadways / footpaths occur, Council / TfNSW is to be notified first and depending on the extent of the disruption the contractor is to notify affected property occupiers via traffic controllers and Variable Message Sign (VMS)
- In the event that heavy vehicle damage to Council / TfNSW assets / infrastructure, contractors will notify Council's Traffic & Transport team and / or Assets Branch.

The following Stakeholder list is representative of the expected action required in the event consultation is required.

TABLE 7: STAKEHOLDER CONSULTATION ACTIONS

Stakeholder	Action
TfNSW	HY to submit CTMP to stakeholder. HY to liaise with stakeholder to address comments and re-submit final CTMP
Yass Valley Council	HY to submit CTMP to stakeholder. to liaise with stakeholder to address comments and re-submit final CTMP
Transport Management Centre (TMC)	HY to submit CTMP to stakeholder. HY to liaise with stakeholder to address comments and re-submit final CTMP
NSW Police	HY to submit CTMP to stakeholder. HY to liaise with stakeholder to address comments and re-submit final CTMP
Emergency Services	HY to attend fortnightly meetings with TfNSW and Emergency Services
Murrumbateman Health Hub	HY to submit CTMP to stakeholder for comment.
Fairley Early Childhood Service	HY to submit CTMP to stakeholder for comment.
Murrumbateman Preschool	HY to submit CTMP to stakeholder for comment.
Abode Murrumbateman	HY to submit CTMP to stakeholder for comment.

1.6.3 Stakeholder Consultation

Construction traffic management aspects of the project was discussed with stakeholders in a series of meeting prior to the approval of the SSD:

TABLE 8: ENGAGEMENT 1

Scheduled Weekly Meeting 02	
Identified Party to Consult:	Yass Valley Council, TfNSW, SINSW, Ason, Hansen Yuncken, Pedavoli, Savills, Mecone
Consultation type:	Microsoft Teams Meeting
When is consultation required?	Prior to submissions

Scheduled Weekly Meeting 02	
Why?	An update on the project was provided, noting a D&C contractor would be on board late February 2021 to assist with the design development and SSDA documentation. The School was on target to open D1T12023. SEARS had been received, with agency comments, the project team are working through requirements.
When was consultation scheduled?	Meetings are scheduled to occur on a weekly basis from project inception.
When was consultation held?	17th March, 2021
Identify persons and positions who were involved	**YVC –** Liz Makin (Strategic Planning Manager) **TfNSW –** Maurice Morgan (Murrumbateman TfNSW Rep), Damien Pfeiffer (Director Land Use) **SINSW –** Lachlan MacDonald (Project Director), Alfred Jury (Project Director), Rebecca Lehman (Project Director) **Ason Group –** Dora Choi (Transport Consultant), Wendy Zheng (Transport Consultant) **Hansen Yuncken –** Paul Todhunter (Project Manager) **Pedavoli –** Sam Rigoli (Architect), Katie- Lee Carter (Architect) **Mecone –** Adam Coburn (Town Planning Consultant) **Savills –** Emma Viljoen (Project Manager)
Provide the details of the consultation	Preliminary discussion to raise working concerns, share project progress.
What specific matters were discussed?	DC (Ason) presented their investigative findings to date, having undertaken a site visit on Friday 12 March 2021. During the site visit Ason observed the operations of the childcare facility in close proximity. During this discussion Ason gave an overall appraisal of the site, its constraints and opportunities and a consideration of best locations for the transport infrastructure, including: • - Bus bays • - Private car kiss and ride • - Pedestrian routes and access points • - Staff car parking Ason is undertaking traffic counts to obtain data to support current design considerations.

Scheduled Weekly Meeting 02	
	TfNSW noted a number of items for consideration: a) The Barton Highway upgrade works has not been funded to reach Murrumbateman and as such the project should not plan for any changes to traffic conditions. b) School bus stop should be on the local road network, not the highway. c) Concerns at the noted short stay parking suggestions for Rose Street. d) support linkages to the southern pedestrian and cycling linkages to the site e) Catchment area is likely to come from the west, but also from the growing subdivisions in the North Eastern direction f) concern of how the management of children crossing the Barton Highway for use of the Oval, consider access times and movement of children. RL noted this would be addressed in the Transport Plan and the Operational Plan. g) Project team to review potential pedestrian access off Rose Street to the old School site Council noted a number of items for consideration: a) Consider utilisation of Mecca Childcare (on Rose Street adjacent to the Old School House) for OSHC as it becomes unoccupied at 3pm b) Expectation that drop off happens internally on site so as not to cause congestion on Rose Street and surrounds c) Changes to ACT policy will see students coming to Murrumbateman from closer to the border. d) Water pipeline project being commissioned later this year which will see an increase in residents. e) Consideration of how students get to school from the denser older village. SINSW noted that Ason will prepare the School Transport Plan, which includes the Green Travel Plan and will continue to work with SINSW on its implementation once the school is operational. The Transport Plan will set mode share targets. Council/ TfNSW to consider an appropriate school of a similar size for transport benchmarking purposes.
What matters were resolved?	n/a – preliminary discussion

TABLE 9: ENGAGEMENT 2

Scheduled Weekly Meeting 03	
Identified Party to Consult:	Yass Valley Council, TfNSW, SINSW, Ason, Hansen Yuncken, Pedavoli, Savills
Consultation type:	Microsoft Teams Meeting
When is consultation required?	Prior to submissions

Scheduled Weekly Meeting 03	
Why?	Purpose of this meeting was to take the form of a working group and a follow on from meeting held 17th March 2021.
When was consultation scheduled?	Meetings are scheduled to occur on a weekly basis from project inception.
When was consultation held?	24rd March, 2021
Identify persons and positions who were involved	**YVC –** Liz Makin (Strategic Planning Manager), Meryl Hinge (Yass Council Engineer), Terry Cooper (Yass Council Rep) **TfNSW –** Maurice Morgan (Murrumbateman TfNSW Rep) **SINSW –** Lachlan MacDonald (Project Director), Alfred Jury (Project Director), Rebecca Lehman (Project Director) Sarah Kelly (Project Director) **Ason Group –** Dora Choi (Transport Consultant), Wendy Zheng (Transport Consultant) **Hansen Yuncken –** Paul Todhunter (Project Manager) **Pedavoli –** Sam Rigoli (Architect), Katie- Lee Carter (Architect) **Mecone –** Adam Coburn (Town Planning Consultant) **Savills –** Emma Viljoen (Project Manager)
Provide the details of the consultation	Weekly discussion to raise working concerns, share project progress.
What specific matters were discussed?	DC (Ason) presented an overview of transport and traffic strategy and drivers, key items below, presentation attached: • Catchment areas with walking and cycling opportunity • Catchment likely to be 20km radius, acknowledgement of future • students to be attending from East of Barton Highway • Mode share assumptions • Case Study at Estella PS, Wagga Wagga • OSHC accounts for approx. 30% of students utilising alternative hours • Proposed location of school bus stop on Fairley Street • On site kiss & ride • Requested clarification on background growth percentage for future • base case and horizon year (10 year post Project Completion) • Seeking confirmation of traffic survey locations. Ason propose:

Scheduled Weekly Meeting 03	
	– Barton Highway / Fairley St – Fairley St / Rose St – Rose St / Hercules St – Hercules St / Barton Hwy – AM (6am – 10am), PM (2pm – 5pm) TfNSW noted a number of items for consideration: • Catchment to the East of the highway will be expanding and the traffic assessment should consider the 10- and 20-year projections. • School bus stop proposed on Fairley Street should not be used as an interchange; consideration of all other bus stop locations to be covered off in assessment, i.e., on site, Rose Street, Barton Highway etc • Operation plan to include the frequency of Oval use, concern of how the management of children crossing the Barton Highway. • SINSW to provide presentation to TfNSW (issued with these minutes) Council noted a number of items for consideration: • Integration of the adjacent childcare was good, utilising existing ramp, consideration for Mecca Childcare access. It was noted the Southern pedestrian gate facilitated this. • Understanding required of school operational plan around the school bus stop, concern of children congregating. • Bus route to be determined, through consultation with TfNSW bus services. • Council to supply Ason with information of the developments planned for the North East of the site • Council to supply Ason with Cadastral data contact details. • Stage 2: Council requested clarity on next stage and whether this was being considered in this SSDA application. LMac noted that any future demand would be analysed by demographers and when a need arose a new business case would be written, and funding sought. All recognised the constraints of this site.
What matters were resolved?	n/a – preliminary discussion

TABLE 10: ENGAGEMENT 3

Scheduled Weekly Meeting 04	
Identified Party to Consult:	Yass Valley Council, TfNSW, SINSW, Ason, Hansen Yuncken, Pedavoli, Savills
Consultation type:	Microsoft Teams Meeting
When is consultation required?	Prior to submissions

Scheduled Weekly Meeting 04	
Why?	Purpose of this meeting was to take the form of a working group and a follow on from meeting held 24th March 2021.
When was consultation scheduled?	Meetings are scheduled to occur on a weekly basis from project inception.
When was consultation held?	31th March, 2021
Identify persons and positions who were involved	**YVC –** Liz Makin (Strategic Planning Manager), Meryl Hinge (Yass Council Engineer), Terry Cooper (Yass Council Rep) **TfNSW –** Kristy Campbell (Manager – Road Use Safety), Jayd Marsh (Community and Partnering) **SINSW –**Alfred Jury (Project Director), **Ason Group –** Dora Choi (Transport Consultant), **Hansen Yuncken –** Paul Todhunter (Project Manager), Dean Katsikaros (Project Manager) **Pedavoli –** Sam Rigoli (Architect) **Savills –** Emma Viljoen (Project Manager)
Provide the details of the consultation	Weekly discussion to raise working concerns, share project progress. EV noted that project team (HY and Architects) have undertaken a site visit and noted number of opportunities and limitations.
What specific matters were discussed?	DC (Ason) presented back on a number of items requiring clarity after meeting 24th March 2021: • School capacity was for 370 students as outlined in the SEARS • Crossing of the Barton Highway was not required by the school for curriculum purposes, as confirmed with the DEL • The operational requirements for occasional use of the Oval would be addressed in the School Travel Plan as part of the SSDA. New depersonalised data shows no students in walking or cycling catchment East of Barton Highway, these students would rely on buses. Requests for Information, as listed in the attached presentation for Council/ TfNSW feedback: Traffic Surveys: • Total movement count (pedestrian, cyclist, vehicles (classified). Typical weekday (during school term), between 6am –10am, and 2pm – 6pm Intersections of: • ➢ Barton Highway / Fairley Street • ➢ Fairley St / Rose St

Scheduled Weekly Meeting 04	
	• ➢ Rose St / Hercules St • ➢ North St / Rose St Traffic Assessment: • Apply 2% background growth between 2021 data to Future Base Case (at Project Completion, Jan 2023) • 2% growth over 10 years for Horizon Year • Sensitivity test – apply 3% growth between 2021 to 2023, and 3% growth over 10 years for Horizon Year Parking Restrictions: Draft parking restrictions suggestion: • Fairley Street Bus Stop – confirmation required on whether bus bay to be applicable during school times only or full time bus stop? • Rose Street, between Fairley St to North St – East Side - 1-hour, between 8am – 6pm, School Days only? • Rose Street, between Fairley St to North St – West Side – No Stopping? • Rose Street, between North St to Hercules St – Given there are no kerbs – suggestion from Council sought LM noted comments on the adequacy of the intersection traffic counts relies on an understanding of the proposed bus routes. DC was to meet with bus services division of TfNSW next. DC presented the masterplan showing pedestrian routes and play areas. Council noted a number of items for consideration: a) Concern noted from an urban planning perspective of the waste collection on the prominent corner of the site. SR noted that this would be reviewed with Ason in terms of alternative placement but that the enclosure was set back from the boundary to allow for landscape and screening. b) Consultation with the Fairly Early Childhood Centre should be undertaken regarding potential access from their car park into the site. The project team agreed and would reach out but noted the site did not rely on this access. c) LM queried whether any further development to access from the South had been undertaken. SR noted the building arrangement allowed for good visual and physical connection and this was a key aspect of the design. EV noted discussions with Mecca childcare were underway. DC noted a further review would be undertaken. d) MH queried access from the southern gate should on arrival it was found to be locked. DC noted a footpath was already established along Rose Street and a further footpath would be established from Fairley into the main gate. e) LM noted that the transport assessment would need to address potential parent drop off from the Crown land to the South. f) LM queried status of consideration of school use of the Crown land to the South, EV noted a building inspection report had been undertaken to assist in decision making. Report was under review. This would be discussed further with Council.
What matters were resolved?	n/a – preliminary discussion

Post SSD approval TfNSW and YYC was engaged with to consult regarding the construction traffic management recorded below:

TABLE 11: POST APPROVAL CONSULTATION RECORD 01

Identified Party to Consult:	TfNSW, Yass Valley Council (YVC)
Consultation type:	Teleconference (Teams)
When is consultation required?	Prior to issue of CC
Why	Council is the local road authority and TfNSW is the state road authority – they are in charge of coordinating activities on the local and state road networks.
When was consultation scheduled/held	Thursday 9th December 2021
When was consultation held	Thursday 9th December 2021
Identify persons and positions who were involved	Meryl Hinge (YVC) James Dugdell (YVC) Mel Lausz (TfNSW) Duncan McCrae (TfNSW) Maurice Morgan (TfNSW) Paul Todhunter (HY) Nick Gordon (HY) Dora Choi (Ason) Wendy Zheng (Ason)
Provide the details of the consultation	Consultation with Yass Valley Council and Transport for New South Wales to discuss the strategies proposed in the Construction Traffic Management Plan (CTMP) and Construction Worker Transport Strategy (CWTS).
What specific matters were discussed?	DC (Ason) presented the CTMP per TfNSW's request to the group. The following queries for the strategies within the CTMP was noted by TfNSW and YVC: • The existing carpark and access roadway is proposed to be demolished in the first phase of construction and Council has queried why the carpark and access roadway can't be retained until later stages of construction • The CTMP proposed a secondary construction access directly off the Barton Highway and TfNSW and YVC both note that one of the conditions of the consent for the SSD was that no access can be granted directly off the Barton Highway. • HY notes that the secondary construction access will be for limited deliveries in Stages 5 and 6 for finishing activities in the southern portion of the site once the structures are built as due to the locations of the school buildings access from the north will be restricted to very small vehicles.

	• TfNSW proposes that construction access for the Stages 5 and 6 finishing works can be through Rose St or North St then through the pedestrian / equestrian path or from the existing driveway to the Old Murrumbatemen School then through the pedestrian / equestrian path pending YVC approval. • YVC notes that the existing driveway to the Old Murrumbatemen School is located on Crown Land and access is subject to authorisation by Crown Land. If access from Rose St proves more feasible then consultation with the Childcare Centres (Fairley Childcare and Murrumbateman Preschool) needs to be undertaken and a management plan is to be provided for the how and frequency of construction access. • The two Childcare Centres have already reached out to YVC regarding the construction and the possible impacts on their students. • TfNSW and YVC both requested more detail from HY regarding the limited delivered that need direct access off the Barton Highway which include and is not limited to: - When - Number of vehicles - Type of vehicles - Corresponding access specific TGS - Works required within the road reserve on either side of Barton Highway (if any) - Alternate route if access is not granted • YVC queries that given that construction access to the southern portion of the site is not possible from the north once the buildings are delivered, how would maintenance be possible? HY has confirmed it is likely to be difficult and TfNSW has reiterated that as part of the SSD no direct access is to be provided off the Barton Highway for any stage of this project (during construction and operation). • The construction hours presented in the CTMP are per the SSD conditions, however YVC notes that the Barton Highway is very busy southbound to Canberra in the morning (7am to 9am), and northbound from Canberra in the afternoon (4pm to 6pm). It would be YVC's preference that construction traffic to occur between 9am and 4pm. • The MBS modules will arrive in oversized vehicles and therefore have to be off the highway before sunrise per the conditions of the Oversized Overmass (OSMO) Permit. YVC notes that in summer sunrise is significantly earlier than the permitted construction hours. The MBS modules will be driven onto the site but the unloading will happen within construction hours. • TfNSW and YVC have queried the concrete pour management and its impact on the Barton Highway as the concrete truck will likely come in from Mitchell to the south and will join the morning tidal flow. • YVC expressed concern regarding the chance of construction debris crossing the fencing proposed between Murrumbateman Preschool and the Site.
What matters were resolved?	• HY will have to demolish the existing access roadway and carpark in the first stage of construction due to Building A footprint

	• HY will manage the construction deliveries from the supplier end so that there will be adequate timing between deliveries to prevent queuing on Fairley St or the Barton Hwy. • For concrete pours HY will manage the concrete delivery timing so that there will be a minimum of 15min between each truck and if the pour is slower than expected they will contact the supplier to slow the deliveries down to 30min intervals. • Construction workers are expected to arrive on site before 7am avoiding the morning peak on the Barton Highway. • Construction deliveries will arrive between 9am and 3pm to allow construction workers to set up on site before receiving deliveries • Construction workers are expected to finish work between 3pm and 5pm dispersing in a staggered fashion so if they are joining the northbound tidal flow in the afternoon there will be limited impact. • The MBS deliveries are expected to the staggered – no more per night than what can be queued on site and will always depart in the opposite direction to the tidal flow on the Barton Highway • As the buildings are constructed using modular methods, the number of days where continuous concrete pours are required is limited (2-3 days) and a few smaller concrete pours are limited to footpath / public domain works only which limits the impact on traffic on the Barton Highway and within Murrumbateman. • Traffic controllers will be on site as required for concrete pours, MBS deliveries, etc
What matters are unresolved?	• Direct access off the Barton Highway into the site will require further details from HY and further consultation with TfNSW and YVC
Any remaining points of disagreement?	n/a - HY will work with YVC and TfNSW
How will SINSW address matters not resolved?	n/a

2 Proposed Works and Staging

2.1 Overview of Works

2.1.1 Stage 1

TABLE 12: STAGE 1 SUMMARY

Criteria	Response
Description of Key Activities	Demolition of road and car park
Max. Vehicle Size	Semi-trailers
Vehicle Movement Frequency	Maximum 40 light vehicle movements / day + Maximum of 16 heavy vehicle movements / day
Truck Access Requirements	All vehicles via Fairley Street
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	N – none to be planned outside of DA Hours.
Contractor Parking	Y – Parking will occur on-site using existing or constructed car park location, where possible.
Pedestrian Control	Temporary fencing will be located around the perimeter of the site. Site signage will be placed on access gates stating no pedestrian access.
Public Transport Services Affected	Nil
Road Occupancy Requirements (if yes, provide further details)	N
Lane or Footpath Closures (if yes, provide further details)	N
Traffic Guidance Scheme	Refer below.
Worker Numbers	10 (average) – 20 (maximum)

2.1.2 Stage 2

TABLE 13: STAGE 2 SUMMARY

Criteria	Response
Description of Key Activities	Strip site & bulk earthworks
Max. Vehicle Size	Semi-trailers
Vehicle Movement Frequency	Maximum 40 light vehicle movements / day + Maximum of 16 heavy vehicle movements / day
Truck Access Requirements	All vehicles via Fairley Street
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	N – none to be planned outside of DA Hours.

Contractor Parking	Y – Parking will occur on-site using existing or constructed car park location, where possible.
Pedestrian Control	Temporary fencing will be located around the perimeter of the site. Site signage will be placed on access gates stating no pedestrian access.
Public Transport Services Affected	Nil
Road Occupancy Requirements (if yes, provide further details)	N
Lane or Footpath Closures (if yes, provide further details)	N
Traffic Guidance Scheme	Refer below.
Worker Numbers	10 (average) – 20 (maximum)

2.1.3 Stage 3

TABLE 14: STAGE 3 SUMMARY

Criteria	Response
Description of Key Activities	Substructure works
Max. Vehicle Size	Semi-trailers
Vehicle Movement Frequency	Maximum 100 light vehicle movements / day + Maximum of 24 heavy vehicle movements / day
Truck Access Requirements	All vehicles via Fairley Street
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	N – none to be planned outside of DA Hours.
Contractor Parking	Y – Parking will occur on-site using existing or constructed car park location, where possible.
Pedestrian Control	Temporary fencing will be located around the perimeter of the site. Site signage will be placed on access gates stating no pedestrian access.
Public Transport Services Affected	Nil
Road Occupancy Requirements (if yes, provide further details)	N
Lane or Footpath Closures (if yes, provide further details)	N
Traffic Guidance Scheme	Refer below.
Worker Numbers	30 (average) – 50 (maximum)

2.1.4 Stage 4

TABLE 15: STAGE 4 SUMMARY

Criteria	Response
Description of Key Activities	Structure works
Max. Vehicle Size	Semi-trailers
Vehicle Movement Frequency	Maximum 160 light vehicle movements / day + Maximum of 34 heavy vehicle movements / day
Truck Access Requirements	All vehicles via Fairley Street
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	N – none to be planned outside of DA Hours.
Contractor Parking	Y – Parking will occur on-site using existing or constructed car park location, where possible.
Pedestrian Control	Temporary fencing will be located around the perimeter of the site. Site signage will be placed on access gates stating no pedestrian access.
Public Transport Services Affected	Nil
Road Occupancy Requirements (if yes, provide further details)	N
Lane or Footpath Closures (if yes, provide further details)	N
Traffic Guidance Scheme	Refer below.
Worker Numbers	50 (average) – 80 (maximum)

2.1.5 Stage 5

TABLE 16: STAGE 5 SUMMARY

Criteria	Response
Description of Key Activities	Internal & External finishes, services works
Max. Vehicle Size	Semi-trailers
Vehicle Movement Frequency	Maximum 160 light vehicle movements / day + Maximum of 34 heavy vehicle movements / day
Truck Access Requirements	All vehicles via Fairley Street
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	N – none to be planned outside of DA Hours.
Contractor Parking	Y – Parking will occur on-site using existing or constructed car park location, where possible.
Pedestrian Control	Temporary fencing will be located around the perimeter of the site. Site signage will be placed on access gates stating no pedestrian access.
Public Transport Services Affected	Nil
Road Occupancy Requirements (if yes, provide further details)	N

Lane or Footpath Closures (if yes, provide further details)	N
Traffic Guidance Scheme	Refer below.
Worker Numbers	60 (average) – 80 (maximum)

2.1.6 Stage 6

TABLE 17: STAGE 6 SUMMARY

Criteria	Response
Description of Key Activities	External Works
Max. Vehicle Size	Semi-trailers
Vehicle Movement Frequency	Maximum 160 light vehicle movements / day + Maximum of 34 heavy vehicle movements / day
Truck Access Requirements	All vehicles via Fairley Street
Vehicle access / egress in a forward direction (Y / N)	Y
Out of Hours Deliveries (Y/N)	N – none to be planned outside of DA Hours.
Contractor Parking	Y – Parking will occur on-site using existing or constructed car park location, where possible.
Pedestrian Control	Temporary fencing will be located around the perimeter of the site. Site signage will be placed on access gates stating no pedestrian access.
Public Transport Services Affected	Nil
Road Occupancy Requirements (if yes, provide further details)	N
Lane or Footpath Closures (if yes, provide further details)	N
Traffic Guidance Scheme	Refer below.
Worker Numbers	60 (average) – 80 (maximum)

2.2 Construction Hours

Construction hours have been outlined below per SSD Condition C4.

TABLE 18: HOURS OF WORK

Activity	Day	Time
Construction works	Monday – Friday	7 am to 6 pm
	Saturday	8 am to 1 pm
	Sunday & Public Holidays	No Work to carried out

Note that per Condition C5 works can take place on Mondays to Fridays between 6pm and 7pm, Saturdays between 1pm and 4pm providing noise levels do not exceed existing background noise levels plus 5dB.

It is anticipated that construction works and deliveries will not be conducted or undertaken outside of the hours outlined above. Should out of work hours be required, Hansen Yuncken will lodge an application for an Out of Work Hours Permit with Council to seek approval for these works.

2.3 Truck Routes

It is proposed that all construction vehicles would enter and exit the Site via the routes shown in Figure 3. Note that the larger heavy vehicles are proposed to originate from the north of the site whereas the smaller heavy vehicles are from the south.

The routes shown are to be utilised by all construction vehicles travelling to and from the site and represents the shortest route available - hence minimising the impacts of the construction process. A copy of the approved routes will be distributed by the Contractor to all drivers before their arrival to Site.

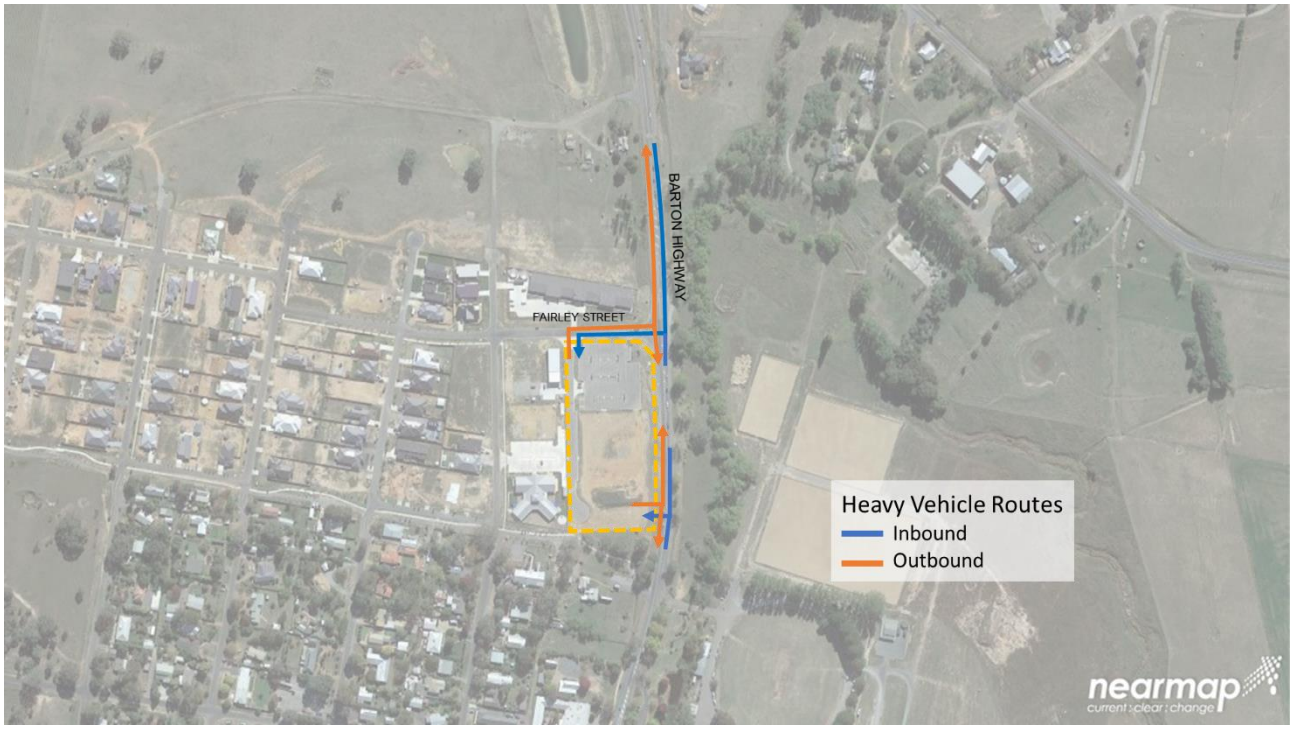

Figure 3: Construction Vehicle Route Map

2.4 Temporary Traffic Management Method

Traffic management shall be undertaken in accordance with the methodology outlined within the TGS's (Appendix D). Traffic and non-vehicle related road users are expected to be directed around the worksite in order to physically separate the road user from any hazards within the worksite.

2.5 Risk Assessment

A risk assessment is aimed to identify the hazards and risks associated with the works. The purpose of this risk assessment is to determine the controls required for the protection of the road workers and road users. A Risk assessment has been completed and is attached in **Appendix B**.

2.6 Site Access

All access to the Site by construction personnel will be via Fairley Street or Barton Highway. Note that the Barton Highway access would be reserved for larger vehicles in stages 5 and 6 as Block A, B and D would obstruct truck access from Fairley Street.

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.

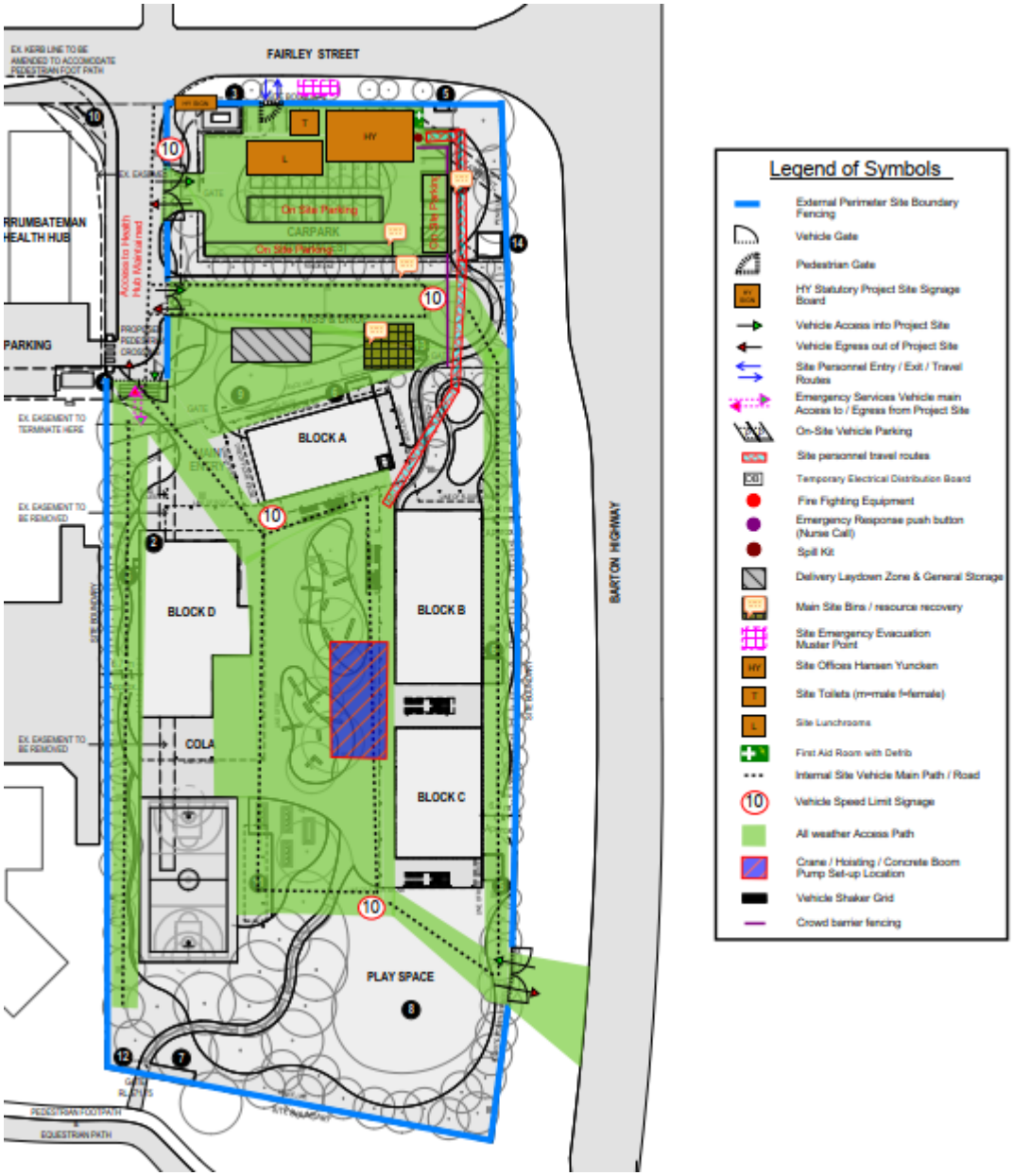

Figure 4: All Stages Access
(Source: Hansen Yuncken (dated 17th November 2021))

2.7 Modular Building Systems (MBS) Module Delivery

This project uses Design for Manufacture and Assembly (DfMA) method of construction where the building components are manufactured off site and transported on site for construction assembly.

The modular building components will be delivered to Site from Sydney overnight by MBS and will arrive on site before sunrise from the Fairley Street access.

2.8 Works Zone

A Work Zone is not required at any stage of development.

3 Traffic Management

3.1 Vehicle Management

In accordance with TfNSW requirements, all vehicles transporting loose materials will have the entire load covered and/or secured to prevent any large items, excess dust or dirt particles depositing onto the roadway during travel to and from the site. All drivers are to be familiar with the Driver Code of Conduct before attending the Site. A copy of the Code is included in **Appendix C.**

All subcontractors must be inducted by the lead contractor to ensure that the procedures are met for all vehicles entering and exiting the construction site. The lead contractors will monitor the roads leading to and from the site and take all necessary steps to rectify any road deposits caused by site vehicles.

Vehicle movements to, from and within the site shall do so in a manner, which does not create unreasonable or unnecessary noise or vibration. No tracked vehicles will be permitted or required on any paved roads. Public roads and access points will not be obstructed by any materials, vehicles, refuse skips or the like, under any circumstances.

At no stage shall queueing occur on the public road network. A schedule for deliveries of materials and goods will be established prior to a typical work day. The project team will be liaising with the suppliers as well as the truck drivers to ensure deliveries arrive and leave the site with adequate buffer time to prevent queuing.

3.2 Contractor Parking

It has been communicated with Ason Group that a maximum of 25 contractor parking spaces can be accommodated on-site.

Please refer to the Construction Worker Transportation Strategy for details regarding the accommodation of contract parking.

3.3 Pedestrian and Cyclist Management

The pedestrian and cycle connections on Fairley Street would be managed by Traffic Controllers when necessary during construction activities.

When required Pedestrians and cyclists using the footpath fronting the Site will be halted by an accredited Traffic Controller while construction vehicles are entering or 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. One traffic controller will be allocated to each pedestrian barrier, which will remain closed when not in use and shall only be opened when required.

The Contractor shall make clear to Traffic Controllers that pedestrians have right of way and, as far as reasonable (mostly associated with exit vehicle movements). During peak times, only one truck is to ingress/egress the Site per footpath closure (holding of pedestrians and/or cyclists), and all queued pedestrian and/or cyclists must be cleared before another vehicle may have access to/from the Site.

3.4 Fencing Requirements

Wire mesh fencing will be utilised along the entire boundary of the site and will be maintained for the duration of the construction program. The fencing is to ensure unauthorised persons are kept out of the Site. Site access gates would be provided along the internal access roadway and one on the Barton Highway and will be closed at all times outside of the permitted construction hours.

3.5 Traffic Control

Site-specific TGS's (see Appendix D) shall be developed and submitted to Council for approval, as required, to reflect specific work activities and/or changes to road conditions.

Note that MBS delivery of modular building components will involve the use of an oversized vehicle outside of construction work hours and will be subject to a separate TGS and authorisation.

3.6 Authorised Traffic Controller

Authorised traffic controllers will be present as required throughout the project.

Whilst on Site, the responsibilities of the Traffic Controller include:

- Implementation of the Traffic Guidance Scheme.
- Pedestrian and cyclist management, to ensure that adverse conflicts between vehicle movements and pedestrians do not occur.
- Supervision of all vehicle movements across pedestrian footpaths at all times, and

Refer to **Appendix D** for the Traffic Guidance Scheme for details of the proposed work zone, location of traffic controllers and associated traffic management measures.

3.7 Driver Code of Conduct

All drivers shall adhere to the Driver Code of Conduct, outlined in **Appendix C.**

3.8 Worker Induction

All workers and subcontractors engaged on-site would be required to complete a site induction. The induction should include permitted access routes to and from the construction site for all vehicles, as well as standard environmental, work, health and safety (WHS), driver protocols and emergency procedures.

Any workers required to undertake works or traffic control within the public domain would be suitably trained and covered by adequate and appropriate insurances.

4 Monitoring and Review

4.1 Monitoring Program

This CTMP shall be subject to ongoing review and will be updated accordingly. Regular reviews will be undertaken by the on-site coordinator. Review of the CTMP shall occur monthly. All and any reviews undertaken should be documented, however key considerations regarding the review of the CTMP shall be:

- Tracking deliveries against the volumes outlined within report. Deliveries will be tracked against approved volumes and subcontractor nominated deliveries - for the purpose of assessing the effectiveness of these monitoring programs.
- To identify any shortfalls and develop an updated action plan to address issues that may arise during construction (Parking and access issues)
- To ensure TGS's are updated (if necessary) by "Prepare a Work Zone Traffic Management Plan" card holders to ensure they remain consistent with the set-up on-site.
- Regular checks to ensure all loads are entering and leaving site covered as outlined within this CTMP.
- A dilapidation report will be undertaken prior to the start of construction to assess the condition of the road and another towards the end of construction to note whether there has been any reduction in quality of the road as result of construction vehicles.

The development of a program to monitor the effectiveness of this CTMP shall be established by the Contractor. This process is expected to form part of the monitoring plan required to be included as part of the overarching Construction Environmental Management Plan (CEMP), of which this CTMP forms a part.

The roadway (including footpath) must be kept in a serviceable condition for the duration of construction. At the direction of Council, undertake remedial treatments such as patching at no cost to Council.

4.2 Work Site Inspections, Recording and Reporting

Recording and reporting of the monitoring programs shall be done in accordance with Section E.3, E.4 and E.5 of the TCAWs Manual. As such, the structure, schedule and frequency of these activities have been considered and identified.

To inspect, review and audit the temporary traffic management (TTM) arrangements implemented on site, the following actions are to be undertaken by suitably qualified personnel in accordance with TCAWS 6.0 requirements during all phases of construction, being:

TABLE 19: EXAMPLE REVIEW OF ACTIVITIES

Activity	`		Frequency or Details
Shift Inspections	☐ Yes	☐ No	
Weekly Inspections	☐ Yes	☐ No	
TMP Review	☐ Yes	☐ No	
Road Safety Audit	☐ Yes	☐ No	
Other	☐ Yes	☐ No	
Comments			

Given that the length of construction and that no regular works have been proposed outside of the site, monthly TTM inspections is considered to be sufficient.

4.3 Contingency Plan

A contingency plan shall be established by the Contractor and is to be included in the overarching CEMP. Notwithstanding, **Table 20** outlines an indicative plan to be undertaken by the builder in the event that the monitoring program identifies the management plan is not effective in managing the construction impacts.

TABLE 20: CONTINGENCY PLAN

Risk		Condition Green	Condition Amber	Condition Red
Construction Movements	Trigger	Construction traffic volume is in accordance with permissible and programmed volume and time constraints	Construction traffic volumes exceeds programmed volume but is within permissible volume constraints	Construction traffic volumes exceeds permissible volume and time constraints
	Response	No response required	Review and investigate construction activities, and where appropriate, implement additional remediation measures such as: • Review CTMP and update where necessary • Provide additional training.	As with Condition Amber, plus; • If it is concluded that construction activities were directly responsible for the exceedance, submit an incident report to government agencies. • Stop all transportation into and out of the site.
	Trigger	No construction vehicle movement during peak periods	Construction vehicle movement close to peak periods	Construction vehicle movement during peak periods
	Response	No response required Continue monitoring program	Review and investigate construction activities, and where appropriate, implement additional remediation measures such as: • Provide additional training (including toolbox talks and further notification of Driver Code of Conduct)	As with Condition Amber, plus; • If it is concluded that construction activities were directly responsible for the exceedance, submit an incident report to government agencies. • Stop all transportation into and out of the site. • Review CTMP and update where necessary.
Queuing	Trigger	No queuing identified	Queuing identified within site	Queuing identified on the public road

	Response	No response required Continue monitoring program	Review the delivery schedule prepared by the builder. If drivers are not following the correct schedule, then they should be provided with additional training and an extra copy of the Driver Code of Conduct	As with Condition Amber, plus • Review and investigate construction activities. • If it is concluded that construction activities were directly responsible for the exceedance, submit an incident report to government agencies. • Temporary halting of activities and resuming when conditions have improved. • Stop all transportation into and out of the site. • Review CTMP and update where necessary, provide additional training.
Noise	Trigger	Noise levels do not exceed imposed noise constraints	Noise levels in minor excess of imposed noise constraints	Noise levels greatly in excess of imposed noise constraints
	Response	No response required	Undertake all feasible and reasonable mitigation and management measures to minimise noise impacts.	As with Condition Amber If noise levels cannot be kept below applicable limits, then a different construction method or equipment must be utilised.
Traffic Guidance Scheme	Trigger	No observable issues	Minor inconsistencies with TGS to onsite operations	Near miss or incident occurring regardless of / as a result of the TGS being implemented
	Response	No response required	Traffic Controller to amend TGS on site and to keep a log of all changes	Stop work until an investigation has been undertake into the incident. There are to be changes made to the TGS to ensure that the safety of all workers, students and civilians are catered for.
Dust	Trigger	No observable dust	Minor quantities of dust in the air and tracking on to the road	Large quantities of dust in the air and tracking on to the road
	Response	No response required	Review and investigate construction activities and respective control measures, where	As with Condition Amber. • If it is concluded that construction

			appropriate. Implement additional remedial measures, such as: • Deployment of additional water sprays • Relocation or modification of dust-generating sources • Check condition of vibrating grids to ensure they are functioning correctly. • Temporary halting of activities and resuming when conditions have improved	activities were directly responsible for the exceedance, submit an incident report to government agencies. • Implement relevant responses and undertake immediate review to avoid such occurrence in future.

Appendix A. Swept Path Analysis

GENERAL NOTES

This drawing is provided for information purposes only and should not be used for construction.
Base Plan prepared by Northrop, received 15.10.2021.
Fairley Street and Barton Highway has a posted speed limit of 50km/hr.
Swept path assessments completed at 10 km/h and 300mm clearance.

DESIGNED	Wendy Zheng
PAPER SIZE	A3
APPROVED BY	X.XXXX
DATE	24.11.2021
SCALE	1:1000
	0 2.5 5

CLIENT
HANSEN YUNCKEN

PROJECT
1669
MURRUMBATEMAN PUBLIC SCHOOL

DOCUMENT INFORMATION
SWEPT PATH ASSESSMENT
CONSTRUCTION ACCESS

FILE NAME	SHEET
AG1669-13-v1.dwg	AG01

asongroup
Suite 17.02, Level 17, 1 Castlereagh St
Sydney NSW 2000
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Appendix B. Risk Assessment

Murrumbateman New Primary School – 2 Fairley Street Murrumbateman

Risk Assessment and Communication Tool

Project Number	1669
Project Name	Murrumbateman New Primary School
Site Location	2 Fairley Street, Murrumbateman
Date of Assessment	26th November 2021
Revision	Issue I

Name	Company	Title

Document Control			
Date Issued	Revision	Issued By	Checked By
13/09/2021	Draft	W. Zheng	

Risk Matrix		**Consequence**				
		Minor	Major	Severe	Critical	Catastrophic
		A	B	C	D	E
Very Unlikely	1	Low	Low	Medium	Medium	Medium
Unlikely	2	Low	Low	Medium	Medium	High
Possible	3	Low	Medium	High	High	High
Likely	4	Medium	Medium	High	High	Extreme
Almost Certain	5	Medium	High	High	Extreme	Extreme

Description	
A - Minor	Could result in injury or illness not resulting in a lost work day or minimal environmental damage not required to be notified under jurisdiction requirements.
B - Major	Could result in injury or illness resulting in one or more lost work day(s) or environmental damage can be mitigated and is not required to be notified under jurisdiction
C - Severe	requirements where restoration activities can be accomplished.
D - Critical	Could result in permanent partial disability, injuries or illness that may result in
E - Catastrophic	hospitalisation of persons or environmental damage can be mitigated and is required to be notified under jurisdiction requirements.

Likelihood Descriptor	Design Likelihood
1 - Very unlikely	Industry experience suggests design failure is very unlikely. It can be assumed failure
2 - Unlikely	Industry experience suggests design failure is unlikely to occur in the life of design.
3 - Possible	Industry experience suggests design failure is possible some time during the life of the
4 - Likely	Industry experience suggests design failure is likely to occur during the life of the product.
5 - Almost certain	Industry experience suggests design failure is almost certain to occur during the life of the

Risk Assessment and Communication Tool

Example

ID. Ref	Risk and/ or Hazard	Risk Description	Location	Existing Control	Initial Risk Rating			Design Response to risk and /or hazard	Status of Risk	Assignment of risk or hazard	Residual risk rating		
					C	L	RR				C	L	RR
1	Unauthorized Access to the Site	Site prevents unauthorised access	Entire Site	Nil	C	3	High	Boundary fence will be provided as part of the main works. The design provides a defined separation between public areas and work area. Admin area is located in front of the site to minimise unauthorised visitor access	Design Solution	Main Contractor	B	2	Low
2	Interaction between pedestrians and vehicles	Vehicles and pedestrians to be separates as best possible	Entire Site & Access Roads	Nil	D	3	High	Dedicated footpath, pedestrian crossings and additional signage shall be provided to separate vehicles and pedestrians as best possible.	Design Solution	Main Contractor	B	2	Low
3	Potential vehicle conflict points	Vehicles can crash with each other while manoeuvring through the site	Entire Site & Access Roads	Nil	B	3	Medium	One-way manoeuvring around the site limits any interaction for oncoming vehicles to the access only, coupled with low speeds throughout the site.	Design Solution	Main Contractor	B	1	Low

4	Fatigue	Injury caused by fatigue	Entire Site	Nil	C	3	High	Toolbox meetings and regular breaks (in line with WHS practices) to minimise fatigue	Design Solution	Main Contractor	B	1	Low
5	Fall risks	Injury due to falls (in general)	Entire Site	Nil	E	3	High	Ensuring level changes across the site to be minimised as best possible, with additional black & yellow hazard tape/marking being installed where appropriate. Installation of handrails where level changes / ramps grades are significant.	Design Solution	Main Contractor	C	2	Medium
6	Misdirected access in to neighbouring site	Vehicle in unsafe locations	Entire Site	Nil	C	3	High	Ensuring appropriate directional signage has been provided to ensure vehicles do not access the wrong construction site, which could create potential safety breaches and hazards for all partied	Design Solution	Main Contractor	B	2	Low
7	Conflicting Traffic Management	Coordinating Traffic Controllers could create misleading and wrong advice	Entire Site	Nil	C	3	High	Toolbox meetings, regular liaison with all construction teams and review of signage plans on site in order to minimise contradicting signage.	Design Solution	Main Contractor	C	2	Medium

Appendix C. Driver Code of Conduct

Drivers Code of Conduct

Safe Driving Policy for Murrumbateman New Primary School Construction.

Objectives of the Drivers Code of conduct

- To minimise the impact of earthworks on the local and regional road network;
- To minimise conflict with other road users;
- To minimise road traffic noise; and
- To ensure truck drivers use specified heavy vehicles routes between the Site and the sub-regional road network.

Code of Conduct

The code of conduct requires that while driving any vehicle for work-related purposes. Drivers are to be issues with a copy of the Drivers Code of Conduct, and must comply with all of the following:

- Demonstrate safe driving and road safety activities.
- Abide by traffic, road and environmental legislations.
- Follow site signage and instructions.
- Drivers must only enter and exit the site via the approved entry and exit points and travel routes.
- Drivers must enter and exit the site in a forward direction only unless under traffic control in exceptional circumstances

The below activities in any vehicles will be considered as a breach of conduct and will result in removal from site:

- Reckless or dangerous driving causing injury or death.
- Driving whilst disqualified or not correctly licensed.
- Drinking or being under the influence of drugs while driving
- Failing to stop after an incident.
- Loss of demerit points leading to suspension of licence.
- Any actions that warrant the suspension of a licence
- Exceeding the speed limit in place on any permanent or temporary roads

Driver Responsibilities

All Drivers on site must:

- Be responsible and accountable for their actions when operating a company vehicle or driving for the purposes of work.
- Display the highest level of professional conduct when driving a vehicle at all times.
- Ensure they have a current driver licence for the class of vehicle they are driving, and this licence is to be carried at all times.
- Immediately notify their supervisor or manager if their drivers' licence has been suspended, cancelled, or has had limitations applied.

- Comply with all traffic and road legislation when driving, including the adhering to any project specific road rules.
- Assess hazards while driving.
- Undertake daily pre-start checks of oil, tyre pressures, radiator and battery levels of company vehicles they regularly used.
- Drive within the legal speed limits, including driving to the conditions.
- Not drive outside of the approved heavy vehicle routes. All drivers must obey weight, length and height restrictions imposed by the National Vehicle Regulator, and other Government agencies. Heavy Vehicles shall adhere to the selected routes.
- Be cognisant of the noise and emissions requirements imposed within the EIS, and in a broader sense, the NSW/ Australian Road Rules. Works must be constructed with the aim of achieving the construction noise management levels detailed in the Interim Construction Noise Guideline.
- Do not queue on public roads unless a prior approval has been sought.
- Be aware that at no time may a tracked plant be permitted or required on a paved road.
- Never drive under the influence of alcohol or drugs, including prescription and over the counter medication if they cause drowsiness – to do so will merit disciplinary measures.
- All drivers to report to their supervisor if they have been prescribed medication prior to the start of work.
- Wear a safety seat belt at all times when in the vehicle.
- Avoid distraction when driving – the driver will adjust car stereos/mirrors etc. before setting off or pull over safely to do so.
- Report ALL near-misses, crashes and scrapes to their manager,
- Report infringements to a manager at the earliest opportunity.
- Report vehicle defects to a manager prior to the next use of the vehicle.
- Follow the approved site access/egress routes only.
- Follow speed limits as imposed within the estate.
- Keep loads covered at all times.

The Site Team Responsibilities

The Contractor is responsible to take all steps necessary to ensure company vehicles are as safe as possible and will not require staff to drive under conditions that are unsafe.

This will be achieved by undertaking the following:

- Ensuring all vehicles are well maintained and that the equipment enhances driver, operator and passenger safety by way of:
  - Pre-commencement checks for all new plant arriving on-site and prior to undertaking any work.
  - Daily prestart inspections for all plant, vehicles and equipment currently on-site.
  - All construction plant must be fitted with a flashing light, fire extinguisher and reverse alarms (or squawkers).
  - Ensure all operators onsite have a current verification of competency (VOC) for their current driver's licence of the appropriate class.
  - Ensure maintenance requirements are met and recorded.
- Identify driver training needs and arranging appropriate training or re-training. This may include providing the below:
  - Operator VOC assessment as part of all inductions.
  - Regular Toolbox discussions on safety features, managing fatigue, approved heavy routes, driver responsibility and drink-driving.
- Encouraging Safe Driving behaviour by:

  - Ensuring the subcontractor is informed if their staff become unlicensed.
  - Not covering or reimbursing staff speeding or other infringement notices
  - Ensuring Legal use of mobile phones in vehicles while driving only and that illegal use is not undertaken.
- Encouraging better fuel efficiency by:
  - Use of other transport modes or remote conferencing, whenever practical.
  - Providing training on, and circulating information about, travel planning and efficient driving habits.

Crash or incident Procedure

- Stop your vehicle as close to it as possible to the scene, making sure you are not hindering traffic. Ensure your own safety first, then help any injured people and seek assistance immediately if required.
- Ensure the following information is noted:
  - Details of the other vehicles and registration numbers
  - Names and addresses of the other vehicle drivers.
  - Names and addresses of witnesses.
  - Insurers details
- Give the following information to the involved parties:
  - Name, address and company details
- If the damaged vehicle is not occupied, provide a note with your contact details for the owner to contact the company.
- Ensure that the police are contacted should the following circumstances occur:
  - If there is a disagreement over the cause of the crash.
  - If there are injuries.
  - If you damage property other than your own.
- As soon as reasonably practical, report all details gathered to your manager.

Environmental Procedures.

A range of measures shall be implemented to ensure the following;

- No dirt or debris from the construction vehicles is tracked on to the public road network.
- Reduce the impacts to sensitive receivers, including, where practicable, starting noisy equipment away from sensitive receivers and implementing respite periods.
- Watering of dusty activities will be undertaken, or activities temporarily halted and then resumed once weather conditions have improved.
- Containment measures for spillages will be provided at appropriate locations and in close proximity to staff car park areas, dangerous goods stores areas and main Project work areas.
- All vibratory compactors must not be used closer than 30 metres from residential buildings unless vibration monitoring confirms compliance with the vibration criteria, and
- Keep an accurate record which includes the range of measures undertaken to reduce environmental impacts.

Appendix D. Traffic Guidance Schemes

ROSE STREET

FAIRLEY STREET

BARTON HIGHWAY

VEHICULAR AND PEDESTRIAN ACCESS TO MURRUMBATEMAN HEALTH HUB MUST BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.

ACCESS DRIVEWAY

WHEN REQUIRED TRAFFIC CONTROLLER TO MANAGE ENTERING AND EXITING CONSTRUCTION AND GENERAL TRAFFIC ALONG THE ACCESS DRIVEWAY

R4-12 50 END

40 ROAD WORK R4-212

10 R4-1

W5-22

50 m ON LEFT W8-207N

TGS GENERAL NOTES

- ALL PUBLIC ROADS WILL HAVE A SPEED LIMIT OF 50KM/H UNLESS IDENTIFIED OTHERWISE
- NOT ALL DIMENSIONS SHOWN ARE TO SCALE
- LOCATION OF SIGNS ARE TO BE CONFIRMED ON-SITE TO ENSURE APPROPRIATE VISIBILITY
- ALL SIGNS ARE TO BE MINIMUM SIZE A
- ALL SIGNS ARE TO BE CLASS 1 RETROREFLECTIVE
- ALL TRAFFIC CONTROL PLANS ARE TO BE IMPLEMENTED IN ACCORDANCE WITH TFNSW'S TRAFFIC CONTROL AT WORK SITES TECHNICAL MANUAL ISSUE 6 (RELEASED 2020) AND AUSTRALIAN STANDARDS AS1742.3:2019 MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, PART 3: TRAFFIC CONTROL DEVICES FOR WORKS ON ROADS
- THIS TRAFFIC CONTROL PLAN MUST BE SET UP BY A PERSON HOLDING AN "IMPLEMENT TRAFFIC MANAGEMENT PLAN" TICKET AND TFNSW'S TRAFFIC CONTROL AT WORK SITES CHECKLIST SHALL BE COMPLETED PRIOR TO IMPLEMENTATION

- THE ACCREDITED PERSONNEL SHALL IMPLEMENT THE APPROVED TCP BEFORE ANY PHYSICAL WORK COMMENCES AND ENSURE A COPY OF THE TCP IS KEPT ON-SITE. THE ACCREDITED PERSONNEL SHALL ALSO DRIVE THROUGH THE SITE BEFORE WORKS BEGIN TO ENSURE THAT THE TCP HAS BEEN IMPLEMENTED CORRECTLY AND THAT THE IT WILL WARN, INSTRUCT AND GUIDE ROAD USERS AS DESIGNED. ANY VARIATIONS TO THE PLAN MUST BE MARKED ON THE PLAN AND INITIALED BY THE ACCREDITED PERSONNEL
- IT IS THE RESPONSIBILITY OF THE AN ACCREDITED PERSONNEL WITH A 'PREPARE A WORK ZONE TRAFFIC MANAGEMENT PLAN TO ENSURE THE FOLLOWING:
  * THE INTEGRITY OF ALL TRAFFIC CONTROL MEASURE THROUGH TO THE FINAL REMOVAL. THIS INCLUDES DAILY CHECKS OF ALL SIGNS AND DEVICES. THE CORRESPONDING RECORDS OF CHECKS SHALL BE KEPT ON FILE FOR AUDITING PURPOSES.
  * VEHICULAR ACCESS AND SERVICING REQUIREMENTS ARE TO BE MAINTAINED AT ALL TIMES TO ADJACENT PROPERTIES AFFECTED BY TRAFFIC CONTROL MEASURES
  * AT ALL TIMES AN UP-TO-DATE COPY OF "TRAFFIC CONTROL AT WORK SITES" SHALL BE AVAILABLE FOR REFERENCE AND IMPLEMENTATION AS REQUIRED ON-SITE

- ALL WORKERS WILL BE CONFINED TO THE DEDICATED WORKS AREA SHOWN ON THE PLAN
- IF THE WORKSITE IS LEFT UNATTENDED IT IS THE CONTRACTOR'S DUTY TO ENSURE THAT THE APPROPRIATE MEASURES ARE TAKEN TO PROVIDE A SAFE ENVIRONMENT FOR VEHICLES AND PEDESTRIANS TO RELEVANT AUSTRALIAN STANDARDS
- TRAFFIC CONTROLLER (T1-34) AND PREPARE TO STOP (T1-18) SIGNS ARE TO BE COVERED OR REMOVED WHEN TRAFFIC CONTROLLER/S ARE NOT ON SITE.
- ALL SIGNAGE IS TO BE CLEAN, CLEARLY VISIBLE AND NOT OBSCURED
- ALL WORKERS MUST ADHERE TO THE APPLICABLE SAFE WORK DISTANCE AS DESCRIBED IN AS1742.3:2019
- ALL DISTANCES BETWEEN SIGNS ARE TO BE IN ACCORDANCE WITH SECTION 2.5.2 OF AS1742.3:2019. HOWEVER, MODIFICATIONS CAN BE MADE TO SUIT SITE CONDITIONS
- IF REQUIRED, A TGS MUST BE SELECTED, DEVELOPED AND IMPLEMENTED BY A SUITABILITY QUALIFIED PERSON (PWZTMP AND ITCP QUALIFICATIONS)

LEGEND

- WORK AREA
- SIGN AND POST
- CONSTRUCTION FENCING
- SITE PARKING
- SITE OFFICE AND AMENITIES
- STORAGE / LAYDOWN AREA
- CRANE AND CONCRETE BOOM LOCATION
- SITE VEHICLE GATE
- SITE PEDESTRIAN GATE
- VEHICLE ACCESS ROUTE
- VEHICLE ACCESS ROUTE RESTRICTED TO CARS ONLY
- PROPOSED PEDESTRIAN ROUTE (PARKVIEW)

N

0 2.5 5

AMENDMENTS

REV	DATE	DESCRIPTION	DRW	CHK	APP
01	24.11.21	TGS	WZ	XX	XX

GENERAL NOTES

This drawing is provided for information purposes only and should not be used for construction.
Base Plan prepared by Northrop, received 15.10.21.
Fairley Street has a posted speed limit of 50km/hr.
Swept path assessments completed at 10 km/h and 300mm clearance.
Designer: Wen Yan Zheng PWX Ticket No. TCT1015144

DESIGNED: Wendy Zheng	PAPER SIZE: A1
CHECKED BY: X.XXXX	DATE: 24.11.2021
APPROVED BY: X.XXXX	SCALE: 1:400

CLIENT: HANSEN YUNCKEN

PROJECT: 1669

MURRUMBATEMAN PUBLIC SCHOOL

DOCUMENT INFORMATION

TRAFFIC GUIDANCE SCHEME

CONSTRUCTION - ALL STAGES

DRAWING STATUS	FILE NAME	SHEET
DRAFT	AG1669-12-v1.dwg	AG01

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Appendix E. Construction Worker Transportation Strategy

New Primary School in Murrumbateman (Monaro Cluster 2) (SSDA - 11233241)

Construction Worker Transport Strategy

Murrumbateman
13/12/2021
Ref: P1669

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Sydney, NSW 2000

Document Control

Project No	P1669
Project	New Primary School in Murrumbateman (Monaro Cluster 2)
Client	Hansen Yuncken
File Reference	P1669r04v02 Construction Worker Transport Strategy_Murrumbateman Public School.docx

Revision History

Revision No.	Date	Details	Author	Approved by
	25/11/2021	Draft	W. Zheng	D. Choi
I	3/12/2021	01	W. Zheng	D. Choi
II	9/12/2021	Version 02	W. Zheng	D. Choi

contents

contents continued

Figures

Tables

1 Introduction

1.1 Overview

Ason Group has been commissioned by Hansen Yuncken Pty Limited to prepare a Construction Worker Parking Strategy (CWPS) to support the development of Murrumbateman Public School at 2 Fairley Street, Murrumbateman (the Site).

This CWPS details the measures and strategies to be undertaken during construction to minimise the effects of construction worker parking demand on the community.

This report is to be read in conjunction with the Construction Traffic Management Plan.

1.2 Purpose

The purpose of this document is to address the relevant conditions of State Significant Development SSD-11233241. The relevant Condition of Consent (B19) is reproduced below:

Prior to the commencement of construction, the Applicant must submit a Construction Worker Transportation Strategy to the Certifier. The Strategy must detail the provision of sufficient parking facilities or other travel arrangements for construction workers (including specific arrangements for Saturdays when nearby public parking would unavailable) in order to minimise demand for parking in nearby public and residential streets or public parking facilities. The strategy must be prepared in consultation with Council and TfNSW. A copy of the strategy must be provided to the Planning Secretary for information.

1.3 Scope and Application of Strategy

It is the intent of this Strategy to outline the management of construction worker transportation to and from the Site. In particular, the Strategy has been prepared to manage construction worker car parking to minimise demand of parking in nearby public and residential streets during the construction of the school.

Recognising the need for these procedures to adapt to changing circumstances in order to achieve the desired management of construction worker travel, the Strategy may be varied from time to time to account for the changing circumstances. Those circumstances include changes to site, altered traffic conditions and / or off-site operational imperatives during construction.

Any changes to the Strategy shall be communicated to all construction workers, impacted community members and stakeholders.

HY will be responsible for the review and update of this Strategy when required which will be reviewed per stage of the project.

2 Site Details

2.1 Site & Location

The Site is located at 2 Fairley Street, Murrumbateman, in the local government area of Yass Valley Council. The Site is formally described as Lot 302 DP1228766. The Site is irregular in shape and has an area of 15,434.92m².

The Site shown relative to the surrounding development context is provided in **Figure 1.**

Figure 1: Site Location

The Site is located at the northern end of the Murrumbateman Village, which is characterised by a mix of uses including low density residential and some commercial.

The Site contains an existing parking lot at its northern end and a driveway along its western boundary. There is also a mound of soil at the southern end of the site. The Site is otherwise cleared and vacant.

2.2 Surrounding Road Network

The key roads in proximity of the Site are summarised in Table 1: Local Road Network with reference to the Site plan and road hierarchy in **Figure 2.**

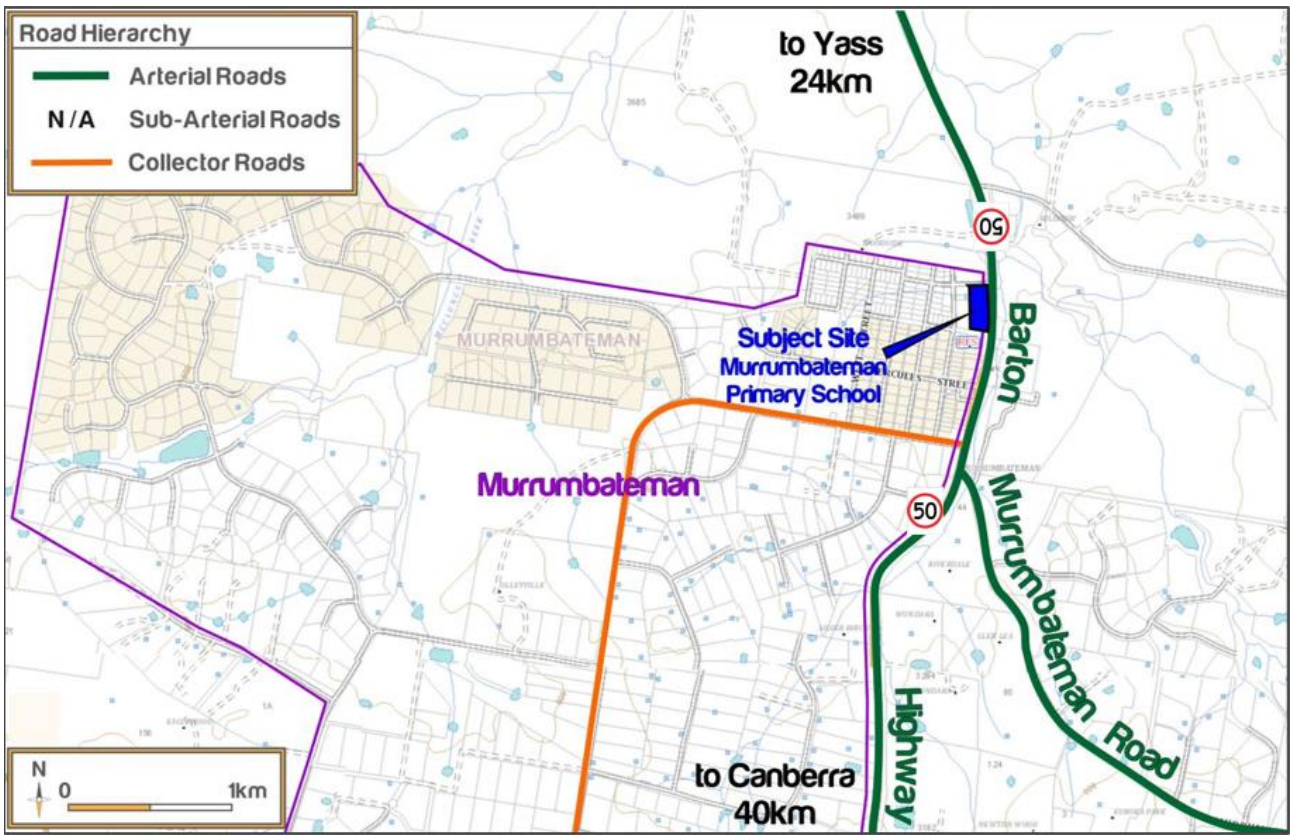

Figure 2: Road Hierarchy

TABLE 1: LOCAL ROAD NETWORK

Road	Class	Speed Limit	Parking
Barton Highway	State Highway	100 km/h 50 km/h within Murrumbateman township	no
Fairley Street	Local Road	50 km/h	Indented parking
Rose Street	Local Road	50 km/h	Indented parking
Hercules Street	Local Road	50 km/h	Unrestricted parking

2.3 Existing Public Transport

2.3.1 Rail Services

Railway services that are suitable for the purposes of commuting to and from the Site are not available.

2.3.2 Bus Services

Bus Routes 842 and 843 operate in the area, connecting Yass to Canberra, with a stop at Murrumbateman Village accessed from Barton Highway. As described in Table 2 Bus services below, Bus Route 842 operates 6 times per day whilst Bus Route 843 only operates twice a day.

The stops are located approximately 400 m to the south-east of the Site, as shown in **Figure 3** below

TABLE 2 BUS SERVICES

Route	Description	Stops	Service Frequency
842	Yass to Canberra City Centre via Woden Interchange & Canberra Hospital	Yass, Yass Depot, Yass Interchange, Yass Valley Way, Murrumbateman Village, Murrumbateman Winery, City Interchange, Russell, Barton, Woden Interchange, Canberra Hospital	6 services per day
843	Yass Rossi St to Canberra City Centre via Belconnen & Calvary Hospital	Yass, Yass Depot, Yass Interchange, Yass Valley Way, Murrumbateman Village, Murrumbateman Winery, Hall Village, Community Bus Station, Calvery Hospital, City Interchange	2 services per day

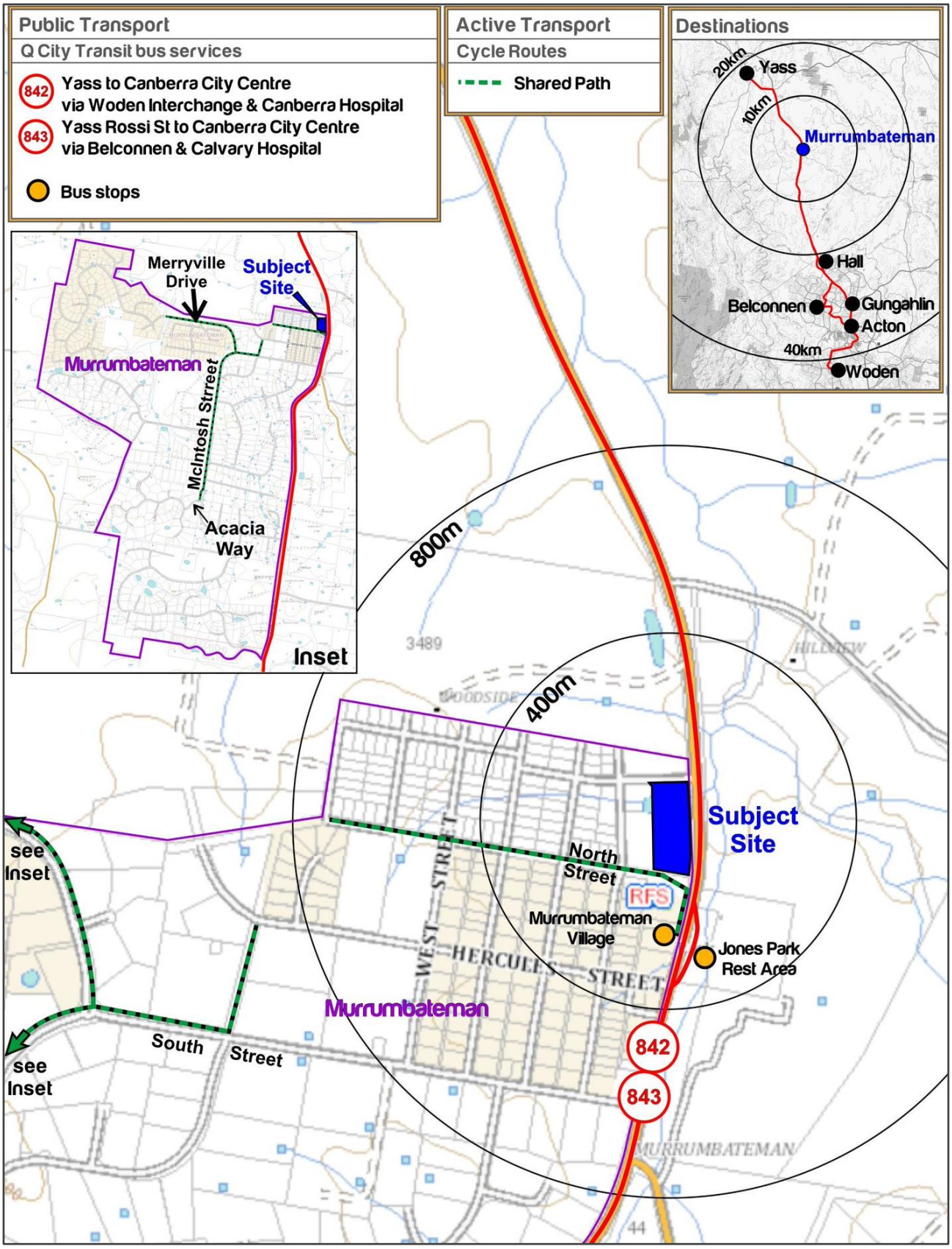

Figure 3: Public and Active Transport Network

3 Key Management Stakeholders

3.1 Hansen Yuncken

Hansen Yuncken being the manager of the site has a duty of care to ensure the safety of all staff working on the Site and the surrounding community. Traffic management arrangements should be implemented to enable the orderly use of trafficable space provided within the Site and the road network surrounding it. Whilst every effort will be made to eliminate traffic safety risks, in instances where risks cannot be fully eliminated, traffic management measures are proposed to mitigate those risks.

Hansen Yuncken shall:

- Ensure all staff are provided with sufficient training to abide by the parking strategy outlined in this plan. This includes responsibility for measures to ensure that all staff and visitors are familiar with site specific rules through appropriate site induction procedures, including being inducted into this Construction Worker Transport Strategy.
- Conduct all travel in a safe, professional and legal manner.
- Be familiar with and address their respective duty of care requirements in accordance with the applicable under the WH&S Act 2011 requirements.
- Ensure WH&S Incident logbooks are maintained and undertake necessary action(s) in relation to any reported issues.

3.2 Yass Valley Council (YVC)

Where and when applicable, Council shall be contacted when necessary. Council's responsibilities are largely focussed on issues affecting the local community and businesses, management of the local road network and coordinating special events which may affect the availability of publicly available parking such as:

- Community events at Murrumbateman Recreation Ground
- Coordination of off-site parking availability on Saturdays or event days

3.3 Transport for NSW (TfNSW)

Where and when applicable, TfNSW shall be contacted, specifically relating to any impacts to the Barton Highway.

3.4 Stakeholder Consultation

Construction traffic management aspects of the project was discussed with stakeholders in a series of meeting prior to the approval of the SSD:

TABLE 3: ENGAGEMENT 1

Scheduled Weekly Meeting 02	
Identified Party to Consult:	Yass Valley Council, TfNSW, SINSW, Ason, Hansen Yuncken, Pedavoli, Savills, Mecone

Scheduled Weekly Meeting 02	
Consultation type:	Microsoft Teams Meeting
When is consultation required?	Prior to submissions
Why?	An update on the project was provided, noting a D&C contractor would be on board late February 2021 to assist with the design development and SSDA documentation. The School was on target to open D1T12023. SEARS had been received, with agency comments, the project team are working through requirements.
When was consultation scheduled?	Meetings are scheduled to occur on a weekly basis from project inception.
When was consultation held?	17th March, 2021
Identify persons and positions who were involved	**YVC –** Liz Makin (Strategic Planning Manager) **TfNSW –** Maurice Morgan (Murrumbateman TfNSW Rep), Damien Pfeiffer (Director Land Use) **SINSW –** Lachlan MacDonald (Project Director), Alfred Jury (Project Director), Rebecca Lehman (Project Director) **Ason Group –** Dora Choi (Transport Consultant), Wendy Zheng (Transport Consultant) **Hansen Yuncken –** Paul Todhunter (Project Manager) **Pedavoli –** Sam Rigoli (Architect), Katie- Lee Carter (Architect) **Mecone –** Adam Coburn (Town Planning Consultant) **Savills –** Emma Viljoen (Project Manager)
Provide the details of the consultation	Preliminary discussion to raise working concerns, share project progress.
What specific matters were discussed?	DC (Ason) presented their investigative findings to date, having undertaken a site visit on Friday 12 March 2021. During the site visit Ason observed the operations of the childcare facility in close proximity. During this discussion Ason gave an overall appraisal of the site, its constraints and opportunities and a consideration of best locations for the transport infrastructure, including: • - Bus bays

Scheduled Weekly Meeting 02	
	• - Private car kiss and ride • - Pedestrian routes and access points • - Staff car parking Ason is undertaking traffic counts to obtain data to support current design considerations. TfNSW noted a number of items for consideration: a) The Barton Highway upgrade works has not been funded to reach Murrumbateman and as such the project should not plan for any changes to traffic conditions. b) School bus stop should be on the local road network, not the highway. c) Concerns at the noted short stay parking suggestions for Rose Street. d) support linkages to the southern pedestrian and cycling linkages to the site e) Catchment area is likely to come from the west, but also from the growing subdivisions in the North Eastern direction f) concern of how the management of children crossing the Barton Highway for use of the Oval, consider access times and movement of children. RL noted this would be addressed in the Transport Plan and the Operational Plan. g) Project team to review potential pedestrian access off Rose Street to the old School site Council noted a number of items for consideration: a) Consider utilisation of Mecca Childcare (on Rose Street adjacent to the Old School House) for OSHC as it becomes unoccupied at 3pm b) Expectation that drop off happens internally on site so as not to cause congestion on Rose Street and surrounds c) Changes to ACT policy will see students coming to Murrumbateman from closer to the border. d) Water pipeline project being commissioned later this year which will see an increase in residents. e) Consideration of how students get to school from the denser older village. SINSW noted that Ason will prepare the School Transport Plan, which includes the Green Travel Plan and will continue to work with SINSW on its implementation once the school is operational. The Transport Plan will set mode share targets. Council/ TfNSW to consider an appropriate school of a similar size for transport benchmarking purposes.
What matters were resolved?	n/a – preliminary discussion

TABLE 4: ENGAGEMENT 2

Scheduled Weekly Meeting 03	
Identified Party to Consult:	Yass Valley Council, TfNSW, SINSW, Ason, Hansen Yuncken, Pedavoli, Savills
Consultation type:	Microsoft Teams Meeting
When is consultation required?	Prior to submissions
Why?	Purpose of this meeting was to take the form of a working group and a follow on from meeting held 17th March 2021.
When was consultation scheduled?	Meetings are scheduled to occur on a weekly basis from project inception.
When was consultation held?	24rd March, 2021
Identify persons and positions who were involved	**YVC –** Liz Makin (Strategic Planning Manager), Meryl Hinge (Yass Council Engineer), Terry Cooper (Yass Council Rep) **TfNSW –** Maurice Morgan (Murrumbateman TfNSW Rep) **SINSW –** Lachlan MacDonald (Project Director), Alfred Jury (Project Director), Rebecca Lehman (Project Director) Sarah Kelly (Project Director) **Ason Group –** Dora Choi (Transport Consultant), Wendy Zheng (Transport Consultant) **Hansen Yuncken –** Paul Todhunter (Project Manager) **Pedavoli –** Sam Rigoli (Architect), Katie- Lee Carter (Architect) **Mecone –** Adam Coburn (Town Planning Consultant) **Savills –** Emma Viljoen (Project Manager)
Provide the details of the consultation	Weekly discussion to raise working concerns, share project progress.
What specific matters were discussed?	DC (Ason) presented an overview of transport and traffic strategy and drivers, key items below, presentation attached: • Catchment areas with walking and cycling opportunity

Scheduled Weekly Meeting 03	
	• Catchment likely to be 20km radius, acknowledgement of future • students to be attending from East of Barton Highway • Mode share assumptions • Case Study at Estella PS, Wagga Wagga • OSHC accounts for approx. 30% of students utilising alternative hours • Proposed location of school bus stop on Fairley Street • On site kiss & ride • Requested clarification on background growth percentage for future • base case and horizon year (10 year post Project Completion) • Seeking confirmation of traffic survey locations. Ason propose: – Barton Highway / Fairley St – Fairley St / Rose St – Rose St / Hercules St – Hercules St / Barton Hwy – AM (6am – 10am), PM (2pm – 5pm) TfNSW noted a number of items for consideration: • Catchment to the East of the highway will be expanding and the traffic assessment should consider the 10- and 20-year projections. • School bus stop proposed on Fairley Street should not be used as an interchange; consideration of all other bus stop locations to be covered off in assessment, i.e., on site, Rose Street, Barton Highway etc • Operation plan to include the frequency of Oval use, concern of how the management of children crossing the Barton Highway. • SINSW to provide presentation to TfNSW (issued with these minutes) Council noted a number of items for consideration: • Integration of the adjacent childcare was good, utilising existing ramp, consideration for Mecca Childcare access. It was noted the Southern pedestrian gate facilitated this. • Understanding required of school operational plan around the school bus stop, concern of children congregating. • Bus route to be determined, through consultation with TfNSW bus services. • Council to supply Ason with information of the developments planned for the North East of the site • Council to supply Ason with Cadastral data contact details. • Stage 2: Council requested clarity on next stage and whether this was being considered in this SSDA application. LMac noted that any future demand would be analysed by demographers and when a need arose a new business case would be written, and funding sought. All recognised the constraints of this site.
What matters were resolved?	n/a – preliminary discussion

TABLE 5: ENGAGEMENT 3

Scheduled Weekly Meeting 04	
Identified Party to Consult:	Yass Valley Council, TfNSW, SINSW, Ason, Hansen Yuncken, Pedavoli, Savills
Consultation type:	Microsoft Teams Meeting
When is consultation required?	Prior to submissions
Why?	Purpose of this meeting was to take the form of a working group and a follow on from meeting held 24th March 2021.
When was consultation scheduled?	Meetings are scheduled to occur on a weekly basis from project inception.
When was consultation held?	31th March, 2021
Identify persons and positions who were involved	**YVC –** Liz Makin (Strategic Planning Manager), Meryl Hinge (Yass Council Engineer), Terry Cooper (Yass Council Rep) **TfNSW –** Kristy Campbell (Manager – Road Use Safety), Jayd Marsh (Community and Partnering) **SINSW –**Alfred Jury (Project Director), **Ason Group –** Dora Choi (Transport Consultant), **Hansen Yuncken –** Paul Todhunter (Project Manager), Dean Katsikaros (Project Manager) **Pedavoli –** Sam Rigoli (Architect) **Savills –** Emma Viljoen (Project Manager)
Provide the details of the consultation	Weekly discussion to raise working concerns, share project progress. EV noted that project team (HY and Architects) have undertaken a site visit and noted number of opportunities and limitations.
What specific matters were discussed?	DC (Ason) presented back on a number of items requiring clarity after meeting 24th March 2021: • School capacity was for 370 students as outlined in the SEARS • Crossing of the Barton Highway was not required by the school for curriculum purposes, as confirmed with the DEL

Scheduled Weekly Meeting 04	
	• The operational requirements for occasional use of the Oval would be addressed in the School Travel Plan as part of the SSDA. New depersonalised data shows no students in walking or cycling catchment East of Barton Highway, these students would rely on buses. Requests for Information, as listed in the attached presentation for Council/ TfNSW feedback: Traffic Surveys: • Total movement count (pedestrian, cyclist, vehicles (classified). Typical weekday (during school term), between 6am –10am, and 2pm – 6pm Intersections of: • ➢ Barton Highway / Fairley Street • ➢ Fairley St / Rose St • ➢ Rose St / Hercules St • ➢ North St / Rose St Traffic Assessment: • Apply 2% background growth between 2021 data to Future Base Case (at Project Completion, Jan 2023) • 2% growth over 10 years for Horizon Year • Sensitivity test – apply 3% growth between 2021 to 2023, and 3% growth over 10 years for Horizon Year Parking Restrictions: Draft parking restrictions suggestion: • Fairley Street Bus Stop – confirmation required on whether bus bay to be applicable during school times only or full time bus stop? • Rose Street, between Fairley St to North St – East Side - 1-hour, between 8am – 6pm, School Days only? • Rose Street, between Fairley St to North St – West Side – No Stopping? • Rose Street, between North St to Hercules St – Given there are no kerbs – suggestion from Council sought LM noted comments on the adequacy of the intersection traffic counts relies on an understanding of the proposed bus routes. DC was to meet with bus services division of TfNSW next. DC presented the masterplan showing pedestrian routes and play areas. Council noted a number of items for consideration: a) Concern noted from an urban planning perspective of the waste collection on the prominent corner of the site. SR noted that this would be reviewed with Ason in terms of alternative placement but that the enclosure was set back from the boundary to allow for landscape and screening. b) Consultation with the Fairly Early Childhood Centre should be undertaken regarding potential access from their car park into the site. The project team agreed and would reach out but noted the site did not rely on this access. c) LM queried whether any further development to access from the South had been undertaken. SR noted the building arrangement allowed for good visual and physical connection and this was a key aspect of the design. EV noted discussions with Mecca childcare were underway. DC noted a further review would be undertaken.

Scheduled Weekly Meeting 04	
	d) MH queried access from the southern gate should on arrival it was found to be locked. DC noted a footpath was already established along Rose Street and a further footpath would be established from Fairley into the main gate. e) LM noted that the transport assessment would need to address potential parent drop off from the Crown land to the South. f) LM queried status of consideration of school use of the Crown land to the South, EV noted a building inspection report had been undertaken to assist in decision making. Report was under review. This would be discussed further with Council.
What matters were resolved?	n/a – preliminary discussion

Post SSD approval TfNSW and YYC was engaged with to consult regarding the construction traffic management recorded below:

TABLE 6: POST APPROVAL CONSULTATION RECORD 01	
Identified Party to Consult:	TfNSW, Yass Valley Council (YVC)
Consultation type:	Teleconference (Teams)
When is consultation required?	Prior to issue of CC
Why	Council is the local road authority and TfNSW is the state road authority – they are in charge of coordinating activities on the local and state road networks.
When was consultation scheduled/held	Thursday 9th December 2021
When was consultation held	Thursday 9th December 2021
Identify persons and positions who were involved	Meryl Hinge (YVC) James Dugdell (YVC) Mel Lausz (TfNSW) Duncan McCrae (TfNSW) Maurice Morgan (TfNSW) Paul Todhunter (HY) Nick Gordon (HY) Dora Choi (Ason) Wendy Zheng (Ason)
Provide the details of the consultation	Consultation with Yass Valley Council and Transport for New South Wales to discuss the strategies proposed in the

	Construction Traffic Management Plan (CTMP) and Construction Worker Transport Strategy (CWTS).
What specific matters were discussed?	DC (Ason) presented the CWTS per TfNSW's request to the group. The following queries for the strategies within the CWTS was noted by TfNSW and YVC: • Will all construction workers arrive on site from Fairley Street? • TfNSW would like to see a strategy for managing construction workers so that they cross the Barton Highway at the existing pedestrian refuge instead of using the shortest route. Additionally, no construction worker vehicles are to be parked on the side of the Barton Highway or have free direct access to the Barton Highway. • YVC has noted that the Murrumbateman Recreation Ground (MRG) is in regular use for a series of community events and has spoken internally to the sports and recreation manager regarding construction worker parking on site. • YVC will work with HY to allocate an area for construction parking and access routes to avoid conflict with events and to enforce safe crossing of the Barton Highway • On Saturdays YVC has noted that the Murrumbateman Town Centre is very busy and construction worker parking on either Hercules or Rose Streets is not recommended for Saturday especially and also for weekdays. • YVC does not think that the carpooling numbers can be achieved and would prefer to accommodate all excess construction parking at the MRG. • A review of the CWTS must be submitted to Council prior to the start of construction stage 5 • YVS has raised the issue that food availability is very limited within the Murrumbateman area and to reduce the need for construction workers to cross the Barton Highway to drive to lunch, they would recommend having a food van on site for the workers.
What matters were resolved?	• All construction workers will arrive on site from Fairley Street • HY will manage construction workers to enforce safe movement on and off the site. Workers who do not follow the safe method of movement will be warned and if necessary, suspended from Site. This is typical for projects that HY undertakes and have a series of management strategies to enforce it. • HY will meet with Council on site to work out the location of the allocated construction parking at the MRG as well as the route for construction vehicles to access the MRG from the Barton Highway • HY will manage construction parking requirements in the Murrumbateman Town Centre outside of the site and will update their worker induction as necessary in response to community feedback.

	• HY will review the CWTS prior to stage 05 and consult with YVS and TfNSW • HY will look into the availability of local food delivery services to site.
What matters are unresolved?	• YVC and HY to meet on site to determine location of construction worker parking at the MRG and access route off the Barton Highway.
Any remaining points of disagreement?	n/a - HY will work with YVC and TfNSW
How will SINSW address matters not resolved?	n/a

4 Construction Worker Parking

4.1 Construction Worker Numbers

The proposed number of workers per construction stage are outlined in Table 7: Stages & Phases of Construction below. Note that the number of workers proposed per stage will range from an average to a maximum, for example in Stage 1 the average number of workers on site per day will be 10 and the maximum will be 20.

TABLE 7: STAGES & PHASES OF CONSTRUCTION

Stage	Timeline	Description	Worker Number
1	16.12.21 to 14.01.22	Demolition of road and car park	10 (average) – 20 (maximum)
2	14.01.22 to 07.02.22	Strip site and bulk earthworks	10 (average) – 20 (maximum)
3	07.02.22 to 25.02.22	Substructure works	30 (average) – 50 (maximum)
4	25.02.22 to 09.05.22	Structure works	50 (average) – 80 (maximum)
5	21.03.22 to 20.06.22	Internal & external finishes / service works	60 (average) – 80 (maximum)
6	20.04.22 to 28.07.22	External works	60 (average) – 80 (maximum)

4.2 Construction Hours

Construction hours have been outlined below per SSD Condition C4.

TABLE 8: HOURS OF WORK

Activity	Day	Time
Construction works	Monday – Friday	7 am to 6 pm
	Saturday	8 am to 1 pm
	Sunday & Public Holidays	No Work to carried out

Note that per Condition C5 works can take place on Mondays to Fridays between 6pm and 7pm, Saturdays between 1pm and 4pm providing noise levels do not exceed existing background noise levels plus 5dB.

It is anticipated that construction works and deliveries will not be conducted or undertaken outside of the hours outlined above. Should out of work hours be required, Hansen Yuncken will lodge an application for an Out of Work Hours Permit with Council to seek approval for these works.

4.3 On-Site Parking Provision

25 car spaces will be available on-site during all phases of construction in the northern portion of the existing carpark in the northern half of the Site as shown in Figure 4: Construction Stage Site Layout.

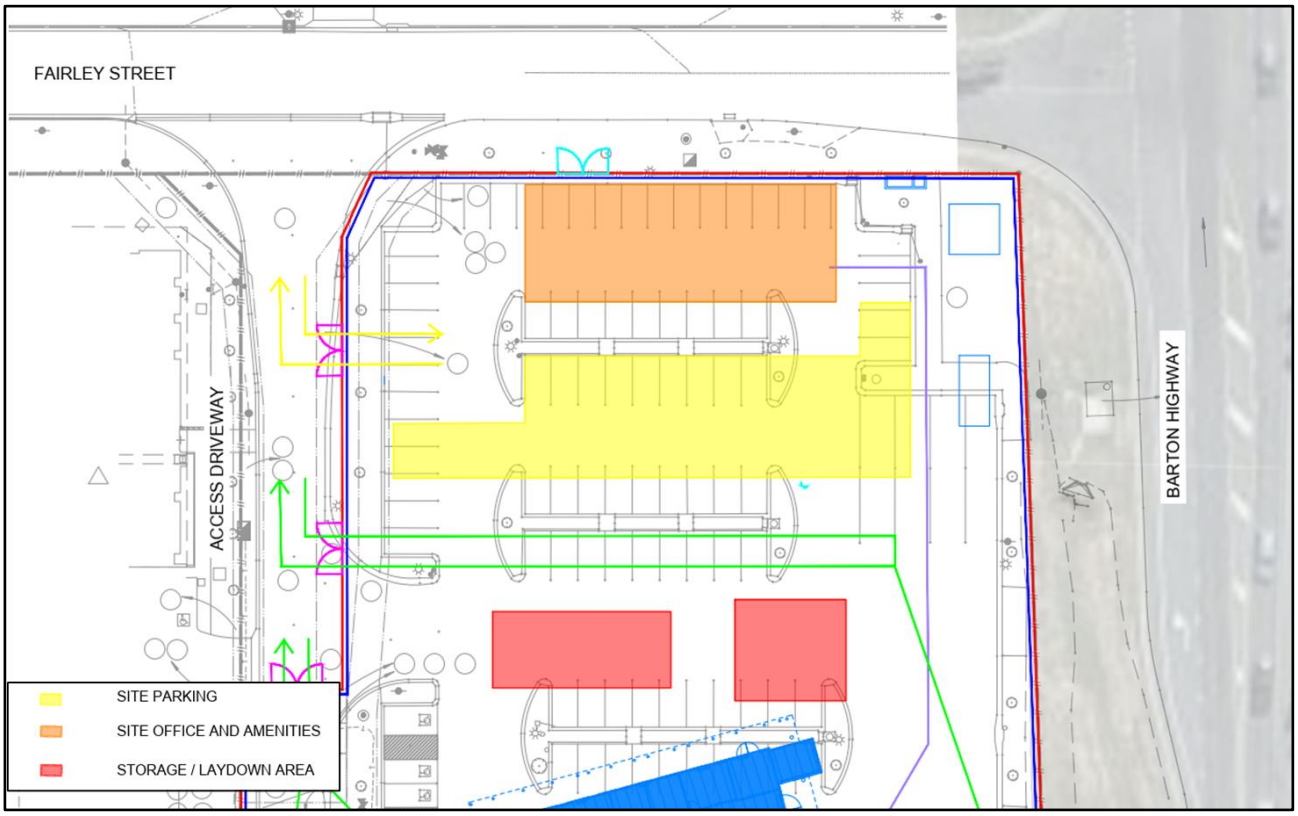

Figure 4: Construction Stage Site Layout

4.4 Off-Site Parking Provision

As Murrumbateman is a regional town, demand for on-street parking during weekdays is low. The Health Centre and Childcare Centre adjacent to the site does attract traffic but both provide sufficient on-site car parking to accommodate the demand.

The roads surrounding the Site with the exception of the Barton Highway all have unrestricted parking with some formalised unrestricted parking on Fairley Street (8 spaces) and Rose Street (15 spaces).

Murrumbateman Recreation Ground (MRG) can be accessed by the existing pedestrian crossing point on the Barton Highway which is within 200m of Site. Parking around the perimeter of the Oval at the MRG (400m of parallel spaces) is available depending on event demands and formalised parking is available to the east of the Oval with 1350m of access roadway which can accommodate 90-degree angled parking on both side being available.

5 Construction Worker Parking Strategy

5.1 Travel Arrangements for Construction Workers

As it is unlikely given the location of the Site and the existing available public transport that construction workers would be able to travel to / from site via public transport, a carpool system will be implemented for the site. Subcontractors will be encouraged to carpool with the expectation that those living in Yass or Canberra would be able to carpool with more than one co-worker.

A 50% carpool target is set and that the parking demand generated by the construction would be expected to be reduced by 25%.

TABLE 9: CONSTRUCTION STAGES AND WORKER NUMBERS

Stage	Worker Number (Average)	Worker Number (Maximum)	Worker Parking Demand (Average)	Worker Parking Demand (Maximum)
1	10	20	8	15
2	10	20	8	15
3	30	50	23	38
4	50	80	38	60
5	60	80	45	60
6	60	80	45	60

To encourage the carpooling, an on-site secure tool storage area would be provided by HY to allow construction workers to drop off and securely store their tools and equipment for the project within the Site instead of bringing it to Site every day.

Additionally, the site amenities will include fridges, microwaves, etc to encourage workers to drop off their lunch on site at the start of the day and not leave the site for lunch.

As part of the carpooling system, a whiteboard will be provided within the lunchroom where contractors will nominate after shifts are arranged whether the worker will be driving to site and if they can carpool with another worker so that HY will be able to forecast the construction parking demand in advance.

Encouragement of carpooling will form part of the toolbox talk conducted on-site daily.

If the forecasted parking demand exceeds the on-site parking capacity and the Rose Street / Fairley Street allowable capacity (of up to 10 spaces), HY will notify Council that MRG parking will be needed to accommodate off-site construction worker parking.

Parking location will be allocated to construction workers the day before their shift on site so those who are parking at the MRG will know to drop off their tools and personal items on site prior to parking.

5.2 Parking Arrangements for Construction Workers

As parking spaces on site are limited, it is expected that from Stage 3 onwards those who cannot park on-site will park in the unrestricted parking areas in the road network surrounding the Site.

However, noting that the community facilities surrounding the Site, a maximum of 10 construction worker vehicles will be allowed to park on Rose Street and Fairley Street within the indented parking bays to reduce impact on the community.

When the construction worker parking demand exceeds the on-site parking provision and Rose Street / Fairley Street allowable parking capacity, construction workers will be directed to park at Murrumbateman Recreation Ground to the east of the Barton Highway.

Murrumbateman Recreation Ground is located within 5-minute walking distance to the Site and accessible via the pedestrian crossing point 200m south of the Site and has the capacity to park approximately 1000

vehicles using the parking area to the east of Murrumbateman Oval shown highlighted in blue in Figure 5: Construction Worker Off Site Parking below.

Figure 5: Construction Worker Off Site Parking

Noting that the Barton Highway is a State Road and is subject to a significant amount of traffic, construction workers parking at the MRG will be instructed to drop off all necessary tools and personal items on Site first before parking.

With all necessary amenities provided on site, the need for workers to return to their vehicles parked at the MRG is expected to be minimal. Outside of exceptional circumstances once the worker arrives on site from MRG they be unlikely to need to access MRG again until they are going home for the day.

5.3 Saturday Construction Worker Parking Management

Off-site construction worker parking will be required for this Site from the beginning of February 2022 until the end of construction in July 2022.

During the weekdays the off-site parking demand can be accommodated by the available on street parking as well as the public car parking within the MRG.

On weekends the community facilities (Health Centre, Friendly's Grocers, etc) will attract more visitors from the regional community which will impact the availability of the on-street parking surrounding the Site. Additionally, MRG hosts the Murrumbateman Village Market which is planned to occur monthly every second and fourth Saturday in 2022 which will impact the availability of the public car parking within the MRG.

As the MRG can be booked through YVC's website, HY will liaise with YVC to obtain advance notice of when events will take place at the MRG. On Saturdays when events at MRG will take place, HY will schedule the works on site to minimise the amount of construction worker parking required and alert the subcontractors needed for the works that carpooling will be strongly encouraged.

Appendix F. Author CV

Dora Choi

Principal Lead – Traffic Management & Operations

Email: dora.choi@asongroup.com.au

Phone: 0450 923 889

Dora has 20 years of professional experience across the fields of urban planning, and traffic and transport engineering. With specialities in concept and schematic traffic design, road safety engineering, construction traffic management planning and major event traffic and transport operations planning, Dora focus on achieving practical, customer centred solutions commensurate with the project type, purpose and level of user experience established in collaboration with clients, delivery partners and project teams.

Dora's expertise in land use development planning and design has specific focus on car park design, traffic management system design, and loading facilities design and design of traffic systems based on the operational requirements as well as future adaptability of spaces. Dora has been involved in a broad range of traffic and transport projects providing high quality service and end to end project advice to a range of public and private sector clients.

Dora has worked on a broad range of inter-disciplinary design teams where she collaborated with clients and consultants of various disciplines in achieving forward thinking outcomes that considers both current and future needs of end users.

QUALIFICATIONS & EDUCATION

- Post Graduate Diploma in Transport and Traffic (Monash)
- Post Graduate Diploma Planning & Design (Melbourne)
- Bachelor of Science (Auckland)

PROFESSIONAL BACKGROUND

- Current Ason Group (Principal Lead: Traffic Management & Operations)
- 2018 – 2020 GTA Consultants (Associate Director)
- 2008 – 2018 Ratio Consultants (Senior Associate)
- 2013 – 2014 G20 Taskforce, Department of the Prime Minister and Cabinet (Assistant Director – Transport)
- 2007 – 2008 City of Melbourne (Senior Traffic Engineer)
- 2006 – 2007 City of Port Phillip (Transport Engineering Officer)
- 2005 – 2006 City of Port Phillip (Melbourne 2006 Commonwealth Games Operations Planner)
- 2000 – 2005 City of Port Phillip (Various Roles)

KEY SKILLS

- Transport Management and Operations Planning
- Transport Design
- Event Traffic and Transport Management Operations Planning and Delivery
- Stakeholder management

KEY PROJECTS

Warrick Lane Precinct, Blacktown NSW
Blacktown City Council

The Warrick Lane Precinct (The Precinct) is located within the Blacktown City Centre, 500 metres east of Blacktown Railway Station. The 2.8-hectare site has been identified for redevelopment as part of the of the Blacktown City Centre Transformation. The objective of the transformation is to provide employment, housing, social, cultural,

Dora Choi
Principal Lead – Traffic Management & Operations
Email: dora.choi@asongroup.com.au
Phone: 0450 923 889

recreation and transport infrastructure within a framework of sustainability and design excellence.

Dora was engaged by Blacktown City Council to provide traffic and transport advice on the transformation project, and managed the delivery of a range of transport engineering output including schematic and detailed design input to the Project, Transport Impact Assessment in multiple phases, DA stage and Detailed Stage Construction Traffic and Pedestrian Management Plan preparation and worked closely with the broader project team.

Blacktown Health Precinct, Blacktown NSW Blacktown City Council

Blacktown Health Precinct is located to the east of the Blacktown City Centre. The Health Precinct has been identified as a transformation project of the Blacktown City Council to support the forecasted growth in population planned for Blacktown. The objective of the transformation is to provide employment and social infrastructure within a framework of sustainability and design excellence.

Dora was engaged by Blacktown City Council to provide traffic and transport advice on the transformation project, and managed the delivery of a range of transport engineering output including masterplan, strategic transport analytics and design input to the Project.

Woolworths National Loading Facilities Transport Management Safety Review | Woolworths

Dora was the National Technical Leader for the development and delivery of a loading facilities transport management safety review program for the Supermarkets branch of Woolworths which involved the development and delivery of a transport management inspection, review and reporting program involving over 1000 stores. Dora worked closely with the Health and Safety section of Woolworths and was a key member of the delivery team of the study.

Woolworths Drive Program Design Standards Development and Test Fit | Woolworths

Dora was the National Technical Design Lead for the review and provision of technical design advice to inform the development of standard layout and the design guideline of drive through facilities for Woolworth Supermarket assets. Dora has completed a series of test fits across a number of stores located in NSW, SA, WA and NT reviewing and providing design options to retrofit drive through facilities.

Woolworths Minchinbury Distribution Centre (NSW) | Woolworths

Dora was the Project Director and Transport Engineering Lead for the redesign of loading, circulation and parking facilities within the existing Woolworths Minchinbury Distribution Centre and associated Development Application Transport Assessment and Modification application.

Woolworths Fresh Refrigerated Distribution Centre (VIC) | Fabcot

Dora was the Transport Engineering Lead from feasibility phase of the project, to completion of Planning Permit application and associated Concept to Schematic Design phases of the Woolworths Fresh Project in Truganina, Victoria. The project involved the development of a fourth leg to a roundabout, B-Double queuing areas, vehicle circulation, as well as parking facilities and design of a channelised right turn facility along Foundation Road.

Woolworths Melbourne South Regional Distribution Centre (VIC) | Fabcot

Dora was the Transport Engineering Lead for the project and has provided transport engineering input from the development of the Principal's Project Requirement, assisting the Project Architect in the development of a reference design, assistance in provision of transport engineering advice to inform site selection, subsequent Concept and Schematic Design work, and Transport Impact Assessment for the Planning Application.

Victoria Police Centre (2016 – 2020) and City West Police Complex (2011 – 2015), Melbourne | Cbus Property

The recently completed Victoria Police Centre and the City West Police Complex located at the corner of Spencer Street and La Trobe Street, Melbourne forms a custom-designed, integrated precinct.

Dora was the Transport Engineering Lead for the project since 2011 and has worked collaboratively with both the Project Principal, representatives of Victoria Police and the Project Design Team to develop custom designed solutions

Dora Choi

Principal Lead – Traffic Management & Operations

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to traffic and transport facilities associated with the development. Dora prepared Transport Assessment reports, technical memorandums, and heavily involved in consultation with authorities and stakeholder consultation.

Secure Facilities, Melbourne | Reserve Bank of Australia

Dora was the Traffic Management Lead for the Secure Facilities developed by the Reserve Bank of Australia in Craigieburn, Melbourne.

Dora was engaged to develop traffic management arrangements, functional requirements and specifications embedded into the architectural, civil and security arrangements of the project.

Other Select Projects:

Education

Alex Avenue Public School | NSW Department of Education

Dora was the Transport Engineering Lead for the project, and assisted in the preparation of contingency parking and site access design, responses to Response to Submissions, development of School Transport Plan, and liaison with Council.

Estella Public School | NSW Department of Education

Dora was the Transport Engineering Lead for the project, and assisted in the preparation of responses to Response to Submissions, development of site access design, School Transport Plan, and liaison with key stakeholders.

Barramurra Public School | NSW Department of Education

Dora was the Transport Engineering Lead for the project, and assisted in the preparation of responses to Response to Submissions, development of site access design, School Transport Plan, and liaison with key stakeholders.

Hastings Secondary College (Port Macquarie Campus) | NSW Department of Education

Dora was the Transport Engineering Lead for the project, and assisted in the preparation of contingency parking and site access design, responses to Response to Submissions, development of Preliminary School Transport Plan, and liaison with Council.

Murrumbateman Public School | NSW Department of Education

Dora is the Transport Engineering Lead for the project, and assisted in the preparation of responses to Response to Submissions, development of site access design, School Transport Plan, and liaison with key stakeholders.

Googong Public School | NSW Department of Education

Dora is the Transport Engineering Lead for the project, and assisted in the preparation of responses to Response to Submissions, development of site access design, School Transport Plan, and liaison with key stakeholders.

North Sydney Public School | NSW Department of Education

Dora is the Transport Engineering Lead for the project, and assisted in the preparation of contingency parking and site access design, responses to Response to Submissions, development of School Transport Plan, and liaison with Council.

Mixed Use

Langston Place, Epping (NSW) | Cbus Property

88 Walker Street, North Sydney | Billbergia

1 Dension Street, North Sydney | Multiplex and The Winten Property Group

435 Collins Street, Melbourne (VIC) | Cbus Property

140 – 150 Queen Street, Melbourne (VIC) | Cbus Property

Community

Tom Wills Community Oval | Sydney Olympic Park Authority

Wendy Zheng

Senior Traffic Design Engineer – Ason Group

Email: wendy.zheng@asongroup.com.au
Phone: +61 2 9083 6601

Wendy is a qualified civil engineer with eight years of work experience across project management, traffic engineering, construction management, and civil and drainage design

During this time, Wendy has been involved in numerous projects for both private organisations and government agencies in Australia and United Kingdom.

Wendy has demonstrated her ability across numerous areas of traffic engineering, transport construction, and civil design and has been involved in many significant projects.

Past projects have ranged in size from detailed design of intersection upgrades to the preparation of Construction Traffic Management Plans, Traffic Control Plans, and Construction and Occupation Certification for both private and public clients. Wendy also has experience dealing with the Transport Management Centre to obtain Road Occupancy Licenses as well as negotiating with Sydney Coordination Office for CTMP approvals.

While working in the UK Wendy was involved in the management, design and delivery of several large scale projects for local councils such as the School Streets project for Haringey and Liveable Streets programme in Tower Hamlets.

Wendy has worked on a broad range of inter-disciplinary design teams where she collaborated with clients and consultants of various disciplines in achieving forward thinking outcomes that considers both current and future needs of end users.

QUALIFICATIONS & EDUCATION

- Master of Engineering Management (University of Technology Sydney)
- BE Civil Engineering w Architecture (University of New South Wales)
- RMS Prepare a Work Zone Traffic Management Plan Card (Combined orange and red card)
- WorkCover Occupational Health and Safety Construction Induction Card.
- Member of Engineers Australia

PROFESSIONAL BACKGROUND

- 2020 – Current: Ason Group
Senior Traffic Design Engineer
- 2019 – 2020: Project Centre Limited (UK)
Senior Traffic Engineer
- 2019 – 2019: WSP (UK)
Senior Engineer
- 2016 – 2019: GTA Sydney
Consultant and Senior Consultant
- 2012 – 2016: The Hills Shire Council
Graduate, and Civil Design Engineer

KEY SKILLS

- Transport Management and Operations Planning
- Transport Design
- Civil and Drainage Design
- Stakeholder management
- Autocad suite / Microstation
- Vehicle tracking / Autoturn

KEY PROJECTS & EXPERIENCE

388 George Street, Sydney | Multiplex

Wendy was the Project Manager and Traffic Management Lead for the Construction Traffic Management Planning for the development, as well as the internal traffic management works with the adjoining building that include coordination with Sydney Light Rail Works and construction activities of other nearby developments.

David Jones Elizabeth Street, Sydney | Mainbrace

Wendy was the Project Manager and Traffic Management Lead for the Construction Traffic Management Planning for the development in obtaining the first approval for nighttime concrete works in the CBD from SCO and overtime ROLs while liaising with adjoining developments and Sydney Metro.

Langston Place, Epping | Hutchison Builders

Wendy was the Project Manager and Traffic Management Lead for the Construction Traffic Management Planning for the development in obtaining the first approval for construction works during Epping to Chatswood rail replacement period from the expanded SCO.

A.6 Construction Noise and Vibration Management Sub-plan (CNVMSP)

The New Primary School in Murrumbateman, Fairley Street, Murrumbateman – Construction Noise Vibration Management Sub-Plan (CNVMSP)

Hansen Yuncken Pty Ltd

Sydney Corporate Park
Building 1, Level 3, 75-85 O'Riordan Street,
Alexandria, NSW, 2015

Report number: 210124 - Murrumbateman Primary School - CNVMSP - R5.docx
Date: 13 December 2021
Version: R5 – For Submission

Project Number: 210124

DOCUMENT CONTROL

Project Name	The New Primary School in Murrumbateman, Fairley Street, Murrumbateman – Construction Noise Vibration Management Sub-Plan (CNVMSP)
Project Number	210124
Report Reference	210124 - Murrumbateman Primary School - CNVMSP - R5.docx
Client:	Hansen Yuncken Pty Ltd

Revision	Description	Reference	Date	Prepared	Checked	Authorised
1	DRAFT – For Comment	210124 - Murrumbateman Primary School - CNVMSP - R1.docx	1st November 2021	Matthew Furlong	-	-
2	Updated Draft	210124 - Murrumbateman Primary School - CNVMSP – R2.docx	16th November 2021	Matthew Furlong	Ben White	Ben White
3	For Information	210124 - Murrumbateman Primary School - CNVMSP - R3.docx	2nd December 2021	Matthew Furlong	Ben White	Ben White
4	Pre-Submission Review	210124 - Murrumbateman Primary School - CNVMSP - R4.docx	6th December 2021	Matthew Furlong	Ben White	Ben White
5	For Submission	210124 - Murrumbateman Primary School - CNVMSP - R5.docx	13th December 2021	Matthew Furlong	Ben White	Ben White

PREPARED BY:

Pulse White Noise Acoustics Pty Ltd
ABN 95 642 886 306
Level 5, 73 Walker Street, North Sydney, 2060
1800 4 PULSE

TABLE OF CONTENTS

TABLES

FIGURES

1 INTRODUCTION

Pulse White Noise Acoustics (PWNA) has been engaged by Hansen Yuncken (HY) to prepare a Construction Noise and Vibration Management Sub-Plan (CNVMSP) for the construction of *The New Primary School in Murrumbateman* ("the Project") along Fairley Street, Murrumbateman.

This CNVMSP has been prepared to satisfy the requirements of Condition B16 of the Consent given in the *Notice of Determination – Approval* issued for Development Application No. SSD-11233241, dated 26th October 2021.

Onsite unattended noise levels have previously been determined for the project by PWNA in the site's *SSDA Acoustic Assessment* submitted as part of the SSD Application reference "210147 - Murrumbateman - SSDA Acoustic Assessment – R9.docx", dated 25th August 2021. These levels are adopted for this assessment.

A glossary of acoustic terminology used throughout this report is included in Appendix A.

1.1 Condition Satisfaction

In addressing the requirements of Condition B16 (see section 3.1), each item is addressed in the following section:

Table 1 Condition Satisfaction Table

CEMP Condition Satisfaction Table		
Condition	**Condition Requirements**	**Document/Sub-Plan Reference**
Condition B16	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;	Refer to Appendix C: Author Curriculum Vitae (CV) – Page 49
	(b) describe procedures for achieving the noise management levels in EPA's Interim Construction Noise Guideline (DECC, 2009);	Refer to section 3.2.1 – Page 15.
	(c) describe the measures to be implemented to manage high noise generating works such as piling, in close proximity to sensitive receivers;	Refer to section 5 – Page 33.
	(d) include strategies that have been developed with the community for managing high noise generating works;	Refer to section 5.4.5 – Page 37.
	(e) describe the community consultation undertaken to develop the strategies in condition B16(d);	
	(f) include a complaints management system that would be implemented for the duration of the construction; and	Refer to section 5.5 – Page 37.
	(g) include a program to monitor and report on the impacts and environmental performance of the development and the effectiveness of the implemented management measures in accordance with the requirements of condition B13.	Refer to section 5.2.3 & 5.3.2 – Page 37 & 36.

1.2 Environment Management Plan Checklist

As per Appendix A of the NSW Government's Environment Management Plan guideline the following preparation checklist has been populated.

Table 2 EMP Preparation Checklist

Requirement	Plan Reference	Yes/ No/ Not Applicable
Document preparation and endorsement		
Has the EMP been prepared in consultation with all relevant stakeholders as per the requirements of the conditions of consent? (Section 4.1)	Refer to section 5.4.5	Yes
Have the views of the relevant stakeholders been taken into consideration? Have appropriate amendments been made to the EMP and does the EMP clearly identify the location of any changes? (Section 4.1)	Refer to section 5.4.5	Yes
Has the EMP been internally approved by an authorised representative of the proponent or contractor? (Section 4.2)	Report issued to SINSW.	Yes
Version and Content		
Does the EMP describe the proponent's Environmental Management System (EMS) (if any), and identify how the EMP relates to other documents required by the conditions of consent? (Section 3.5.1)	-	Not Applicable
Does the EMP include the required general content and version control information? (Section 3.1)	Refer to Table 1	Yes
Does the EMP have an introduction that describes the project, scope of works, site location and any staging or timing considerations? (Section 3.2)	Refer to section 1	Yes
Does the EMP reference the project description? (Section 3.3)	Refer to section 1	Yes
Does the EMP reference a Community and Stakeholder Engagement Plan (or similar) or include community and stakeholder engagement actions (if required)? (Section 3.4)	Refer to section 5.4	Yes
Have all other relevant approvals been identified? Has appropriate information been provided regarding how each approval is relevant? (Section 4)	Refer to section 3	Yes
Has the environmental management structure and responsibilities been included? (Section 3.5.2)	-	Not Applicable
Does the EMP include processes for training of project personnel and identify how training and awareness needs will be identified? (Section 3.5.3)	-	Not Applicable
Does the EMP clearly identify the relevant legal and compliance requirements that relate to the EMP? (Section 3.5.3)	Refer to section 3	Yes
Does the EMP include all the conditions of consent to be addressed by the EMP and identify where in the EMP each requirement has been addressed? (Section 3.5.13)	Refer to section 3 and Table 1	Yes
Have all relevant guidelines, policies and standards been identified, including details of how they are relevant? (Section 3.5)	Refer to section 3	Yes
Is the process that will be adopted to identify and analyse the environmental risks included? (Section 3.5.5)	Refer to section 5	Yes
Have all the environmental management measures in the EIA been directly reproduced into the EMP? (Section 3.5.7)	Refer to section 3	Yes
Have any additional environmental management measures been included in the EMP? (Section 3.5.7)	Refer to section 5	Yes
Have environmental management measures been written in committed language? (Section 3.5.7)	-	Not Applicable

Have project environmental management measures, including hold points, been identified and included? (Section 3.5.6)	-	Not Applicable
Are relevant details of environmental monitoring that will be carried out included? (Section 3.5.8)	Refer to section 5	Yes
Have the components of any environmental monitoring programs been incorporated? (Section 3.5.8)	Refer to section 5	Yes
Are environmental inspections included? (Section 3.5.9)	Refer to section 5	Yes
Does the EMP document all relevant compliance monitoring and reporting requirements for the project? (Section 3.5.12 and 3.5.13)	Refer to section 5	Yes
Does the EMP describe the types of plans or maps (such as environmental control maps) that will be used to assist with the management of environmental matters on site? (Section 3.5.10)	-	Not Applicable
Does the EMP list environmental management documents? (Section 3.5.11)	-	Not Applicable
Is an auditing program referenced? (Section 3.5.13)	-	Not Applicable
Does the EMP include the incident notification and reporting protocols that comply with the relevant conditions of consent? (Section 3.5.15)	Refer to section 5	Yes
Does the EMP identify the project role/position that is responsible for deciding whether an occurrence is an incident? (Section 3.5.15)	Refer to section 5	Yes
Does the EMP describe a corrective and preventative action process that addresses the requirements? (Section 3.5.16)	Refer to section 5	Yes
Does the EMP include details of a review and revision process that complies with the requirements? (Section 3.6)	Refer to section 5	Yes

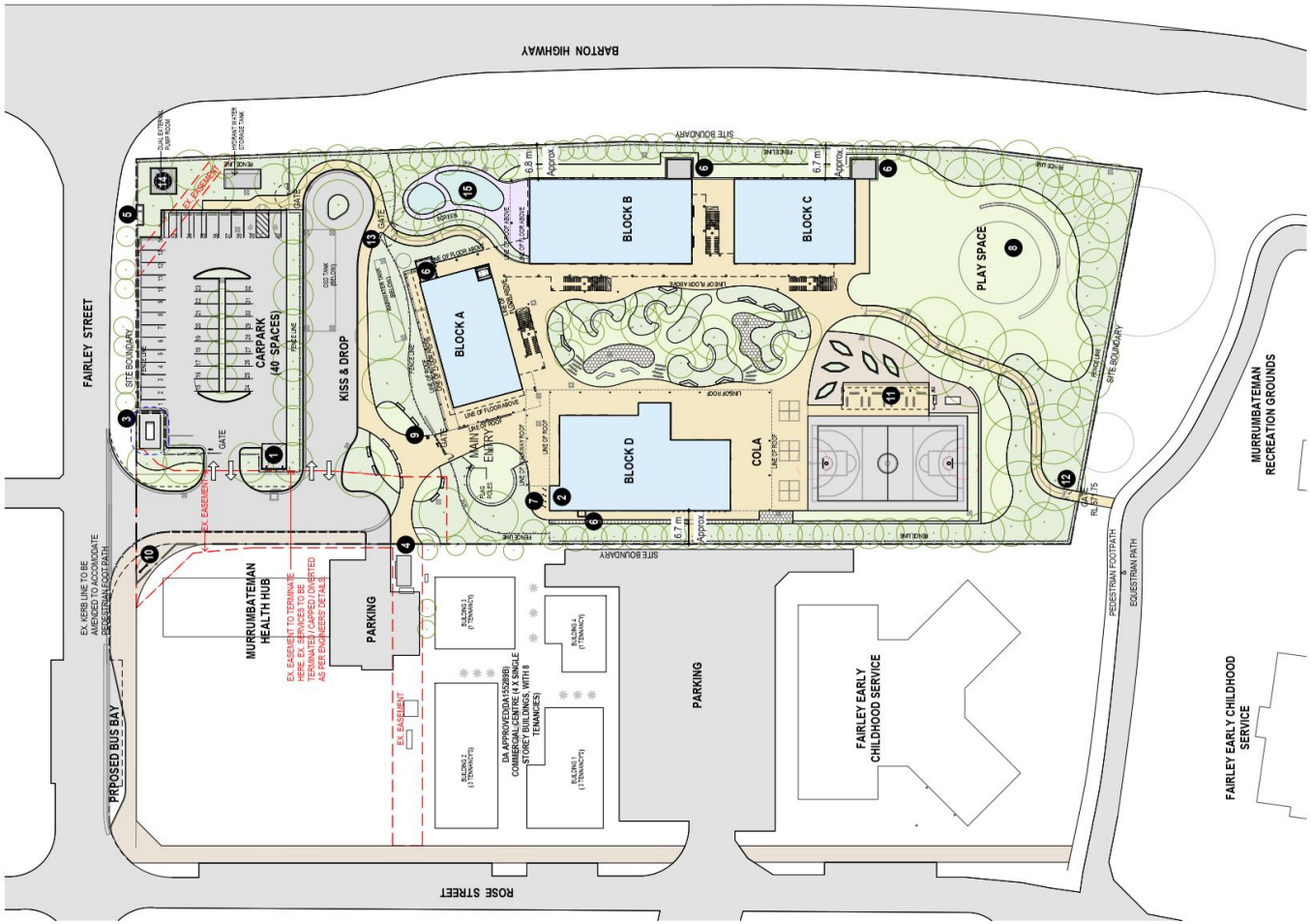
1.3 Development Overview

The proposed development is for construction and operation of a new primary school with Core 21 facilities in Murrumbateman that will accommodate up to 368 students.

The proposed development includes the following (also see Figure 1 below):

- A collection of 1 to 2 storey buildings containing 14 home base units, 2 special education learning units, hall, administration facilities and a library.
- On-site parking lot with 40 spaces and a kiss-and-ride area.
- Outdoor sports court and play area.
- Integrated landscaping, fencing and signage.

Figure 1 Architectural Site Plan (Drawing MURR – SSDA – 001)



1.4 Site Layout

The site is located at 2 Fairley Street, Murrumbateman, in the local government area of Yass Valley Council. The site is formally described as Lot 302 DP1228766 (refer to Figure 2 below). The site is irregular in shape and has an area of 15,434.92m².

The site is located at the northern end of the Murrumbateman village, which is characterised by a mix of uses including low density residential and some commercial.

Immediately surrounding development includes a tourist hotel to the north across Fairley Street, Murrumbateman Library (located in the former Murrumbateman schoolhouse, a local heritage item) to the south, a medical centre and childcare centre to the west, and rural land and equestrian facilities to the east across Barton Highway. There is also a cycling and equestrian pathway to the south between the site and library.

The site contains an existing parking lot in its northern end and a driveway along its western boundary. There is also a mound of soil at the southern end of the site. The site is otherwise cleared and vacant.

The nearest sensitive receivers to the site are identified below.

Receiver 1: Single storey residential dwellings located to the east of the site Rose Street. Receivers are located along the western side of Rose Street (No. 30-38) and northern side of North Street on the same block (no. 1-3). Receiver one will be known as *Rose Street Receivers* in this report.

Receiver 2: Single storey residential dwellings located to the north west of the site across Rose Street/Fairley Street. Receivers are located along the northern side of Fairley Street and western side of Rose Street (No. 42). Receiver two will be known as *Fairley Street Receiver* in this report.

Receiver 3: Single storey commercial hotel building ("*Abode Apartment Hotels*") located to the north of the site across Fairley Street. Receiver is located along the northern side of Fairley Street and eastern side of Rose Street (No. 57). Receiver three will be known as *Abode Receiver* in this report.

Receiver 4: Single storey commercial podiatry building ("*Your Happy Feet Podiatry*") located along the western boundary of the site, across the internal road. Receiver is located along the southern side of Fairley Street and eastern side of Rose Street (No. 53). Receiver four will be known as *Happy Feet Receiver* in this report.

Receiver 5: Single storey Child Care Centre building ("*Fairley Early Childhood Service*") located along the western boundary of the site, across the internal road. Receiver is located along the eastern side of Rose Street (No. 47). Receiver five will be known as *Fairley Early Childhood Receiver* in this report.

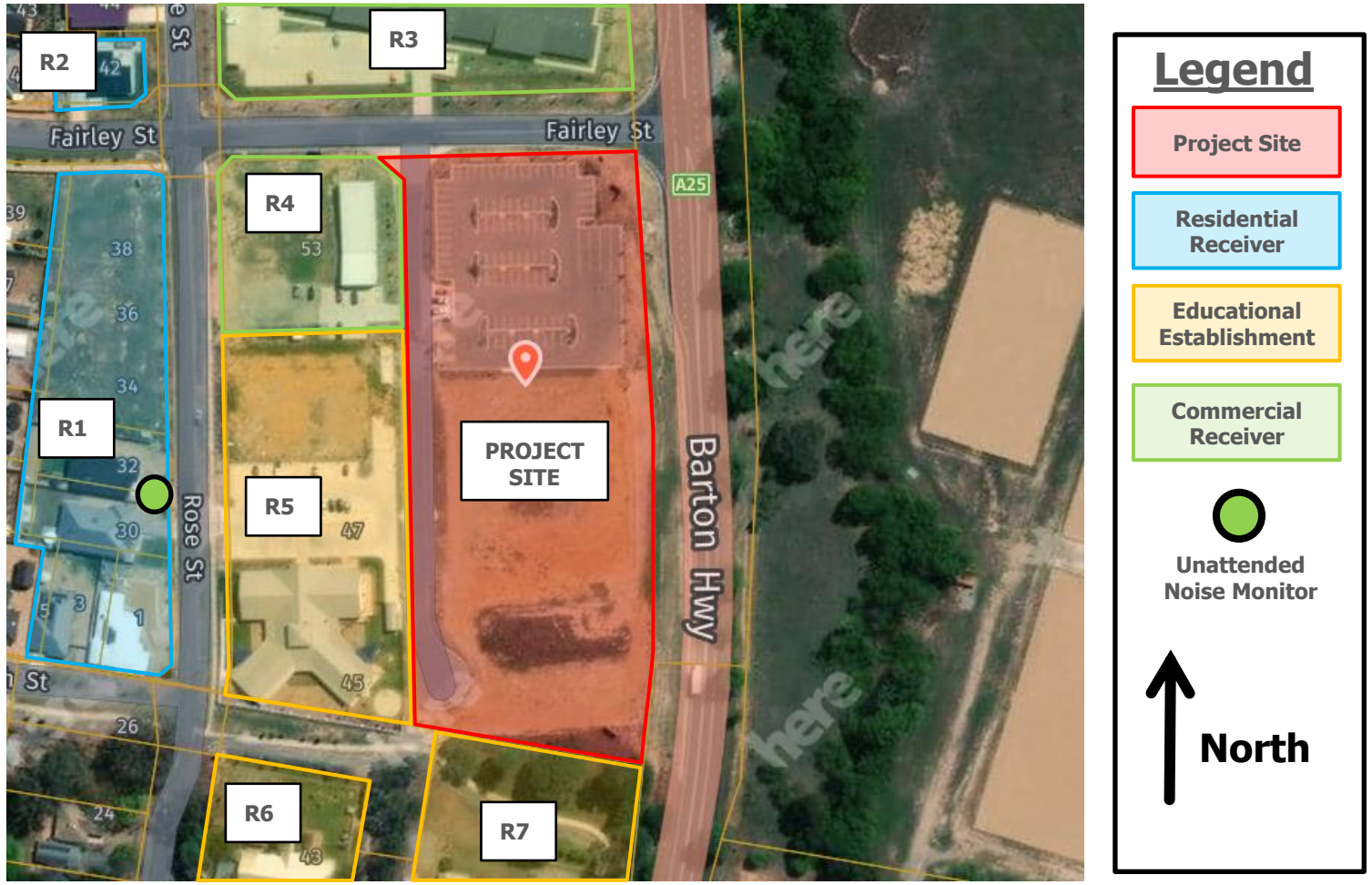
Receiver 6: Single storey Preschool building ("*Murrumbateman Preschool*") located to the south west of the site. Receiver is located along the eastern side of Rose Street (No. 43). Receiver six will be known as *Murrumbateman Preschool Receiver* in this report.

Receiver 7: Single storey Murrumbateman Library located in the former Murrumbateman School house; a local heritage item located to the south of the site. Receiver is located along the western side of Barton Highway (No. 30-32). Receiver seven will be known as *Murrumbateman Library Receiver* in this report.

Based on the topography of the site, receivers located to the west of the site across Rose Street are situated on a higher RL level than the project site and would have some localised shielding from the child care centre and podiatry facility which is situated between the receiver and the site.

A map showing the site location as well as nearest receivers is provided in Figure 2 below. This figure also shows the location of onsite unattended measurements which were conducted as part of this assessment.

Figure 2 Site Map, Measurement Locations and Surrounding Receivers – Sourced from NearMap



2 EXISTING ACOUSTIC ENVIRONMENT

Measured noise levels from the onsite unattended noise survey are outlined below.

2.1 Unattended Noise Monitoring

An unattended noise survey was conducted between Thursday 10th June 2021 and Tuesday 22nd June 2021 along the eastern boundary of 32 Rose Street, Murrumbateman as shown in Figure 2 above. This survey was conducted to measure the existing background noise level. All data in the graphs presented in Appendix B have not been corrected (i.e., raw data is presented).

Instrumentation for the survey comprised one Rion NL-42 sound level meter (serial number 00409024). Calibration of the logger was checked prior to and following the measurements. Drift in calibration did not exceed ±0.5 dB. All equipment carried appropriate and current NATA (or manufacturer) calibration certificates.

Charts presenting summaries of the measured daily noise data are attached in Appendix B. The charts present each 24-hour period and show the LA1, LA10, LAeq and LA90 noise levels for the corresponding 15-minute periods. This data has been filtered to remove periods affected by adverse weather conditions based on weather information.

Based on the unattended noise measurements, the results of the survey have been presented below.

2.1.1 Results in accordance with the NSW *EPA Noise Policy for Industry (NPI) 2017* (RBL's)

In order to assess the acoustical implications of the development at nearby noise sensitive receivers, the measured background noise data of the logger was processed in accordance with the NSW EPA's *Noise Policy for Industry* (NPI, 2017).

The Rating Background Noise Level (RBL) is the background noise level used for assessment purposes at the nearest potentially affected receiver. It is the 90th percentile of the daily background noise levels during each assessment period, being day, evening and night. RBL LA90 (15minute) and LAeq noise levels are presented in Table 3.

Data affected by adverse meteorological conditions and by spurious and uncharacteristic events have been excluded from the results, and also excluded from the data used to determine the noise emission criteria. Meteorological information has been obtained from the Mullion (PCS) Southern Tablelands, NSW (ID 250070) which is located within 30km. Levels presented below are processed results with extraneous weather events removed.

Table 3 Measured Ambient Noise Levels corresponding to the NPI's Assessment Time Periods

Measurement Location	Daytime[1] 7:00 am to 6:00 pm		Evening[1] 6:00 pm to 10:00 pm		Night-time[1] 10:00 pm to 7:00 am	
	L_{A90}[2] (dBA)	L_{Aeq}[3] (dBA)	L_{A90}[2] (dBA)	L_{Aeq}[3] (dBA)	L_{A90}[2] (dBA)	L_{Aeq}[3] (dBA)
32 Rose Street, Murrumbateman – See Figure 2.	40	53	33	49	30	44

Note 1: For Monday to Saturday, Daytime 7:00 am – 6:00 pm; Evening 6:00 pm – 10:00 pm; Night-time 10:00 pm – 7:00 am. On Sundays and Public Holidays, Daytime 8:00 am – 6:00 pm; Evening 6:00 pm – 10:00 pm; Night-time 10:00 pm – 8:00 am

Note 2: The L_{A90} noise level is representative of the "average minimum background sound level" (in the absence of the source under consideration), or simply the background level.

Note 3: The L_{Aeq} is the energy average sound level. It is defined as the steady sound level that contains the same amount of acoustical energy as a given time-varying sound.

3 NOISE AND VIBRATION CRITERIA

Relevant noise and vibration criteria for construction activities are detailed below.

3.1 SSD-11233241 Development Consent – Schedule 1 Conditions

Conditions of the consent which relate to construction noise and or vibration are detailed below.

Condition B13:

Environmental Management Plan Requirements

B13. Management plans required under this consent must be prepared having regard to the relevant guidelines, including but not limited to the *Environmental Management Plan Guideline: Guideline for Infrastructure Projects* (DPIE April 2020).

Note:

- *The Environmental Management Plan Guideline is available on the Planning Portal at: https://www.planningportal.nsw.gov.au/major-projects/assessment/post-approval*
- *The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.*

Condition B14:

Construction Environmental Management Plan

B14. Prior to the commencement of construction and demolition of internal roadways, the Applicant must submit a Construction Environmental Management Plan (CEMP) to the Certifier and provide a copy to the Planning Secretary for information. 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) external lighting in compliance with AS 4282-2019 Control of the obtrusive effects of outdoor lighting;
  (v) community consultation and complaints handling as set out in the Community Communication Strategy required by condition B9;

(b) an unexpected finds protocol for contamination and associated communications procedure to ensure that potentially contaminated material is appropriately managed;

(c) an unexpected finds protocol for Aboriginal and non-Aboriginal heritage and associated communications procedure;

(d) Construction Traffic and Pedestrian Management Sub-Plan (see condition B15);

(e) Construction Noise and Vibration Management Sub-Plan (see condition B16);

(f) Construction Waste Management Sub-Plan (see condition B17);

(g) Construction Soil and Water Management Sub-Plan (see condition B18);

Condition B16:

B16. 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 B16(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 implemented management measures in accordance with the requirements of condition B13.

Note:

- *In addressing **item (a)** above, refer to Appendix D.*
- *In addressing **item (b) & (c)** above, refer to section 5.*
- *In addressing **item (d) & (e)** above, refer to section 5.4 specifically.*
- *In addressing **item (f) above**, refer to section 5.4 & 5.5.*
- *In addressing **item (g) above**, refer to sections 5.2.3 & 5.3.2 specifically.*

Condition C4:

Construction Hours

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

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

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

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

Condition C5:

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

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

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

Condition C6:

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

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

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

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

(d) for the delivery, set-up and removal of construction cranes, where notice of the crane-related works is provided to the Planning Secretary and affected residents at least seven days prior to the works; or

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

Condition C7:

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

Condition C8:

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

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

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

(c) 9am to 12pm, Saturday.

Condition C13:

Construction Noise Limits

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

Condition C14:

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

Condition C15:

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

Condition C16:

Vibration Criteria

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

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

(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).

Condition C17:

C17. Vibratory compactors must not be used closer than 30 metres from residential buildings unless vibration monitoring confirms compliance with the vibration criteria specified in condition C16.

Condition C18:

C18. The limits in conditions C16 and C17 apply unless otherwise outlined in a Construction Noise and Vibration Management Plan, approved as part of the CEMP required by condition B21 of this consent.

3.2 Construction Noise Criteria

3.2.1 NSW EPA Interim Construction Noise Guideline (ICNG) – DECC 2009

Noise criteria for construction and demolition activities are discussed in the *Interim Construction Noise Guideline* (ICNG). The ICNG also recommends procedures to address potential impacts of construction noise on residences and other sensitive land uses. The main objectives of the ICNG are summarised as follows:

- Promote a clear understanding of ways to identify and minimise noise from construction works;
- Focus on applying all "feasible" and "reasonable" work practices to minimise construction noise impacts;
- Encourage construction to be undertaken only during the recommended standard hours unless approval is given for works that cannot be undertaken during these hours;

- Streamline the assessment and approval stages and reduce time spent dealing with complaints at the project implementation stage; and

- Provide flexibility in selecting site-specific feasible and reasonable work practices in order to minimise noise impacts.

The ICNG contains a quantitative assessment method which is applicable to this project. Guidance levels are given for airborne noise at residences and other sensitive land uses.

The quantitative assessment method involves predicting noise levels at sensitive receivers and comparing them with the Noise Management Levels (NMLs). The NML affectation categories for residential receivers have been reproduced from the guideline and are listed in the table below.

Table 4 NMLs for quantitative assessment at residences

Time of Day	Noise Management Level $L_{Aeq(15minute)}$[1,2]	How to Apply
Recommended standard hours: Monday to Friday 7 am to 6 pm Saturday 8 am to 1 pm No work on Sundays or public holidays	***"Noise Affected Level"*** RBL + 10 dB	The noise affected level represents the point above which there may be some community reaction to noise. • Where the predicted or measured $L_{Aeq(15minute)}$ is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level. • The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.
	"Highly Noise Affected Level" 75 dBA	The highly noise affected level represents the point above which there may be strong community reaction to noise. • Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur, taking into account: 1. Times identified by the community when they are less sensitive to noise (such as before and after school for works near schools, or mid-morning or mid-afternoon for works near residences. 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 + 5 dB	• A strong justification would typically be required for works 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 5 dB above the noise affected level, the proponent should negotiate with the community.

Note 1 *Noise levels apply at the property boundary that is most exposed to construction noise, and at a height of 1.5 m above ground level. If the property boundary is more than 30 m from the residence, the location for measuring or predicting noise levels is at the most noise-affected point within 30 m of the residence. Noise levels may be higher at upper floors of the noise affected residence.*

Note 2 *The RBL is the overall single-figure background noise level measured in each relevant assessment period (during or outside the recommended standard hours). The term RBL is described in detail in the NSW Noise Policy for Industry (EPA 2017).*

Note 3 *Requirements listed in the table above are in accordance with the Construction Hours listed in Condition C4 and C5.*

Construction noise levels at other noise receivers are outlined below:

- Construction noise levels within classrooms at schools and other educational institutions is not to exceed 45dB LAeq,15minute, when measured internally.
- Construction noise levels within places of worship is not to exceed 45dB LAeq,15minute, when measured internally.

- Construction noise levels at offices, retail outlets is not to exceed 70dB LAeq,15minute, when measured externally.

Based on the measured background noise levels summarised in section 2, and the NMLs outlined above the construction noise criteria to be used in this assessment are listed in below.

Table 5 NMLs as basis for the acoustic assessment

Receiver Types		NML, dB $L_{Aeq(15minute)}$	
		Standard Hours **Monday to Friday: 7:00am to 6:00pm** **Saturday: 8:00am to 1:00pm**	**Outside Standard Hours** **Monday to Friday: 6:00pm to 7:00pm** **Saturday 1:00pm to 4:00pm**
Residences (Measured externally)	Receiver 1	**50** + *HNAL* = 75	**45**
	Receiver 2	**50** + *HNAL* = 75	**45**
	Receiver 3	**50** + *HNAL* = 75	**45**
Education institutions (Measured internally)		**45**	
Education institutions (Measured internally)		**45**	
Offices & retail outlets (Measured externally)		**70**	

3.2.2 Construction Traffic Noise Criteria

For existing residences and other sensitive land uses affected by additional traffic on existing roads, the NSW *Road Noise Policy (RNP)* states that for noise associated with increased road traffic generated by land use developments, any increase in the total traffic noise level should be limited to 2 dB during both day and night-time periods. An increase of 2 dB represents a minor impact that is considered barely perceptible to the average person.

3.3 Vibration Criteria

Effects of ground borne vibration on buildings may be segregated into the following three categories:

- Human comfort – vibration in which the occupants or users of the building are inconvenienced or possibly disturbed. Refer to further discussion in Section 3.3.1.
- Effects on building contents – where vibration can cause damage to fixtures, fittings and other non-building related objects. Refer to further discussion in Section 3.3.2.
- Effects on building structures – where vibration can compromise the integrity of the building or structure itself. Refer to further discussion in Section 3.3.2.

3.3.1 Vibration Criteria – Human Comfort

Vibration effects relating specifically to the human comfort aspects of the project are taken from the guideline titled *"Assessing Vibration – A Technical Guideline"*. (AVTG) This type of impact can be further categorised and assessed using the appropriate criterion as follows:

- Continuous vibration – from uninterrupted sources (refer to Table 6).
- Impulsive vibration – up to three instances of sudden impact e.g. dropping heavy items, per monitoring period (refer to Table 7).

- Intermittent vibration – such as from drilling, compacting or activities that would result in continuous vibration if operated continuously (refer to Table 8).

Table 6 Continuous vibration acceleration criteria (m/s^2) 1 Hz-80 Hz

Location	Assessment period	Preferred Values		Maximum Values	
		z-axis	x- and y-axis	z-axis	x- and y-axis
Residences	Daytime	0.010	0.0071	0.020	0.014
	Night-time	0.007	0.005	0.014	0.010
Offices, schools, educational institutions and places of worship	Day or night-time	0.020	0.014	0.040	0.028
		0.04	0.029	0.080	0.058
Workshops	Day or night-time	0.04	0.029	0.080	0.058

Table 7 Impulsive vibration acceleration criteria (m/s^2) 1 Hz-80 Hz

Location	Assessment period	Preferred Values		Maximum Values	
		z-axis	x- and y-axis	z-axis	x- and y-axis
Residences	Daytime	0.30	0.21	0.60	0.42
	Night-time	0.10	0.071	0.20	0.14
Offices, schools, educational institutions and places of worship	Day or night-time	0.64	0.46	1.28	0.92
Workshops	Day or night-time	0.64	0.46	1.28	0.92

Table 8 Intermittent vibration impacts criteria ($m/s^{1.75}$) 1 Hz-80 Hz

Location	Daytime		Night-time	
	Preferred Values	Maximum Values	Preferred Values	Maximum Values
Residences	0.20	0.40	0.13	0.26
Offices, schools, educational institutions and places of worship	0.40	0.80	0.40	0.80
Workshops	0.80	1.60	0.80	1.60

3.3.2 Vibration Criteria – Building Contents and Structure

The vibration effects on the building itself are assessed against international standards as follows:

- For transient vibration: British Standard BS 7385: Part 2-1993 *"Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration"* (BSI 1993); and
- For continuous or repetitive vibration: German DIN 4150: Part 3 – 1999 *"Effects of Vibration on Structure"* (DIN 1999).

Standard BS 7385 Part 2 - 1993

For transient vibration, as discussed in standard BS 7385 Part 2-1993, the criteria are based on peak particle velocity (mm/s) which is to be measured at the base of the building. These are summarised in Table 9 and illustrated in Figure 3.

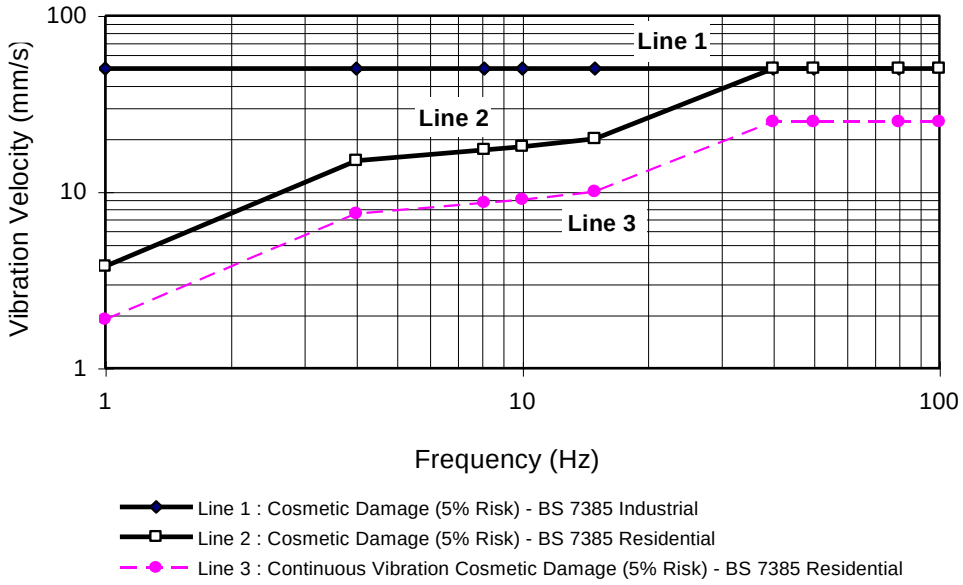
Table 9 Transient vibration criteria as per standard BS 7385 Part 2 - 1993

Line in Figure 3	Type of Building	Peak Component Particle Velocity in Frequency Range of Predominant Pulse	
		4 Hz to 15 Hz	15 Hz and Above
1	Reinforced or framed structures Industrial and heavy commercial buildings	50 mm/s at 4 Hz and above	
2	Unreinforced or light framed structures Residential or light commercial type buildings	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above

Standard BS 7385 Part 2 – 1993 states that the values in Table 9 relate to transient vibration which does not cause resonant responses in buildings.

Where the dynamic loading caused by continuous vibration events is such as that results in dynamic magnification due to resonance (especially at the lower frequencies where lower guide values apply), then the values in Table 9 may need to be reduced by up to 50% (refer to Line 3 in Figure 3).

Figure 3 BS 7385 Part 2 – 1993, graph of transient vibration values for cosmetic damage



In the lower frequency region where strains associated with a given vibration velocity magnitude are higher, the recommended values corresponding to Line 2 are reduced. Below a frequency of 4 Hz where a high displacement is associated with the relatively low peak component particle velocity value, a maximum displacement of 0.6 mm (zero to peak) is recommended. This displacement is equivalent to a vibration velocity of 3.7 mm/s at 1 Hz.

The standard also states that minor damage is possible at vibration magnitudes which are greater than twice those given in Table 9, and major damage to a building structure may occur at values greater than four times the tabulated values.

Fatigue considerations are also addressed in the standard and it is concluded that unless calculation indicates that the magnitude and number of load reversals is significant (in respect of the fatigue life of building materials) then the values in Table 9 should not be reduced for fatigue considerations.

Standard DIN 4150 Part 3 - 1999

For continuous or repetitive vibration, standard DIN 4150 Part 3-1999 provides criteria based on values for peak particle velocity (mm/s) measured at the foundation of the building; these are summarised in Table 10. The criteria are frequency dependent and specific to particular categories of structures.

Table 10 Structural damage criteria as per standard DIN 4150 Part 3 - 1999

Type of Structure	Peak Component Particle Velocity, mm/s			
	Vibration at the foundation at a frequency of			Vibration of horizontal plane of highest floor at all frequencies
	1 Hz to 10 Hz	10 Hz to 50 Hz	50 Hz to 100 Hz[1]	
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
Structures that, because of their sensitivity to vibration, do not correspond to those listed in lines 1 and 2 and are of great intrinsic value (e.g. buildings that are under a preservation order)	3	3 to 8	8 to 10	8

Note 1: For frequencies above 100Hz, at least the values specified in this column shall be applied.

3.4 Ground-Borne Noise Criteria

According to the NSW EPA *Interim Construction Noise Guideline (*ICNG) 2009, the criteria for ground-borne noise at residences is defined as follows:

- Maximum internal noise levels of 40 dB $L_{Aeq(15mins)}$ between 6:00pm and 10:00pm.

It is noted that the ground borne criteria will apply for construction works undertaken outside of standard hours. That is, work conducted during the evening period Monday to Friday between 6:00pm and 7:00pm only.

4 NOISE AND VIBRATION ASSESSMENT

4.1 Construction Noise Assessment

Sound power levels have been predicted for the construction tasks identified in the project program. The equipment anticipated for use in each task is based on previous project experience. The sound power levels for the equipment likely to be used for each of the listed tasks are provided in Table 11 below.

Table 11 Summary of predicted sound power levels

Tasks	Equipment	Sound Power Levels (dBA re 1pW)	Aggregate Sound Power Level per Task (dBA re 1pW)
Site Establishment Works	Mobile crane	110	113
	Power hand tools	109	
	Semi Rigid Vehicle [1]	105	
Ground Works	Excavator	112	120
	Hydraulic Hammer	118	
	Piling Rig	110	
	Handheld jack hammer [1]	111	
	Dump truck [1]	104	
	Concrete saw [1]	114	
	Skid steer	110	
	Power hand tools	109	
Structure	Handheld jack hammer [1]	106	117
	Concrete saw [1]	114	
	Power hand tools	109	
	Welder	101	
	Concrete pump truck	110	
	Concrete agitator truck	108	
Internal Works	Power hand tools	109	109
Common and External Works	Concrete agitator truck	108	114
	Saw cutter [1]	104	
	Dump truck [1]	104	
	Concrete saw [1]	114	
	Power hand tools	109	

Note 1: An assumed time correction has been applied, this being 5 minutes of operation in any 15-minute interval.

Table 12 Receiver 1 – Summary of preliminary predicted construction noise levels – Rose Street Residences

Phase	Activity	Aggregate Sound Power Level (dBA re 1pW)	Predicted Individual Noise Level at Receiver dBA $L_{Aeq\ 15\ minutes}$	Predicted Combined Noise Level at Receiver dBA $L_{Aeq\ 15\ minutes}$	Criteria dBA $L_{Aeq\ 15\ minutes}$	Summary of Result
Site Establishment Works	Mobile crane	113	58 to 64	61 to 68	**Monday to Friday** 07.00-18.00 35 + 10 = **45** **Saturday** 08.00-13.00 35 + 10 = **45** **Highly Noise Affected Level** Standard Construction Hours **75**	**Works indicatively predicted to have the potential to exceed the BG + 10dBA however below the Highly Noise Affected Level of 75dBA.**
	Power hand tools		57 to 63			
	Semi Rigid Vehicle		53 to 60			
Ground Works and Demolition	Excavator	119	60 to 66	66 to 73		
	Handheld jack hammer		54 to 61			
	Dump truck		52 to 59			
	Concrete saw		62 to 69			
	Skid steer		58 to 64			
	Power hand tools		57 to 63			
Structure	Handheld jack hammer	117	54 to 61	65 to 72		
	Concrete saw		62 to 69			
	Power hand tools		57 to 63			
	Welder		49 to 55			
	Concrete pump truck		58 to 64			
	Concrete agitator truck		56 to 62			
Internal Works	Power hand tools	109	42 to 48	42 to 48		
Common and External Works	Concrete agitator truck	117	56 to 62	65 to 71		
	Saw cutter		52 to 59			
	Dump truck		52 to 59			
	Concrete saw		62 to 69			
	Power hand tools		57 to 63			

Table 13 Receiver 2 – Summary of predicted construction noise levels – Fairley Street Residences

Phase	Activity	Aggregate Sound Power Level (dBA re 1pW)	Predicted Individual Noise Level at Receiver dBA $L_{Aeq\ 15\ minutes}$	Predicted Combined Noise Level at Receiver dBA $L_{Aeq\ 15\ minutes}$	Criteria dBA $L_{Aeq\ 15\ minutes}$	Summary of Result
Site Establishment Works	Mobile crane	113	53 to 63	56 to 67	**Monday to Friday** 07.00-18.00 35 + 10 = **45** **Saturday** 08.00-13.00 35 + 10 = **45** **Highly Noise Affected Level** Standard Construction Hours **75**	**Works indicatively predicted to have the potential to exceed the BG + 10dBA however below the Highly Noise Affected Level of 75dBA.**
	Power hand tools		52 to 62			
	Semi Rigid Vehicle		48 to 59			
Ground Works and Demolition	Excavator	119	55 to 65	61 to 72		
	Handheld jack hammer		49 to 60			
	Dump truck		47 to 58			
	Concrete saw		57 to 68			
	Skid steer		53 to 63			
	Power hand tools		52 to 62			
Structure	Handheld jack hammer	117	49 to 60	61 to 71		
	Concrete saw		57 to 68			
	Power hand tools		52 to 62			
	Welder		44 to 54			
	Concrete pump truck		53 to 63			
	Concrete agitator truck		51 to 61			
Internal Works	Power hand tools	109	37 to 47	37 to 47		
Common and External Works	Concrete agitator truck	117	51 to 61	60 to 70		
	Saw cutter		47 to 58			
	Dump truck		47 to 58			
	Concrete saw		57 to 68			
	Power hand tools		52 to 62			

Table 14 Receiver 3 - Summary of predicted construction noise levels – Abode Receivers

Phase	Activity	Aggregate Sound Power Level (dBA re 1pW)	Predicted Individual Noise Level at Receiver dBA $L_{Aeq\ 15\ minutes}$	Predicted Combined Noise Level at Receiver dBA $L_{Aeq\ 15\ minutes}$	Criteria dBA $L_{Aeq\ 15\ minutes}$	Summary of Result
Site Establishment Works	Mobile crane	113	55 to 71	58 to 74	**Monday to Friday** 07.00-18.00 54 + 10 = 64 **Saturday** 08.00-13.00 54 + 10 = **64** **Highly Noise Affected Level** Standard Construction Hours **75**	**Works indicatively predicted to have the potential to exceed the BG+10dBA and could have the potential to be above the Highly Noise Affected Level when working near a receiver.**
	Power hand tools		54 to 70			
	Semi Rigid Vehicle		50 to 66			
Ground Works and Demolition	Excavator	119	57 to 73	63 to 79		
	Handheld jack hammer		51 to 67			
	Dump truck		49 to 65			
	Concrete saw		59 to 75			
	Skid steer		55 to 71			
	Power hand tools		54 to 70			
Structure	Handheld jack hammer	117	51 to 67	62 to 79		
	Concrete saw		59 to 75			
	Power hand tools		54 to 70			
	Welder		46 to 62			
	Concrete pump truck		55 to 71			
	Concrete agitator truck		53 to 69			
Internal Works	Power hand tools	109	39 to 55	39 to 55		
Common and External Works	Concrete agitator truck	117	53 to 69	61 to 78		
	Saw cutter		49 to 65			
	Dump truck		49 to 65			
	Concrete saw		59 to 75			
	Power hand tools		54 to 70			

Note: for the purpose of this construction noise assessment *Abode Apartment Hotel* (Receiver 3) is considered residential.

Table 15 Receiver 4 - Summary of predicted construction noise levels – Happy Feet Receiver

Phase	Activity	Aggregate Sound Power Level (dBA re 1pW)	Predicted Individual Noise Level at Receiver dBA $L_{Aeq\ 15\ minutes}$	Predicted Combined Noise Level at Receiver dBA $L_{Aeq\ 15\ minutes}$	Criteria dBA $L_{Aeq\ 15\ minutes}$	Summary of Result
Site Establishment Works	Mobile crane	113	57 to 72	60 to 76	**All days** All times = **70**	**Works indicatively predicted to have the potential to exceed the internal noise management level when working near a receiver.**
	Power hand tools		56 to 71			
	Semi Rigid Vehicle		52 to 68			
Ground Works and Demolition	Excavator	119	59 to 74	65 to 81		
	Handheld jack hammer		53 to 69			
	Dump truck		51 to 67			
	Concrete saw		61 to 77			
	Skid steer		57 to 72			
	Power hand tools		56 to 71			
Structure	Handheld jack hammer	117	53 to 69	64 to 80		
	Concrete saw		61 to 77			
	Power hand tools		56 to 71			
	Welder		48 to 63			
	Concrete pump truck		57 to 72			
	Concrete agitator truck		55 to 70			
Internal Works	Power hand tools	109	41 to 56	41 to 56		
Common and External Works	Concrete agitator truck	117	55 to 70	64 to 79		
	Saw cutter		51 to 67			
	Dump truck		51 to 67			
	Concrete saw		61 to 77			
	Power hand tools		56 to 71			

Table 16 Receiver 5a - Summary of predicted construction noise levels – Fairly Early Childhood Receiver – Internal Areas

Phase	Activity	Aggregate Sound Power Level (dBA re 1pW)	Predicted Individual Noise Level at Receiver dBA $L_{Aeq\ 15\ minutes}$	Predicted Combined Noise Level at Receiver dBA $L_{Aeq\ 15\ minutes}$	Criteria dBA $L_{Aeq\ 15\ minutes}$	Summary of Result
Site Establishment Works	Mobile crane	113	37 to 52	40 to 56	**All days** All times Internal Classrooms: **45**	**Works indicatively predicted to have the potential to exceed the internal noise management level when working near a receiver.**
	Power hand tools		36 to 51			
	Semi Rigid Vehicle		32 to 48			
Ground Works and Demolition	Excavator	119	39 to 54	45 to 61		
	Handheld jack hammer		33 to 49			
	Dump truck		31 to 47			
	Concrete saw		41 to 57			
	Skid steer		37 to 52			
	Power hand tools		36 to 51			
Structure	Handheld jack hammer	117	33 to 49	44 to 60		
	Concrete saw		41 to 57			
	Power hand tools		36 to 51			
	Welder		28 to 43			
	Concrete pump truck		37 to 52			
	Concrete agitator truck		35 to 50			
Internal Works	Power hand tools	109	21 to 36	21 to 36		
Common and External Works	Concrete agitator truck	117	35 to 50	44 to 59		
	Saw cutter		31 to 47			
	Dump truck		31 to 47			
	Concrete saw		41 to 57			
	Power hand tools		36 to 51			

Table 17 Receiver 5b - Summary of predicted construction noise levels – Fairly Early Childhood Receiver – External Areas

Phase	Activity	Aggregate Sound Power Level (dBA re 1pW)	Predicted Individual Noise Level at Receiver dBA $L_{Aeq\ 15\ minutes}$	Predicted Combined Noise Level at Receiver dBA $L_{Aeq\ 15\ minutes}$	Criteria dBA $L_{Aeq\ 15\ minutes}$	Summary of Result
Site Establishment Works	Mobile crane	113	57 to 72	60 to 76	**All days** All times External Play Areas: **65** (Defined as active recreation area)	**Works indicatively predicted to have the potential to exceed the internal noise management level when working near a receiver.**
	Power hand tools		56 to 71			
	Semi Rigid Vehicle		52 to 68			
Ground Works and Demolition	Excavator	119	59 to 74	65 to 81		
	Handheld jack hammer		53 to 69			
	Dump truck		51 to 67			
	Concrete saw		61 to 77			
	Skid steer		57 to 72			
	Power hand tools		56 to 71			
Structure	Handheld jack hammer	117	53 to 69	64 to 80		
	Concrete saw		61 to 77			
	Power hand tools		56 to 71			
	Welder		48 to 63			
	Concrete pump truck		57 to 72			
	Concrete agitator truck		55 to 70			
Internal Works	Power hand tools	109	41 to 56	41 to 56		
Common and External Works	Concrete agitator truck	117	55 to 70	64 to 79		
	Saw cutter		51 to 67			
	Dump truck		51 to 67			
	Concrete saw		61 to 77			
	Power hand tools		56 to 71			

Table 18 Receiver 6a – Summary of predicted construction noise levels – Murrumbateman Preschool Receiver – Internal Areas

Phase	Activity	Aggregate Sound Power Level (dBA re 1pW)	Predicted Individual Noise Level at Receiver dBA $L_{Aeq\ 15\ minutes}$	Predicted Combined Noise Level at Receiver dBA $L_{Aeq\ 15\ minutes}$	Criteria dBA $L_{Aeq\ 15\ minutes}$	Summary of Result
Site Establishment Works	Mobile crane	113	35 to 51	38 to 54	**All days** All times Internal Classrooms: 45	**Works indicatively predicted to have the potential to exceed the internal noise management level when working near a receiver.**
	Power hand tools		34 to 50			
	Semi Rigid Vehicle		30 to 46			
Ground Works and Demolition	Excavator	119	37 to 53	43 to 59		
	Handheld jack hammer		31 to 47			
	Dump truck		29 to 45			
	Concrete saw		39 to 55			
	Skid steer		35 to 51			
	Power hand tools		34 to 50			
Structure	Handheld jack hammer	117	31 to 47	42 to 59		
	Concrete saw		39 to 55			
	Power hand tools		34 to 50			
	Welder		26 to 42			
	Concrete pump truck		35 to 51			
	Concrete agitator truck		33 to 49			
Internal Works	Power hand tools	109	19 to 35	19 to 35		
Common and External Works	Concrete agitator truck	117	33 to 49	41 to 58		
	Saw cutter		29 to 45			
	Dump truck		29 to 45			
	Concrete saw		39 to 55			
	Power hand tools		34 to 50			

Table 19 Receiver 6b – Summary of predicted construction noise levels – Murrumbateman Preschool Receiver– External Areas

Phase	Activity	Aggregate Sound Power Level (dBA re 1pW)	Predicted Individual Noise Level at Receiver dBA $L_{Aeq\ 15\ minutes}$	Predicted Combined Noise Level at Receiver dBA $L_{Aeq\ 15\ minutes}$	Criteria dBA $L_{Aeq\ 15\ minutes}$	Summary of Result
Site Establishment Works	Mobile crane	113	55 to 71	58 to 74	**All days** All times External Play Areas: **65** (Defined as active recreation area)	**Works indicatively predicted to have the potential to exceed the internal noise management level when working near a receiver.**
	Power hand tools		54 to 70			
	Semi Rigid Vehicle		50 to 66			
Ground Works and Demolition	Excavator	119	57 to 73	63 to 79		
	Handheld jack hammer		51 to 67			
	Dump truck		49 to 65			
	Concrete saw		59 to 75			
	Skid steer		55 to 71			
	Power hand tools		54 to 70			
Structure	Handheld jack hammer	117	51 to 67	62 to 79		
	Concrete saw		59 to 75			
	Power hand tools		54 to 70			
	Welder		46 to 62			
	Concrete pump truck		55 to 71			
	Concrete agitator truck		53 to 69			
Internal Works	Power hand tools	109	39 to 55	39 to 55		
Common and External Works	Concrete agitator truck	117	53 to 69	61 to 78		
	Saw cutter		49 to 65			
	Dump truck		49 to 65			
	Concrete saw		59 to 75			
	Power hand tools		54 to 70			

Table 20 Receiver 7 - Summary of predicted construction noise levels – Murrumbateman Library Receiver

Phase	Activity	Aggregate Sound Power Level (dBA re 1pW)	Predicted Individual Noise Level at Receiver dBA $L_{Aeq\ 15\ minutes}$	Predicted Combined Noise Level at Receiver dBA $L_{Aeq\ 15\ minutes}$	Criteria dBA $L_{Aeq\ 15\ minutes}$	Summary of Result
Site Establishment Works	Mobile crane	113	55 to 70	58 to 73	**All days** All times = **70**	**Works indicatively predicted to have the potential to exceed the internal noise management level when working near a receiver..**
	Power hand tools		54 to 69			
	Semi Rigid Vehicle		50 to 65			
Ground Works and Demolition	Excavator	119	57 to 72	63 to 78		
	Handheld jack hammer		51 to 66			
	Dump truck		49 to 64			
	Concrete saw		59 to 74			
	Skid steer		55 to 70			
	Power hand tools		54 to 69			
Structure	Handheld jack hammer	117	51 to 66	62 to 77		
	Concrete saw		59 to 74			
	Power hand tools		54 to 69			
	Welder		46 to 61			
	Concrete pump truck		55 to 70			
	Concrete agitator truck		53 to 68			
Internal Works	Power hand tools	109	39 to 54	39 to 54		
Common and External Works	Concrete agitator truck	117	53 to 68	61 to 77		
	Saw cutter		49 to 64			
	Dump truck		49 to 64			
	Concrete saw		59 to 74			
	Power hand tools		54 to 69			

4.2 Construction Traffic Noise Assessment

It is proposed that the construction traffic would access the site via Fairley Street and Barton Highway.

From the criteria discussed in Section 3, it is noted that vehicle numbers on surrounding roads would need to increase by around 60% from existing traffic flows, for a 2 dB increase in road traffic noise to occur. As noted previously, a 2 dB increase in road traffic noise is not considered to be noticeable.

Based on the number of vehicles projected over each of the phases, it is concluded that noise impacts from construction traffic is unlikely to have an impact at the nearest affected properties. As a result, no further assessment is required.

4.3 Vibration Assessment

In order to maintain compliance with the human comfort vibration criteria discussed in Section 3, it is recommended that the indicative safe distances listed in Table 21 should be maintained. These indicative safe distances should be validated at the start of construction works by undertaking measurements of vibration levels generated by construction and demolition equipment to be used on site.

If applicable, the criteria for scientific or medical equipment (should any of these exist close to the site) can be more stringent than those required for human comfort. Vibration validating measurements should be conducted at each site to determine the vibration level and potential impact to this sensitive equipment.

Additionally, any vibration levels should be assessed in accordance with the criteria discussed in Section 3. This information should also be included as part of the CNVMSP.

Table 21 Recommended indicative safe working distances for vibration intensive plant

Plant	Rating / Description	Safe Working Distances (m)	
		Cosmetic Damage (BS 7385: Part 2 DIN 4150: Part 3)	Human Comfort (AVTG)
Vibratory roller	< 50 kN (Typically 1 – 2 tonnes)	5	15 – 20
	< 100 kN (Typically 2 – 4 tonnes)	6	20
	< 200 kN (Typically 4 – 6 tonnes)	12	40
	< 300 kN (Typically 7 – 13 tonnes)	15	100
	> 300 kN (Typically more than 13 tonnes)	20	100
Small hydraulic hammer	300 kg, typically 5 – 12 tonnes excavator	2	7
Medium hydraulic hammer	900 kg, typically 12 – 18 tonnes excavator	7	23
Large hydraulic hammer	1600 kg, typically 18 – 34 tonnes excavator	22	73
Vibratory pile driver	Sheet piles	2 – 20	20
Jackhammer	Hand held	1	Avoid contact with structure and steel reinforcements

5 NOISE AND VIBRATION MANAGEMENT PLAN

5.1 Acoustic Management Procedures

5.1.1 Summary of Management Procedures

Table 22 below summarises the management procedures recommended for airborne noise and vibration impacts. These procedures are also further discussed in the report. Hence, where applicable, links to further references are provided in Table 23 (next page).

Table 22 Summary of mitigation procedures

Procedure	Abbreviation	Description	Further Reference
General Management Measures	GMM	Introduce best-practice general mitigation measures in the workplace which are aimed at reducing the acoustic impact onto the nearest affected receivers.	Refer to Section 5.7 For noise impact, also refer to Section 5.2 For vibration impact, also refer to Section 5.3
Project Notification	PN	Issue project updates to stakeholders, discussing overviews of current and upcoming works. Advanced warning of potential disruptions can be included. Content and length to be determined on a project-by-project basis.	Refer to Section 5.4.
Verification Monitoring	V	Monitoring to comprise of attended acoustic surveys. The purpose of the monitoring is to confirm measured levels are consistent with the predictions in the acoustic assessment, and to verify that the mitigation procedures are appropriate for the affected receivers. If the measured levels are higher than those predicted, then the measures will need to be reviewed and the management plan will need to be amended.	For noise impact, refer to Section 5.2.3 For vibration impact, refer to Section 5.3.2
Complaints Management System	CMS	Implement a management system which includes procedures for receiving and addressing complaints from affected stakeholders	Refer to Section 5.4
Specific Notification	SN	Individual letters or phone calls to notify stakeholders that noise levels are likely to exceed noise objectives. Alternatively, contractor could visit stakeholders individually in order to brief them in regard to the noise impact and the mitigation measures that will be implemented.	Refer to Section 5.4.
Respite Offer	RO	Specific offer provided to stakeholders subjected to an ongoing impact.	Refer to Section 5.2.1
Alternative Construction Methodology	AC	Contractor to consider alternative construction options that achieve compliance with relevant criteria. Alternative option to be determined on a case-by-case basis. It is recommended that the selection of the alternative option should also be determined by considering the assessment of on-site measurements (refer to Verification Monitoring above).	Refer to Section 5.7.1 and 5.7.2

The application of these procedures is in relation to the exceedances over the relevant criteria. For airborne noise, the criteria are based on NMLs. The allocation of these procedures is discussed in Section 5.1.2

For vibration, the criteria either correspond to human comfort, building damage or scientific and medical equipment. The application of these procedures is discussed in Section 5.1.3.

5.1.2 Allocation of Noise Management Procedures

For residences, the management procedures have been allocated based on noise level exceedances at the affected properties, which occur over the designated NMLs (refer to Section 3). The allocation of these procedures is summarised in Table 23 below.

Table 23 Allocation of noise management procedures – residential receivers

Construction Hours	Exceedance over NML (dB)	Management Procedures (see Table 22)
Standard Hours Mon – Fri: 7:00 am to 6:00 pm Sat: 8:00 am – 1:00 pm	0 - 3	GMM
	4 - 10	GMM, PN, V [1], CMS, AC
	> 10	GMM, PN, V, CMS, SN, AC
	> 75	GMM, PN, V, CMS, SN, AC **& RO**
Outside Standard Hours Mon – Fri: 6:00 pm to 7:00 pm Sat: 1:00 pm to 4:00 pm	0 – 5	GMM, AC
	> 5	GMM, PN, V, CMS, SN, RO, AC

Notes

1. Verification monitoring to be undertaken upon complaints received from affected receivers

Please note the following regarding the allocation of these procedures:

- The exceedances have been estimated as part of the acoustic assessment, and these are summarised in Section 4.1.
- The allocation of procedures is based on the assumptions used for noise level predictions (refer to Section 4.1). Consequently, these allocations can be further refined once onsite works are undertaken and further development of the construction program.

For non-residential receivers (such as commercial), management measures are provided in Section 5.4..

5.1.3 Allocation of Vibration Management Procedures

Table 24 below summarises the vibration management procedures to be adopted based on exceedance scenarios (i.e., whether the exceedance occurs over human comfort criteria, building damage criteria, or criteria for scientific and medical equipment). Please note these management procedures apply for any type of affected receiver (i.e., for residences as well as non-residential receivers).

Table 24 Allocation of vibration management procedures

Construction Hours	Exceedance Scenario	Management Procedures
Standard Hours Mon – Fri: 7:00 am to 6:00 pm Sat: 8:00 am – 1:00 pm	Over human comfort criteria (refer to Section 3)	GMM, PN, V, RO
	Over building damage criteria (refer to Section 3)	GMM, V, AC
Outside Standard Hours Mon – Fri: 6:00 pm to 7:00 pm Sat: 1:00 pm to 4:00 pm	Over human comfort criteria (refer to Section 3)	GMM, SN, V, RO, CMS
	Over building damage criteria (refer to Section 3)	GMM, V, AC

5.2 Site Specific Noise Mitigation Measures

5.2.1 Respite Periods

Predicted noise levels outlined in Section 4.1 indicate that in some cases when works are being undertaken within proximity of receiver boundaries, exceedances above the Noise Management Levels (NMLs) may occur. In addition, in accordance with Condition C8 respite periods are recommended for noisy activities. As such the following respite conditions are recommended in accordance with C8 or when works extended periods of noisy works are affecting a surrounding receiver above the HNAL of 75dBA. See below.

Table 25 Recommended Respite Periods

Monday to Friday	Saturday
7:00am to 9:00am – No rock breaking, rock hammering, sheet piling, pile driving and similar activities. (Respite Period)	8:00am to 9:00am – No rock breaking, rock hammering, sheet piling, pile driving and similar activities. (Respite Period)
9:30am to 12:00pm – Works	9:00am to 12:00pm – Works
12:00pm to 2:00pm – No rock breaking, rock hammering, sheet piling, pile driving and similar activities. (Respite Period)	12:00pm to 4:00pm – No rock breaking, rock hammering, sheet piling, pile driving and similar activities. (Respite Period)
2:00pm to 5:00pm – Works	
5:00pm to 7:00pm – No rock breaking, rock hammering, sheet piling, pile driving and similar activities. (Respite Period)	

Note: Recommended respite periods for noisy works has been formulated in accordance with Condition C8 from the *Notice of Determination – Approval.*

5.2.2 General Comments

The contractor will, where reasonable and feasible, apply best practice noise mitigation measures. These measures shall include the following:

- Maximising the offset distance between plant items and nearby noise sensitive receivers.
- Preventing noisy plant working simultaneously and adjacent to sensitive receivers.
- Minimising consecutive works in the same site area.
- Orienting equipment away from noise sensitive areas.
- Carrying out loading and unloading away from noise sensitive areas.

In order to minimise noise impacts during the works, the contractor will take all reasonable and feasible measures to mitigate noise effects.

The contractor will also take reasonable steps to control noise from all plant and equipment. Examples of appropriate noise control include efficient silencers and low noise mufflers.

The contractor should apply all feasible and reasonable work practices to meet the NMLs and inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels, duration of noise generating construction works, and the contact details for the proposal.

5.2.3 Noise Monitoring

Attended noise monitoring is recommended to be undertaken at the start of each major milestone of the project. It is proposed that these milestones are at the commencement of the excavation and structural works only.

These works should be undertaken by a qualified acoustical consultant directly engaged by the contractor.

The statistical parameters to be measured should include the following noise descriptors: LA90, LA10, and LAeq. All noise measurements should be conducted over consecutive 15-minute periods.

This monitoring should also be complemented by undertaking attended noise measurements in order to:

- Differentiate between construction noise sources and other extraneous noise events (such as road traffic and aircraft noise)
- Note and identify any excessive noise emitting machinery or operation.

In addition to the above detailed measurements, should any complaints be received which have not been determined previously, it should be confirmed by conducting additional attended noise measurements.

The survey methodology and any equipment should comply with the requirements discussed in Standard AS 1055.1-1997.

5.2.4 Noise Mitigation Measures for Non-Residential Receivers

Where exceedances have been identified in Section 4, the following mitigation measures are recommended:

- Undertake general mitigation measures as discussed in Section 5.7
- Issue project updates to tenants in affected premises. The updates can include overview of current and upcoming works, as well as advanced warning of potential disruptions.
- Signage to be posted in order to provide stakeholders information regarding project details, emergency contacts and enquiry contact information.

5.2.5 Alternate Equipment or Process

Exceedance of the site's NMLs should result in an investigation as to whether alternate equipment could be used, or a difference process could be undertaken.

In some cases, the investigation may conclude that the use of other equipment is not possible, however, a different process could be undertaken.

5.2.6 Acoustic Enclosures/Screening

Typically, on a construction site there are three different types of plant that will be used: mobile plant (i.e., excavators, skid steers, etc.), semi mobile plant (i.e., hand tools generally) or static plant (i.e., diesel generators).

For plant items which are static it is recommended that, in the event exceedances are being measured due to operation of the plant item, an acoustic enclosure/screen is constructed to reduce impacts. These systems can be constructed from Fibre Cement (FC) sheeting or, if airflow is required, acoustic attenuators or louvres.

For semi mobile plant, relocation of plant should be investigated to either be operated in an enclosed space or at locations away from a receiver.

With mobile plant it is generally not possible to treat these sources. However, investigations into the machine itself may result in a reduction of noise (i.e., mufflers/attenuators etc).

5.2.7 Site Cranes (Permeant)

Cranes to be installed are recommended to be electric. Should these cranes require ground-based diesel generators, acoustic enclosures/screens are to be provided. Refer to 6.2.7 above. Advice from a qualified Acoustic Consultant should be sought.

If diesel cranes are proposed, a detailed review of the proposed crane generator should be undertaken by a qualified Acoustic Consultant to determine if the following is required:

- Acoustic muffler on the exhaust.
- Acoustic enclosure around the plant.

5.3 Vibration Mitigation Measures

5.3.1 General Comments

As part of the CNVMSP, the following vibration mitigation measures should be implemented:

- Any vibration generating plant and equipment is to be in areas within the site in order to lower the vibration impacts.
- Investigate the feasibility of rescheduling the hours of operation of major vibration generating plant and equipment.
- Use lower vibration generating items of construction plant and equipment; that is, smaller capacity plant, where feasible
- Minimise conducting vibration generating works consecutively in the same area (if applicable).
- Schedule a minimum respite period of at least 30 minutes before activities commence which are to be undertaken for a continuous 4-hour period.
- Use only dampened rock breakers and/or "city" rock breakers to minimise the impacts associated with rock breaking works.

5.3.2 Vibration Monitoring

Based on the proximity of the surrounding receivers to the works magnitudes of vibration resulting from construction activities required to be undertaken on the site are not expected to approach vibration limits detailed in Section 4.2 of this report, therefore permanent continuous vibration monitoring is not recommended.

Similar to the measurement procedure outlined in the noise monitoring section, attended vibration monitoring is to be undertaken at the following periods:

- Commencement of any high vibration generating activities including hydraulic hammering, rock breaking or vibration rolling on the site works within the safe working distances outlined above.
- Receiver location in the event complaints resulting from construction activities resulting from the perception of vibration are experienced by the occupants of buildings within the vicinity of the site.

5.4 SINSW Complaints management process as outlined in the Community Communication Strategy (CCS)

5.4.1 Enquiries and complaints management

SINSW manages enquiries (called interactions in our CRM, Darzin), and complaints in a timely and responsive manner.

Prior to project delivery, a complaint could be related to lack of community consultation, design of the project, lack of project progress, etc.

During project delivery, a complaint is defined as in regard to construction impacts – such as – safety, dust, noise, traffic, congestion, loss of parking, contamination, loss of amenity, hours of work, property damage, property access, service disruption, conduct or behaviour of construction workers, other environmental impacts, unplanned or uncommunicated disruption to the school.

As per our planning approval conditions, a complaints register is updated monthly and is publicly available on the project's website page on the SINSW website. The complaints register will record the number of complaints received, the nature of the complaints and how the complaint was resolved.

5.4.2 Complaints management process

If SINSW receives a complaint about the project during construction, it must be logged in our CRM system, actively managed, closed out and resolved by SINSW within 24-48 hours of receipt by the SINSW Community Engagement Manager, as outlined in Table 6 below. If this is not possible, the complaint must be escalated internally as required and resolved within 7 business days.

Complaints received via the following channels will be directed to the SINSW Community Engagement Manager for resolution:

- Phone: 1300 482 651 (24 hour toll free number)
- Email: schoolinfrastructure@det.nsw.edu.au
- Postal address: GPO Box 33, Sydney, NSW 2001
- Face to face
- School executive
- Project team

If the complainant is not satisfied with the SINSW response, and they approach SINSW for rectification, the process will involve a secondary review of their complaint as per the outlined process.

Complaints will be escalated when:

- An activity generates three complaints within a 24-hour period (separate complainants).
- Any construction site receives three different complaints within a 24-hour period.
- A single complainant reports three or more complaints within a three day period.
- A complainant threatens to escalate their issue to the media or government representative.
- The complaint was avoidable.
- The complaint relates to a compliance matter.

Complaints will be first escalated to the Senior Manager, Community and Engagement or Director of Communications for SINSW as the designated complaints handling management representatives for our projects. Further escalation will be made to the Executive Director, Office of the Chief Executive to mediate if required.

If a complaint still cannot be resolved by SINSW to the satisfaction of the complainant, we will advise them to contact the NSW Ombudsman - https://www.ombo.nsw.gov.au/complaints.

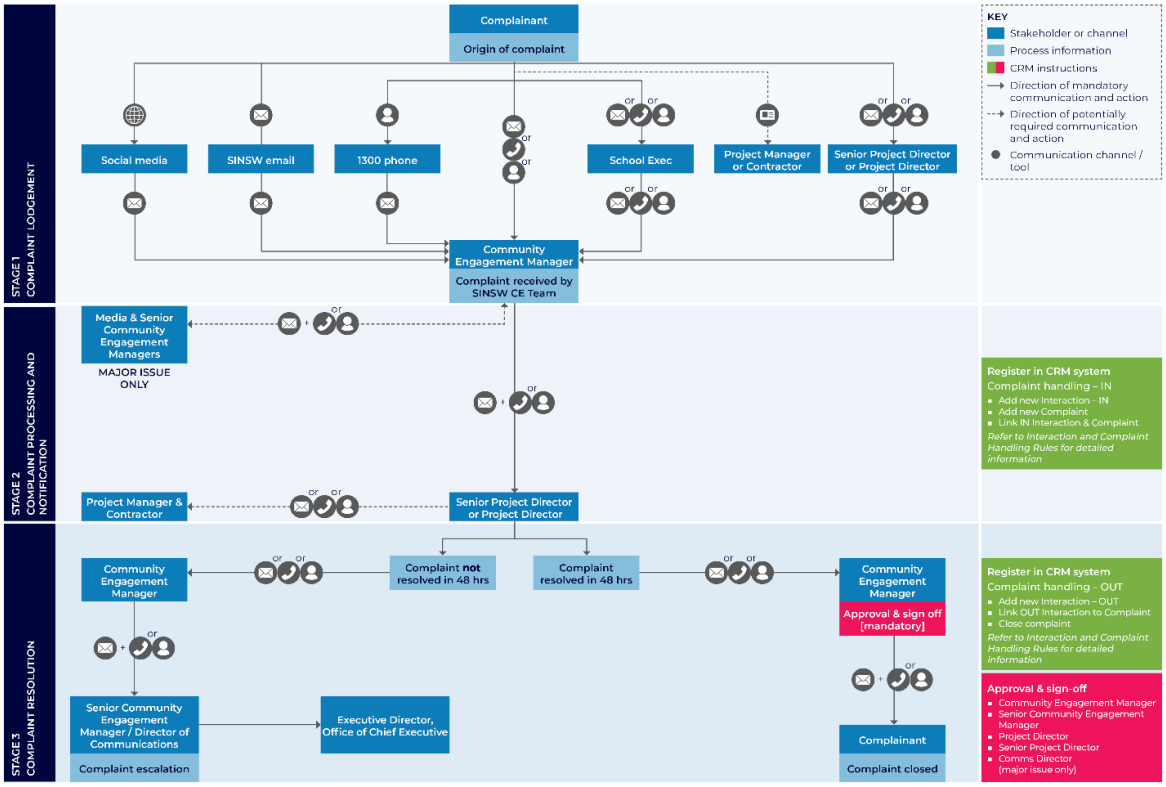
The below table summarises timeframes for responding to enquiries and complaints, through each correspondence method:

Table 26 Recommended Respite Periods

Complaint	Acknowledgement times	Response time
Phone call during business hours	At time of call – and agree with caller estimated timeframe for resolution.	Complaint to be closed out within 48 hours. If not possible, continue contact, escalate as required and resolve within 7 business days.
Phone call after hours*	Within two (2) hours of receiving message upon returning to office.	Following acknowledgement, complaint to be closed out within 48 hours. If not possible, continue contact, escalate as required and resolve within 7 business days.
Email during business hours	At time of email (automatic response)	Complaint to be closed out within 48 hours. If not possible, continue contact, escalate internally as required and resolve within 7 business days.
Email outside of business hours	At time of email (automatic response)	Complaint to be closed out within 48 hours (once return to business hours). If not possible, continue contact, escalate internally as required and resolve within 7 business days.
Letter	NA	Complaint to be closed out within 48 hours following receipt. If phone or email contact details are not provided a written response to be sent within 48 hours following receipt. If not possible, continue contact, escalate internally as required and resolve within 7 business days.
Interaction/ Enquiry		
Phone call during business hours	At time of call – and agree with caller estimated timeframe for response.	Interaction to be logged and closed out within 7 business days.
Phone call after hours	Within two (2) hours of receiving message upon returning to office.	Interaction to be logged and closed out within 7 business days.
Email during business hours	At time of email (automatic response)	Interaction to be logged and closed out within 7 business days.
Email outside of business hours	At time of email (automatic response)	Interaction to be logged and closed out within 7 business days.
Letter	N/A	Interaction to be logged and closed out within 10 business days following receipt.

The below diagram outlines our internal process for managing complaints.

COMPLAINTS MANAGEMENT PROCESS FLOW CHART



5.4.3 Complaints in common community languages

Complaints can be made in common community languages using the Translating and Interpreting Service (TIS), managed by the Department of Home Affairs. Community members can be connected to an interpreter by calling TIS on 131 450. TIS contact details are included on all project communications. Once TIS has the interpreter on the line, the interpreter and community member are connected to School Infrastructure and phone interpretation can begin. School Infrastructure NSW receives the complaint via the translator and begins the complaints management process as outlined above.

5.4.4 Community Notifications

Prior to the works onsite being undertaken, it is recommended that community consultation with the neighbouring affected parties be undertaken. These include:

Table 27 Receiver Locations

Receiver Number	Receiver Type	Address
Receiver 1	Residential	30-38 Rose Street, Murrumbateman
Receiver 2	Residential	42 Rose Street, Murrumbateman
Receiver 3	Short Stay Hotel	57 Rose Street, Murrumbateman
Receiver 4	Commercial	53 Rose Street, Murrumbateman
Receiver 5	Education Institution	47 Rose Street, Murrumbateman
Receiver 6	Education Institution	43 Rose Street, Murrumbateman
Receiver 7	Education Institution	30-32 Barton Highway, Murrumbateman

The communication, however, should not be limited to the beginning of the onsite works but throughout, providing the community with constant updates on the progress and upcoming works. In our experience these could include:

- Project website.
- Email notifications; and
- Letterbox drops.

5.4.5 Community Engagement

In addressing the requirement for the community consultation when formulating onsite noise and vibration mitigation measures, we note the following.

Condition B16, item "e" from the consent, states:

(e) *describe the community consultation undertaken to develop the strategies in condition B16(d)*

Note: Condition B16(d) relates to the formulation of noise and vibration management strategies to manage high nose works.

In addressing the requirement of Condition B16(e), School Infrastructure NSW have requested feedback from the community in regard to the proposed noise and vibration mitigation measures as outlined in the November 2021 Project Update. Refer to Appendix E for Schools Infrastructure Project Notification, November 2021.

At the closure of the consultation period, no input was provided by the community in relation to the Construction Noise Vibration Management Sub-Plan.

5.5 Complaints Management System

Should complaints arise they must be dealt with in a responsible and uniform manner, therefore, a management system to deal with complaints is detailed above through SINSW.

5.6 Contingency Plans

Contingency plans are required to address noise or vibration problems if excessive levels are measured at surrounding sensitive receivers and/or if justified complaints occur. Such plans include:

- Stop the onsite works.
- Identify the source of the main equipment within specific areas of the site which is producing the most construction noise and vibration at the sensitive receivers; and
- Review the identified equipment and determine if an alternate piece of equipment can be used or the process can be altered.
- In the event an alternate piece of equipment or process can be used, works can re-commence.
- In the event an alternate piece of equipment or process cannot be determined implement a construction assessment to be performed by a suitably qualified acoustic consultant.

The Superintendent shall have access to view the Contractor's noise measurement records on request. The Superintendent may undertake noise monitoring if and when required.

5.7 General Mitigation Measures (Australia Standard 2436-2010)

As well as the above project specific noise mitigation controls, AS 2436-2010 "*Guide to Noise and Vibration Control on Construction, Demolition and Maintenance Sites*" sets out numerous practical recommendations to assist in mitigating construction noise emissions. Examples of strategies that could be implemented on the subject project are listed below, including the typical noise reduction achieved, where applicable.

5.7.1 Adoption of Universal Work Practices

- Regular reinforcement (such as at toolbox talks) of the need to minimise noise and vibration.
- Regular identification of noisy activities and adoption of improvement techniques.
- Avoiding the use of portable radios, public address systems or other methods of site communication that may unnecessarily impact upon nearby sensitive receivers.
- Where possible, avoiding the use of equipment that generates impulsive noise.
- Minimising the need for vehicle reversing for example (particularly at night), by arranging for one-way site traffic routes.
- Use of broadband audible alarms on vehicles and elevating work platforms used on site.
- Minimising the movement of materials and plant and unnecessary metal-on-metal contact.
- Minimising truck movements.

5.7.2 Plant and Equipment

- Choosing quieter plant and equipment based on the optimal power and size to most efficiently perform the required tasks.
- Selecting plant and equipment with low vibration generation characteristics, where feasible.
- Operating plant and equipment in the quietest and most efficient manner.

5.7.3 On Site Noise Mitigation

- Maximising the distance between noise activities and noise sensitive land uses.
- Installing purpose-built noise barriers, acoustic sheds and enclosures around static plant.

5.7.4 Work Scheduling

- Providing respite periods which could include restricting very noisy activities to time periods that least affect the nearby noise sensitive locations, restricting the number of nights that after-hours work is conducted near residences or by determining any specific requirements.
- Scheduling work to coincide with non-sensitive periods.
- Planning deliveries and access to the site to occur quietly and efficiently and organising parking only within designated areas located away from the sensitive receivers.
- Optimising the number of deliveries to the site by amalgamating loads where possible and scheduling arrivals within designated hours.
- Including contract conditions that include penalties for non-compliance with reasonable instructions by the principal to minimise noise or arrange suitable scheduling.

5.7.5 Source Noise Control Strategies

Some ways of controlling noise at the source are:

- Where reasonably practical, noisy plant or processes should be replaced by less noisy alternatives.
- Modify existing equipment: Engines and exhausts are typically the dominant noise sources on mobile plant such as cranes, graders, excavators, trucks, etc. In order to minimise noise emissions, residential grade mufflers should be fitted on all mobile plant utilised on site.
- Siting of equipment: locating noisy equipment behind structures that act as barriers, or at the greatest distance from the noise-sensitive area; or orienting the equipment so that noise emissions are directed away from any sensitive areas, to achieve the maximum attenuation of noise.
- Regular and effective maintenance.

5.7.6 Miscellaneous Comments

Deliveries should be undertaken, where possible, during standard construction hours.

Maximise hammer penetration (and reduce blows) by using sharp hammer tips. Keep stocks of sharp profiles at site and monitor the profiles in use.

"As per Consent Condition C15, where practicable, the use of "quackers" will be used to ensure noise impacts on surrounding noise sensitive receivers are minimised. This will not be implemented where it is deemed the use of quackers (as opposed to standard vehicle notification devices) would compromise the safety of construction staff or members of the public.

No public address system should be used on site.

6 CONCLUSION

Pulse White Noise Acoustics (PWNA) has been engaged by Hansen Yuncken (HY) to prepare a Construction Noise and Vibration Management Sub-Plan (CNVMSP) for the construction of *The New Primary School in Murrumbateman* ("the Project") along Fairley Street, Murrumbateman.

This CNVMSP has been prepared to satisfy the requirements of Condition B16 of the Consent given in the *Notice of Determination – Approval* issued for Development Application No. SSD-11233241, dated 26th October 2021.

An assessment of noise and vibration impacts from the required processes to be undertaken during the construction period of the project (including demolition, excavation and construction) has been undertaken and suitable treatments, management controls, perioding measurements and community engagement has been detailed in this report.

Providing the recommendations in this report are included in the construction of the site, compliance with the relevant EPA's Interim Construction Noise Guideline Objectives and Item 46 of the propjets *Conditions of Consent* can be achieved.

For any additional information please do not hesitate to contact the person below.

Regards

Matthew Furlong
Senior Acoustic Engineer
Pulse White Noise Acoustics

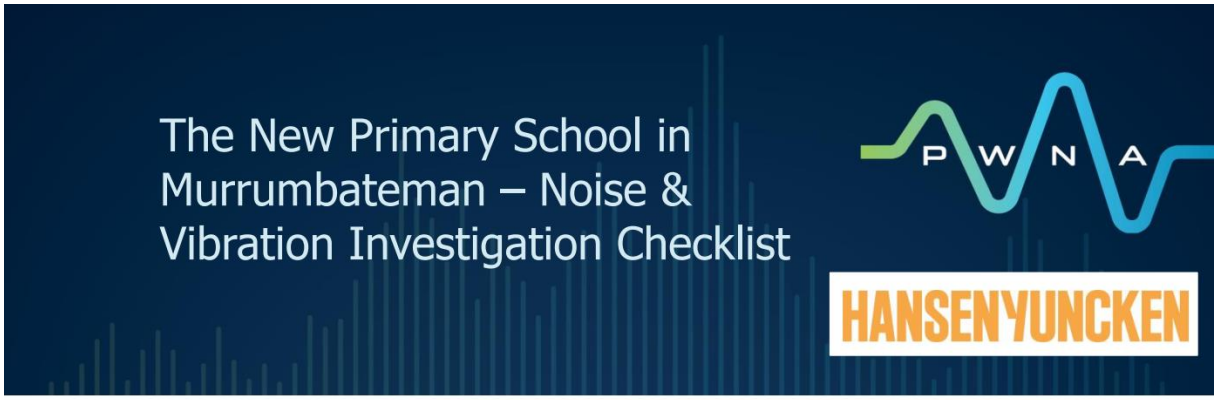
APPENDIX A: ACOUSTIC GLOSSARY

The following is a brief description of the acoustic terminology used in this report:

Ambient Sound	The totally encompassing sound in a given situation at a given time, usually composed of sound from all sources near and far.
Audible Range	The limits of frequency which are audible or heard as sound. The normal ear in young adults detects sound having frequencies in the region 20 Hz to 20 kHz, although it is possible for some people to detect frequencies outside these limits.
Character, acoustic	The total of the qualities making up the individuality of the noise. The pitch or shape of a sound's frequency content (spectrum) dictate a sound's character.
Decibel [dB]	The level of noise is measured objectively using a Sound Level Meter. The following are examples of the decibel readings of every day sounds; 0dB the faintest sound we can hear 30dB a quiet library or in a quiet location in the country 45dB typical office space. Ambience in the city at night 60dB Martin Place at lunch time 70dB the sound of a car passing on the street 80dB loud music played at home 90dB the sound of a truck passing on the street 100dB the sound of a rock band 115dB limit of sound permitted in industry 120dB deafening
dB(A)	*A-weighted decibels* The ear is not as effective in hearing low frequency sounds as it is hearing high frequency sounds. That is, low frequency sounds of the same dB level are not heard as loud as high frequency sounds. The sound level meter replicates the human response of the ear by using an electronic filter which is called the "A" filter. A sound level measured with this filter switched on is denoted as dB(A). Practically all noise is measured using the A filter. The sound pressure level in dB(A) gives a close indication of the subjective loudness of the noise.
Frequency	Frequency is synonymous to *pitch*. Sounds have a pitch which is peculiar to the nature of the sound generator. For example, the sound of a tiny bell has a high pitch and the sound of a bass drum has a low pitch. Frequency or pitch can be measured on a scale in units of Hertz or Hz.
Loudness	A rise of 10 dB in sound level corresponds approximately to a doubling of subjective loudness. That is, a sound of 85 dB is twice as loud as a sound of 75 dB which is twice as loud as a sound of 65 dB and so on
LMax	The maximum sound pressure level measured over a given period.
LMin	The minimum sound pressure level measured over a given period.
L1	The sound pressure level that is exceeded for 1% of the time for which the given sound is measured.
L10	The sound pressure level that is exceeded for 10% of the time for which the given sound is measured.
L90	The level of noise exceeded for 90% of the time. The bottom 10% of the sample is the L_{90} noise level expressed in units of dB(A).
Leq	The "equivalent noise level" is the summation of noise events and integrated over a selected period of time.
dB (A)	'A' Weighted overall sound pressure level

Sound Pressure Level, LP dB	A measurement obtained directly using a microphone and sound level meter. Sound pressure level varies with distance from a source and with changes to the measuring environment. Sound pressure level equals 20 times the logarithm to the base 10 of the ratio of the rms sound pressure to the reference sound pressure of 20 micro Pascals.
Sound Power Level, Lw dB	Sound power level is a measure of the sound energy emitted by a source, does not change with distance, and cannot be directly measured. Sound power level of a machine may vary depending on the actual operating load and is calculated from sound pressure level measurements with appropriate corrections for distance and/or environmental conditions. Sound power levels is equal to 10 times the logarithm to the base 10 of the ratio of the sound power of the source to the reference sound power of 1 picoWatt

APPENDIX B: NOISE & VIBRATION INVESIGATION CHECKLIST



Pulse White Noise Acoustics (PWNA) and Hansen Yuncken (HY) have prepared the following noise and vibration investigation checklist to assist the onsite construction team in investigation any received noise and vibration complaint or identifying an exceedance over the management levels. This checklist should be completed in conjunction with *The New Primary School in Murrumbateman, Fairley Street, Murrumbateman – Construction Noise Vibration Management Sub-Plan (CNVMSP)* prepared by PWNA.

Should any noise and vibration complaint be received, HY must complete the following steps:

Exceedance/Complaint Information

Complaint reference number:..... .....

Date Received: .....

Location of Complaint: .....

Complainant Contact Details:.....

Step	Task	Completed Response
1	Pause onsite works	
2	Identify the main source(s) construction noise and/or vibration within specific areas of the site which is impacting the most at the sensitive receiver.	
3	Review the identified equipment and determine if an alternate piece of equipment can be used or the process can be altered. ***(If no, skip to step 5)***	
4	In the event an alternate piece of equipment or process can be used, works can re-commence incorporating possible and practical mitigation measures.	
5	In the event an alternate piece of equipment or process cannot be determined implement a construction assessment to be performed by a suitably qualified acoustic consultant. This may include additional respite periods.	

APPENDIX C: AUTHOR CURRICULUM VITAE (CV)

APPENDIX D – SCHOOL INFRASTRUCTURE (SI) *NEW PRIMARY SCHOOL IN MURRUMBATEMAN – PROJECT UPDATE NOVEMBER 2021*

Artist impression of the new primary school in Murrumbateman

New primary school in Murrumbateman

Project update

November 2021

Investing in our schools

The NSW Government is investing $7.9 billion over the next four years, continuing its program to deliver 215 new and upgraded schools to support communities across NSW. This is the largest investment in public education infrastructure in the history of NSW.

The NSW Department of Education is committed to delivering new and upgraded schools for communities across NSW. The delivery of these important projects is essential to the future learning needs of our students and supports growth in the local economy.

Project overview

Planning is continuing on a project to build a new primary school in Murrumbateman for the growing community.

The project will deliver flexible learning spaces, as well as a special program unit, core facilities and a covered outdoor learning area (COLA) to cater for up to 370 students from Kindergarten to Year 6.

Construction is scheduled for completion by early 2023.

Progress Summary

The State Significant Development (SSD) application has been approved by the NSW Department of Planning, Industry and Environment (DPIE).

For more information contact:

School Infrastructure NSW
Email: schoolinfrastructure@det.nsw.edu.au
Phone: 1300 482 651
www.schoolinfrastructure.nsw.gov.au

Construction

Site establishment works to prepare the site for construction are likely to start in the coming months. The community will be notified of the planned works in advance. Construction works have been approved to occur between 7 am and 6 pm, Monday to Friday and 8 am to 1 pm, Saturday. No work will take place on Sundays unless otherwise advised. Works may also occur between 6 pm and 7 pm Monday to Friday and between 1 pm and 4 pm Saturday provided they do not exceed background noise levels by more than 5 decibels.

Managing construction impacts

Works are anticipated to start in the coming months, starting with site establishment and followed by earthworks and construction of the new learning facilities.

As part of the consent to carry out the work, the contractor is required to develop a Construction Environmental Management Plan (CEMP) and a Construction Noise and Vibration Management Sub-Plan (CNVMP) to outline how it will manage construction impacts to nearby residents. These impacts include noise, vibration and vehicle movements.

You can view the consent conditions, including those required for managing construction impacts on the Planning Portal webpage at www.planningportal.nsw.gov.au/major-projects/project/40646.

You can also take a look at the construction impacts consent conditions and proposed action overleaf.

Artist impression of the new primary school in Murrumbateman

For more information contact:

School Infrastructure NSW
Email: schoolinfrastructure@det.nsw.edu.au
Phone: 1300 482 651
www.schoolinfrastructure.nsw.gov.au

NSW Department of Education – School Infrastructure

Consent conditions and proposed action

Below are some key consent conditions from DPIE for the new primary school in Murrumbateman. Please let us know if you have any feedback or questions about these consent conditions and the associated management actions listed by contacting us via email at schoolinfrastructure@det.nsw.edu.au or phone 1300 482 651 by 3 December 2021.

Activity	Consent conditions and proposed action
General	• Noise levels generated by the operations at site shall not exceed the noise control guidelines outlined in the EPA Environmental Noise Control Manual for construction/ demolition works. • The local community will be provided with advance notice of work, particularly outlining any anticipated high-noise works. • Trucks will be maintained with low-noise mufflers and only use approved truck routes to and from the site. • Noisy construction works, including the delivery of materials to and from the site, are proposed to take place between 7 am and 6 pm Mondays to Fridays and between 8 am and 1 pm on Saturdays. No work is currently proposed for Sundays or Public Holidays.
Construction	**Consent condition: Construction hours** Proposed actions: • Overall construction hours will be strictly limited to approved hours: 7 am to 6 pm, Monday to Friday; 8 am to 1 pm Saturdays. Low-noise works may take place during approved hours; 6 pm to 7 pm Monday to Friday; 1 pm to 4 pm Saturdays. • If rock breaking activities are required, impacts will be managed through equipment selection, and respite periods . Rock breaking hours will be strictly limited to approved hours: 9 am to 12 pm, Monday to Friday; 2 pm to 5 pm Monday to Friday; 9 am to 12 pm, Saturday.
Construction	**Consent condition: Noise and Vibration** Proposed actions • A Construction Noise and Vibration Management Sub-Plan (CNVMP) will be prepared by a suitably qualified and experienced noise expert. • Plant and equipment will be set up/orientated to direct noise away from the closest receivers/residents. • The quietest suitable machinery will be selected to perform works. • In close proximity to sensitive receivers/residents, machines will not be used/run simultaneously • If rock breaking activities are required, impacts will be managed through equipment selection, and respite periods.
Construction	**Consent condition: Soil and Water Management** Proposed actions • A Construction Soil and Water Management Sub-Plan (CSWMSP) will be prepared by a suitably qualified expert, in consultation with Council. • Sediment and Erosion Management Plans are to be enforced prior to any works commencing on site.

For more information contact:

School Infrastructure NSW
Email: schoolinfrastructure@det.nsw.edu.au
Phone: 1300 482 651
www.schoolinfrastructure.nsw.gov.au

Activity	Consent conditions and proposed action
Construction	**Consent condition: Traffic and Pedestrian Management** Proposed actions • A Construction Traffic and Pedestrian Management Sub-Plan (CTPMSP) will be prepared by a suitably qualified expert to ensure road and pedestrian safety. • Traffic control personnel will be on-site on an as need basis to ensure minimal interruption to traffic and pedestrians.

Frequently asked questions

When will main construction works start?

The construction is expected to start in early 2022, with preparatory works scheduled to start in December 2021.

What steps will be taken to control noise and dust impacts?

The contractor will continue to implement dust and noise control measures. Dust and noise are minimised with hoarding, shade cloth and spraying water.

How will traffic be managed?

Traffic management will be in place where required for the safety of the local community and workers. Traffic controllers will be used to manage the entry and exit of vehicles to and from the construction site as necessary.

Vehicles will give way to pedestrians at all times.

Will street parking be impacted during construction?

Street parking impacts will be minimised where possible. Contractors are encouraged to carpool and parking will be made available on site for construction vehicles. We will work with local communities to identify issues and put in place measures to mitigate the effects.

Will utility services be interrupted as part of the construction?

School Infrastructure NSW coordinates upgrades or new supplies of utility services with local providers to minimise disruption. In the event of a disruption to services in the local area, we will notify businesses and residents in advance.

Is there a COVID safety plan in place?

A comprehensive COVID-19 Safety Plan will be in place for the site and the contractor will enforce strict compliance with the Public Health Order. Our construction sites will follow all current health guidelines

For more information contact:

School Infrastructure NSW
Email: schoolinfrastructure@det.nsw.edu.au
Phone: 1300 482 651
www.schoolinfrastructure.nsw.gov.au

A.7 Construction Soil and Water Management Sub-plan (CSWMSP)

NORTHROP

CIVIL ENGINEERING REPORT: SOIL & WATER MANAGEMENT PLAN

New Primary School in Murrumbateman

Fairley Street, Murrumbateman NSW

PREPARED FOR
Hansen Yuncken
B1 L3 75-85 O'Riordan Street

Alexandria NSW 2015
Tel: (02) 9770 7691

Ref: MURR-CR01-2
Rev: 2
Date: 07.12.21

Civil Engineering Report: Soil & Water Management Plan

Revision Schedule

Date	Revision	Issue	Prepared By	Approved By
01.11.21	1	Draft	N.Sutherland	J. Gilligan
07.12.21	2	Final	N.Sutherland	J.Gilligan

Northrop Consulting Engineers Pty Ltd

ACN 064 775 088 | ABN 81 094 433 100

Level 2, 3 Horwood Place, Parramatta NSW 2150

02 9241 4188 | sydney@northrop.com.au | www.northrop.com.au

Table of Contents

1. General

1.1 Introduction

Northrop Consulting Engineers Pty Ltd (Northrop) have been engaged by Hansen Yuncken to prepare the Civil Engineering design and documentation in support of a Construction Certificate for the New Primary School in Murrumbateman at 2 Fairley Street, Murrumbateman.

This report covers the works shown as the Northrop Drawing Package required for the development of the site including:

- Erosion and Sediment control;

1.2 Related Reports and Documents

This report is to be read in conjunction with the following reports and documents:

1. Detailed Design Phase Civil Documentation prepared by Northrop:
   - MURR-CV-DD-DWG-101.11 Specification Notes – Sheet 01
   - MURR-CV-DD-DWG-101.12 Specification Notes – Sheet 02
   - MURR-CV-DD-DWG-102.01 Sediment and Soil Erosion Control Plan
   - MURR-CV-DD-DWG-102.11 Sediment and Soil Erosion Control Details
   - MURR-CV-DD-DWG-202.01 Sediment and Soil Erosion Control Plan

2. NSW Department of Housing Manual, “Managing Urban Stormwater Soil & Construction” 2004 (Blue Book)
3. Yass Valley Council Engineering Design Guidelines

1.3 The Development

1.3.1 Precinct and Surrounds

The site is located at 2 Fairley Street, Murrumbateman, in the local government area of Yass Valley Council. The site is formally described as Lot 302 DP1228766 (refer to Figure 1). The site is irregular in shape and has an area of 15,434.92m².

The site is located at the northern end of the Murrumbateman village, which is characterised by a mix of uses including low density residential and some commercial.

Immediately surrounding development includes a tourist hotel to the north across Fairley Street, Murrumbateman Library (located in the former Murrumbateman schoolhouse, a local heritage item) to the south, a medical centre and childcare centre to the west, and rural land and equestrian facilities to the east across Barton Highway. There is also a cycling and equestrian pathway to the south between the site and library.

The site contains an existing parking lot in its northern end and a driveway along its western boundary. There is also a mound of soil at the southern end of the site. The site is otherwise cleared and vacant.

2. Erosion and Sediment Control

The objectives of the erosion and sediment control for the development site are to ensure:

- Adequate erosion and sediment control measures are applied prior to the commencement of construction and are maintained throughout construction; and
- Construction site runoff is appropriately treated in accordance with Yass Valley Council requirements.

As part of the works, the erosion and sedimentation control will be constructed in accordance with Council requirements and the NSW Department of Housing Manual, “Managing Urban Stormwater Soil & Construction” 2004 (Blue Book) prior to any earthworks commencing on site. The Concept Sediment and erosion control measures are documented in Northrop’s detailed design drawings MURR-CV-DD-DWG-101.11, 101.12, 102.01, 102.11, 202.01

2.1 Sediment Basin

A temporary sediment basin has been designed to capture site runoff during construction and has been located towards the north eastern side of the site, in the lowest point. The construction of the basin will be undertaken in stages to enable maximum runoff capture assisted by diversion swales and direct runoff to the basin.

Calculations to determine the concept design basin size have been based on available geotechnical information regarding soil types and through the use of the Soils and Construction Volume 1 Manual.

To ensure the sediment basin is working effectively it will be maintained throughout the construction works. Maintenance includes ensuring adequate settlement times or flocculation and pumping of clean water to reach the minimum storage volume at the lower level of the settling zone. The settling zone will be identified by pegs to clearly show the level at which design storage capacity is available.

The pumped water from the sediment basin can be reused for dust control during construction, refer Section 2.1.1 for Maintenance of the sediment basin.

Overflow weirs are to be provided to control overflows for rainfall events in excess of the design criteria which caters for a storm event up to and including the 1% AEP storm event.

The concept sediment basin sizing is summarised in the table below. Detailed sediment basin sizing, configuration and location shall form part of the Construction Certificate application.

The sediment basin has been located for future conversion into the permanent water quality and OSD tank.

2.1.1 Maintenance of Sediment Basin

Prior to any forecast weather event, likely to result in sediment laden runoff on the site, dewatering is to be undertaken to provide sufficient capacity to capture sediment laden water from the site. Any sediment laden water captured on site must be treated to ensure it will achieve Council’s water quality objectives prior to its release from site. A sample of the released treated water must be kept on site in a clear container with the sample date recorded.

- No aluminum based products may be used to treat turbid water (flocculating/coagulants) on site without the prior written permission from an appropriate Council Officer. The applicant must have demonstrated ability to use such products correctly and without environmental harm prior to any approval.
- The chemical/ agents (Flocculating/coagulants) used in Type D and Type F Basins to treat turbid water captured in the basin must be applied in concentrations sufficient to achieve Council’s

water quality objectives (TSS <50mg/L Tubidity <60 NTU 6.5 <ph <8.5) within the 5 day rainfall depth used to calculation the capacity of the basin, after a rainfall event.

- All manufacturers instructions must be followed for the use of any chemicals/agents used on site except where approved by the responsible person or an appropriate Council Officier.
- Sufficient quantities of chemicals/agents to treat turbid water (Flocculating/coagulants) must be placed such that water entering the basin mixes with the chemical/agents and is carried into the basin/trap.
- The sediment basin to be dewatered as soon as practical once water captured in the basin achieves Council's water quality objectives
- Inspect the sediment basin after each rainfall events and/or weekly. Ensure that all the sediment is removed once the sediment storage zone is full. Ensure that outlet and emergency spillway works are maintained in a fully operational condition at all times.

2.2 Sediment and Erosion Control Measures

Prior to any earthworks commencing on site, sediment and erosion control measure shall be implemented generally in accordance with the Construction Certificate drawings and the “Blue Book”. The measures shown on the drawings are intended to be a minimum treatment only as the contractor will be required to modify and stage the erosion and sedimentation control measures to suit the construction program, sequencing and techniques. These measures will include:

- A temporary site security/safety fence is to be constructed around the site, the site office area and the proposed sediment basin;
- Sediment fencing provided downstream of disturbed areas, including any topsoil stockpiles;
- Dust control measures including covering stockpiles, installing fence hessian and watering exposed areas;
- Placement of hay bales or mesh and gravel inlet filters around and along proposed catch drains and around stormwater inlets pits within the site and Fairley Street;
- The construction of a temporary sediment basin as noted above in Section 2.1;
- Stabilised site access at the construction vehicle entry/exits.

Any stockpiled material, including topsoil, shall be located as far away as possible from any associated natural watercourses or temporary overland flow paths. Sediment fences shall be installed to the downstream side of stockpiles and any embankment formation. All stockpiles and embankment formations shall be stabilised by hydroseeding or hydro mulching on formation.

2.3 Wet Weather Management

In circumstances of heavy rain sufficient to affect site access and ground conditions the Site Manager and Site HSE Committee representative should complete a site inspection before work commences. The inspection needs to focus on;

- The suitability of pedestrian access to the amenities and into the construction work areas
- The suitability of access for plant and equipment
- The suitability of ground conditions for plant and equipment to operate
- Nominate the construction zones suitable for work to commence
- Actions to remediate those areas not suitable for work to commence (de-water; prepare ground conditions and access ways etc.)

3. Further Commentary

3.1 SSD Conditions

The Minister for Planning and Open Spaces has provided Conditions of Consent (Application Number: SSD 11233241) for the New Primary School at Murrumbateman. Conditions associated with the Construction Soil and Water Management Plan have been provided below with further commentary for consideration by School Infrastructure NSW and the Certifying Authority.

B18. Construction Soil and Water Management Sub-Plan (CSWMSP)

The Applicant must prepare a Construction Soil and Water Management Sub-Plan (CSWMSP) and the plan must address, but not be limited to the following:

(a) be prepared by a suitably qualified expert, in consultation with Council;

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

(c) Describe all erosion and sediment controls to be implemented during construction, including as a minimum, measures in accordance with the publication Managing Urban Stormwater: Soils & Construction (4th edition, Landcom 2004) commonly referred to as the 'Blue Book';

(d) provide a plan of how all construction works will be managed in a wet-weather events (i.e. storage of equipment, stabilisation of the Site);

(e) detail all off-Site flows from the Site; and

(f) describe the measures that must be implemented to manage stormwater and flood flows for small and large sized events, including, but not limited to, 1 in 5-year ARI.

Northrop Commentary

The following comments have been provided with respect to Condition B18 for consideration by School Infrastructure NSW and the Certifying Authority.

Northrop Commentary

(a) Please refer to the CV of the designer provided in Appendix D. The project design team have approached Yass Valley Council to initiate discussions regarding the proposed measures to control soil erosion and sedimentation during construction including proposed methods of discharging stormwater from the site. Refer Consultation Record Attached, Appendix D.

(b) A temporary stabilised construction access is proposed for a minimum 120m length and cattle grid prior to vehicles leaving the site. This is outlined on the Civil Engineering drawings.

(c) Please refer to Section 2 of this report and associated Civil Engineering drawings MURR-CV-DD-DWG-101.11, 101.12, 102.01, 102.11, 202.01

(d) Please refer to Civil Engineering drawing MURR-CV-DD-DWG-101.11, 101.12, 102.01, 102.11, 202.01

(e) Clean water from the Sediment Basin is discharged to Council's stormwater system located on the Barton Highway table drain. Refer Section 2.1.1 for methodology prior to site stormwater during construction. Prior written approval from Council must be obtained to connect or discharge site stormwater to Council's stormwater drainage system or street gutter. Refer Northrop's detailed stormwater plans for compliance of Condition C23.

(f) Please refer to Section 2 of this report and associated Civil Engineering drawings MURR-CV-DD-DWG-101.11, 101.12, 102.01, 102.11, 202.01. The erosion and sediment control plans have been designed in accordance with the requirements of NSW Department of Housing Manual, "Managing Urban Stormwater Soil & Construction" 2004 (Blue Book).

Appendix A – Soil & Water Management Plans

NOTE: ALL CIVIL ENGINEERING CONSTRUCTION WORKS TO BE CARRIED OUT IN ACCORDANCE WITH YASS VALLEY COUNCIL DEVELOPMENT GUIDELINES. READ IN CONJUNCTION WITH THE NOTES PROVIDED BELOW. IF CONFLICT ARISE, YASS VALLEY COUNCIL GUIDELINES AND SPECIFICATIONS TAKE PRECEDENCE. WHERE YASS VALLEY COUNCIL GUIDELINES AND SPECIFICATIONS ARE SILENT, THE SPECIFICATION NOTES BELOW TAKE PRECEDENCE

ACCESS AND SAFETY

1. THE CONTRACTOR SHALL COMPLY WITH ALL STATUTORY AND INDUSTRIAL REQUIREMENTS FOR PROVISION OF A SAFE WORKING ENVIRONMENT INCLUDING TRAFFIC CONTROL.
2. THE CONTRACTOR SHALL PROVIDE TRAFFIC MANAGEMENT PLANS FOR THE PROPOSED WORKS COMPLETED BY A SUITABLY QUALIFIED PERSON AND APPROVED BY COUNCIL / REGULATORY AUTHORITY. WORK IS NOT TO COMMENCE ON SITE PRIOR TO APPROVAL OF TRAFFIC MANAGEMENT SCHEME.
3. THE CONTRACTOR SHALL ENSURE THAT AT ALL TIMES ACCESS TO BUILDINGS ADJACENT THE WORKS IS NOT DISRUPTED.
4. WHERE NECESSARY THE CONTRACTOR SHALL PROVIDE SAFE PASSAGE OF VEHICLES AND/OR PEDESTRIANS THROUGH OR BY THE SITE.
5. THE CONTRACTOR SHALL ENSURE PUBLIC ACCESS EXTERNAL TO THE SITE IS IN ACCORDANCE WITH COUNCILS REQUIREMENTS.

TREE PROTECTION

1. REFER TO LANDSCAPE / ARCHITECTS PLAN FOR TREES TO BE RETAINED AND PROTECTED.
2. ANY EXISTING TREES WHICH FORM PART OF THE FINAL LANDSCAPING PLAN SHALL BE PROTECTED FROM CONSTRUCTION ACTIVITIES BY;
   - 2.1. PROTECTING THEM WITH BARRIER FENCING OR SIMILAR MATERIALS INSTALLED OUTSIDE THE DRIP LINE.
   - 2.2. ENSURING THAT NOTHING IS NAILED TO ANY PART OF THE TREE.
   - 2.3. CARE IS TAKEN NOT TO CUT ROOTS UNNECESSARILY. COUNCILS AND/OR INDEPENDENT ARBORISTS TO BE CONSULTED WHERE TREE ROOTS ARE TO BE REMOVED AND/OR CUT.

SEDIMENT AND SOIL EROSION

1. THE SEDIMENT & EROSION CONTROL PLAN PRESENTS CONCEPTS ONLY. THE CONTRACTOR SHALL AT ALL TIMES BE RESPONSIBLE FOR THE ESTABLISHMENT & MANAGEMENT OF A DETAILED SCHEME MEETING COUNCILS DESIGN, OTHER REGULATORY AUTHORITY REQUIREMENTS AND MAKE GOOD PAYMENT OF ALL FEES.
2. THE CONTRACTOR SHALL INSTIGATE ALL SEDIMENT AND EROSION CONTROL MEASURES IN ACCORDANCE WITH STATUTORY REQUIREMENTS AND IN PARTICULAR THE 'BLUE BOOK' (MANAGING URBAN STORMWATER SOILS AND CONSTRUCTION), PRODUCED BY THE DEPARTMENT OF HOUSING AND COUNCILS POLICIES. THESE MEASURES ARE TO BE INSPECTED AND MAINTAINED ON A DAILY BASIS.
3. THE SITE SUPERINTENDENT SHALL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE LOCATED AS INSTRUCTED IN THE DRAWINGS AND ADHERE TO ALL REGULATORY AUTHORITY REQUIREMENTS.
4. THE CONTRACTOR SHALL INFORM ALL SUB CONTRACTORS OF THEIR RESPONSIBILITIES IN MINIMISING THE POTENTIAL FOR SOIL EROSION AND POLLUTION TO DOWNSLOPE LANDS AND WATERWAYS.
5. WHERE PRACTICAL, THE SOIL EROSION HAZARD ON THE SITE SHALL BE KEPT AS LOW AS POSSIBLE. TO THIS END, WORKS SHOULD BE UNDERTAKEN IN THE FOLLOWING SEQUENCE;
   - 5.1. CONSTRUCT TEMPORARY STABILISED SITE ACCESS INCLUSIVE OF SHAKE DOWN / WASH PAD.
   - 5.2. INSTALL ALL TEMPORARY SEDIMENT FENCES AND BARRIER FENCES. WHERE FENCES ADJACENT EACH OTHER, THE SEDIMENT FENCE CAN BE INCORPORATED INTO THE BARRIER FENCE.
   - 5.3. INSTALL SEDIMENT CONTROL MEASURES AS OUTLINED ON THE APPROVED PLANS.
6. UNDERTAKE SITE DEVELOPMENT WORKS SO THAT LAND DISTURBANCE IS CONFINED TO AREAS OF MINIMUM WORKABLE SIZE.
7. AT ALL TIMES AND IN PARTICULAR DURING WINDY AND DRY WEATHER, LARGE UNPROTECTED AREAS WILL BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL ENSURING CONFORMITY TO REGULATORY AUTHORITY REQUIREMENTS.
8. ANY SAND USED IN THE CONCRETE CURING PROCESS (SPREAD OVER THE SURFACE) SHALL BE REMOVED AS SOON AS POSSIBLE AND WITHIN 10 WORKING DAYS FROM PLACEMENT.
9. WATER SHALL BE PREVENTED FROM ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS THE CATCHMENT AREA HAS BEEN STABILISED AND/OR ANY LIKELY SEDIMENT BEEN FILTERED OUT.
10. TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES SHALL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE STABILISED / REHABILITATED.
11. ALLOW FOR GRASS STABILISATION OF EXPOSED AREAS, OPEN CHANNELS AND ROCK BATTERS DURING ALL PHASES OF CONSTRUCTION.
12. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED TO ENSURE THAT THEY OPERATE EFFECTIVELY. REPAIRS AND/OR MAINTENANCE SHALL BE UNDERTAKEN REGULARLY AND AS REQUIRED, PARTICULARLY FOLLOWING RAIN EVENTS.
13. RECEPTORS FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER SHALL BE DISPOSED OF IN ACCORDANCE WITH REGULATORY AUTHORITY REQUIREMENTS. CONTRACTOR TO PAY ALL FEES AND PROVIDE EVIDENCE OF SAFE DISPOSAL.
14. IF A TEMPORARY SEDIMENT BASIN IS REQUIRED, ENSURE SAFE BATTER SLOPES IN ACCORDANCE WITH THE GEOTECHNICAL REPORT. MAINTAIN ADEQUATE STORAGE VOLUME IN ACCORDANCE WITH PLANS. TEMPORARY PUMP 'CLEAN FLOCCULATED' WATER TO COUNCILS STORMWATER SYSTEM . ENSURE WHOLE SITE RUN-OFF IS DIRECTED TO TEMPORARY SEDIMENT BASIN.

EXISTING SERVICES

1. ALL UTILITY SERVICES INDICATED ON THE DRAWINGS ORIGINATE FROM SUPPLIED DATA OR DIAL BEFORE YOU DIG SEARCHES, THEREFORE THEIR ACCURACY AND COMPLETENESS IS NOT GUARANTEED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE AND CONFIRM THE LOCATION AND LEVEL OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES SHALL BE REPORTED TO THE SUPERINTENDENT. CLEARANCES SHALL BE OBTAINED FROM THE RELEVANT SERVICE AUTHORITY. NOTE SERVICE AUTHORITY REQUIREMENTS FOR LOCATING OF SERVICES PRIOR TO COMMENCEMENT OF WORKS.
2. CARE TO BE TAKEN WHEN EXCAVATING NEAR EXISTING SERVICES. NO MECHANICAL EXCAVATIONS AREA TO BE UNDERTAKEN OVER COMMUNICATION, GAS OR ELECTRICAL SERVICES. HAND EXCAVATION ONLY IN THESE AREAS.
3. THE CONTRACTOR SHALL PROTECT AND MAINTAIN ALL EXISTING SERVICES THAT ARE TO BE RETAINED IN THE VICINITY OF THE PROPOSED WORKS. ANY AND ALL DAMAGE TO THESE SERVICES AS A RESULT OF THESE WORKS SHALL BE REPAIRED BY THE CONTRACTOR UNDER THE DIRECTION OF THE SUPERINTENDENT AT THE CONTRACTORS EXPENSE.
4. THE CONTRACTOR SHALL ALLOW IN THE PROGRAM FOR THE ADJUSTMENT (IF REQUIRED) OF EXISTING SERVICES IN AREAS AFFECTED BY WORKS.
5. THE CONTRACTOR SHALL ALLOW IN THE PROGRAM FOR THE CAPPING OFF, EXCAVATION AND REMOVAL (IF REQUIRED) OF EXISTING SERVICES IN AREAS AFFECTED BY WORKS UNLESS DIRECTED OTHERWISE ON THE DRAWINGS OR BY THE SUPERINTENDENT.
6. THE CONTRACTOR SHALL ENSURE THAT AT ALL TIMES SERVICES TO ALL BUILDINGS NOT AFFECTED BY THE WORKS ARE NOT DISRUPTED AND MAINTAINED.
7. PRIOR TO COMMENCEMENT OF ANY WORKS THE CONTRACTOR SHALL GAIN APPROVAL OF THE PROGRAM FOR THE RELOCATION AND/OR CONSTRUCTION OF TEMPORARY SERVICES AND FOR ANY ASSOCIATED INTERRUPTION OF SUPPLY.
8. THE CONTRACTOR SHALL CONSTRUCT TEMPORARY SERVICES TO MAINTAIN EXISTING SUPPLY TO BUILDINGS REMAINING IN OPERATION DURING WORKS TO THE SATISFACTION AND APPROVAL OF THE SUPERINTENDENT. ONCE DIVERSION IS COMPLETE AND COMMISSIONED THE CONTRACTOR SHALL REMOVE ALL SUCH TEMPORARY SERVICES AND MAKE GOOD TO THE SATISFACTION OF THE SUPERINTENDENT.

EARTHWORKS

1. AT THE COMMENCEMENT OF FILLING OPERATIONS FOR BULK EARTHWORKS A GEOTECHNICAL ENGINEER IS TO VISIT THE SITE & CONFIRM THE SUITABILITY OF THE METHODOLOGY OF ACHIEVING THE REQUIRED COMPACTION REQUIREMENTS.
2. STRIP TOPSOIL, VEGETABLE MATTER AND RUBBLE TO EXPOSE NATURALLY OCCURRING MATERIAL AND STOCKPILE ON SITE AS DIRECTED BY THE SUPERINTENDENT.
3. WHERE FILLING IS REQUIRED TO ACHIEVE DESIGN SUBGRADE, PROOF ROLL EXPOSED NATURAL SURFACE WITH A MINIMUM OF TEN PASSES OF A VIBRATING ROLLER (MINIMUM STATIC WEIGHT OF 10 TONNES) IN THE PRESENCE OF THE SUPERINTENDENT.
4. THE CONTRACTOR IS TO ALLOW FOR A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER TO PROVIDE ADVICE AND CERTIFICATION OF ANY WORKS ASSOCIATED WITH TREATING OR MANAGING UNSUITABLE GROUND CONDITIONS THROUGHOUT THE CONTRACT (e.g. STABILITY OF EXCAVATIONS, POOR SUBGRADE, etc).
5. ALL SOFT, WET OR UNSUITABLE MATERIAL IS TO BE REMOVED AS DIRECTED BY THE SUPERINTENDENT AND REPLACED WITH APPROVED MATERIAL SATISFYING THE REQUIREMENTS BELOW.
6. PROVIDE CERTIFICATES VERIFYING THE QUALITY OF IMPORTED MATERIAL FOR THE SUPERINTENDENTS APPROVAL.
7. ALL FILL MATERIAL SHALL BE PLACED IN MAXIMUM 200mm THICK LAYERS (LOOSE) AND COMPACTED AT OPTIMUM MOISTURE CONTENT (+ OR - 2%) TO ACHIEVE A DRY DENSITY DETERMINED IN ACCORDANCE WITH AS1289.2.1.1, AS1289.5.7.1 AND AS1289.5.8.8 OF NOT LESS THAN THE FOLLOWING STANDARD MINIMUM DRY DENSITY;

LOCATION	COMPACTION REQUIREMENT
LANDSCAPED AREAS	98% SMDD
ROADS	100% SMDD (IN ACCORDANCE WITH
COUNCIL SPECIFICATIONS)	
PAVED AREAS	100% SMDD (IN ACCORDANCE WITH
COUNCIL SPECIFICATIONS)	

8. TESTING OF THE SUBGRADE FOR BUILDINGS SHALL BE CARRIED OUT BY AN APPROVED N.A.T.A. REGISTERED LABORATORY.
9. ALLOW THE FOLLOWING COMPACTION TESTING BY N.A.T.A. REGISTERED LABORATORY FOR PLATFORMS AND FILL LAYERS IN ACCORDANCE WITH THE LATEST VERSION OF AS3798. (MINIMUM 3 TESTS PER LAYER) OR 1 TEST PER MATERIAL TYPE PER 2500sq.m OR 1 TEST.
10. WHERE TEST RESULTS ARE BELOW THE SPECIFIED COMPACTION, RECOMPACT AND RETEST UNTIL SPECIFIED COMPACTION STANDARDS ARE ACHIEVED, OTHERWISE SUBGRADE REPLACEMENT IS REQUIRED IF COMPACTION STANDARDS ARE NOT ACHIEVED.
11. ALLOW FOR EXCAVATION IN ALL MATERIALS AS FOUND U.N.O. NO ADDITIONAL PAYMENTS WILL BE MADE FOR EXCAVATION IN WET OR HARD GROUND.
12. WHERE THERE IS INSUFFICIENT EXCAVATED MATERIAL SUITABLE FOR FILLING OR SUBGRADE REPLACEMENT, THE CONTRACTOR IS TO ALLOW TO IMPORT FILL. IMPORTED FILL SHALL COMPLY WITH THE FOLLOWING;
   - 12.1. BE OF VIRGIN EXCAVATED NATURAL MATERIAL OR
   - 12.2. CONTRACTOR TO PROVIDE EVIDENCE IMPORT IS SUITABLE USE
   - 12.3. PLASTICITY INDEX BETWEEN 2-15% AND CBR > 8
   - 12.4. FREE FROM ORGANIC AND PERISHABLE MATTER
   - 12.5. MAXIMUM SIZE 50mm, PASSING 75 MICRON SIEVE (<25%)

EARTHWORKS (cont)

13. THE CONTRACTOR SHALL PROGRAM THE EARTHWORKS OPERATION SO THAT THE WORKING AREAS ARE ADEQUATELY DRAINED DURING THE PERIOD OF CONSTRUCTION. THE SURFACE SHALL BE GRADED AND SEALED OFF TO REMOVE DEPRESSIONS, ROLLERS MARKS AND SIMILAR WHICH WOULD ALLOW WATER TO POND AND PENETRATE THE UNDERLYING MATERIAL. ANY DAMAGE RESULTING FROM THE CONTRACTOR NOT OBSERVING THESE REQUIREMENTS SHALL BE RECTIFIED AT THEIR COST.
14. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE AND MAINTAIN THE INTEGRITY OF ALL SERVICES, CONDUITS AND PIPES DURING CONSTRUCTION, SPECIFICALLY DURING THE BACKFILLING AND COMPACTION PROCEDURE. ANY AND ALL DAMAGE TO NEW OR EXISTING SERVICES AS A RESULT OF THESE WORKS SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST.
15. TESTING OF THE SUBGRADE SHALL BE CARRIED OUT BY AN APPROVED N.A.T.A. REGISTERED LABORATORY AT THE CONTRACTORS EXPENSE.

DEEP EXCAVATIONS

16. PRIOR TO THE COMMENCEMENT OF EXCAVATION WORKS GREATER THAN 1.5m IN DEPTH, THE CONTRACTOR SHALL OBTAIN THE SERVICES OF A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER TO DETERMINE THE STABILITY OF A NATURAL MATERIAL AND BENCHING REQUIREMENTS.
17. THE CONTRACTOR MUST PROVIDE THE SUPERINTENDENT AND OR THE DESIGN ENGINEER WITH A COPY OF THE GEOTECHNICAL ENGINEERS REPORT.
18. THE CONTRACTOR IS TO PROVIDE SAFETY BARRIERS / FENCING IN ACCORDANCE WITH OH&S AND REGULATORY AUTHORITY REQUIREMENTS.

SERVICE TRENCHES

19. SAWCUT EXISTING SURFACES PRIOR TO EXCAVATION. BACKFILL ALL TRENCHES UNDER EXISTING ROADS, PAVEMENTS AND PATHS WITH STABILISED SAND 5% CEMENT OR DGS40 MATERIAL (5% CEMENT) COMPACTED IN 200mm THICK LAYERS TO 98% MMDD TO UNDERSIDE OF PAVEMENT.
20. BACKFILL ALL TRENCHES NOT UNDER ROADS, PAVEMENTS, PATHS AND BUILDINGS WITH APPROVED EXCAVATED OR IMPORTED MATERIAL COMPACTED TO 95% SMDD.

SITEWORKS

1. ALL WORKS TO BE IN ACCORDANCE WITH RELEVANT LOCAL COUNCIL / REGULATORY AUTHORITIES REQUIREMENTS, ALL SPECIFICATIONS AND AUSTRALIAN STANDARDS. CONFLICTS BETWEEN SAID DOCUMENTS SHALL BE REFERRED TO THE SUPERINTENDENT FOR DIRECTION.
2. THE CONTRACTOR IS TO DESIGN, OBTAIN APPROVALS AND CARRY OUT REQUIRED TEMPORARY TRAFFIC CONTROL PROCEDURES DURING CONSTRUCTION IN ACCORDANCE WITH ALL REGULATORY AUTHORITIES, INCLUSIVE OF LOCAL COUNCIL REGULATIONS AND REQUIREMENTS.
3. THE CONTRACTOR IS TO OBTAIN ALL AUTHORITY APPROVALS AS REQUIRED PRIOR TO COMMENCEMENT OF WORKS.
4. RESTORE ALL PAVED, COVERED, GRASSED AND LANDSCAPED AREAS TO THEIR ORIGINAL CONDITION OR AS DIRECTED BY THE SITE SUPERINTENDENT ON COMPLETION OF WORKS. WHERE PLANTING OF NEW GRASS IS NECESSARY REFER TO LANDSCAPE ARCHITECT AND / OR ARCHITECT DOCUMENTATION.
5. ON COMPLETION OF ANY TRENCHING WORKS, ALL DISTURBED AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION OR AS DIRECTED BY THE SITE SUPERINTENDENT, INCLUDING KERBS, FOOTPATHS, CONCRETE AREAS, GRAVEL, GRASSED AREAS AND ROAD PAVEMENTS.
6. THE CONTRACTOR SHALL ARRANGE ALL SURVEY SETOUT TO BE CARRIED OUT BY A REGISTERED SURVEYOR PRIOR TO COMMENCEMENT OF WORKS.
7. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING LEVELS ONSITE PRIOR TO LODGMENT OF TENDER AND ONSITE WORKS. THE PRICE AS TENDERED SHALL BE INCLUSIVE OF ALL WORKS SHOWN ON THE TENDER PROJECT DRAWINGS. ADDITIONAL PAYMENTS FOR WORKS SHOWN ON THE TENDER PROJECT DRAWINGS WILL NOT BE APPROVED.
8. DO NOT OBTAIN DIMENSIONS BY SCALING DRAWINGS.
9. IN CASE OF DOUBT OR DISCREPANCY REFER TO SUPERINTENDENT FOR CLARIFICATION OR CONFIRMATION PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
10. WHERE NEW WORKS ABUT EXISTING THE CONTRACTOR SHALL ENSURE THAT A SMOOTH EVEN PROFILE, FREE FROM ABRUPT CHANGES IS OBTAINED. MAKE SMOOTH TRANSITION TO EXISTING FEATURES AND MAKE GOOD WHERE JOINED.
11. TRENCHES THROUGH EXISTING ROAD AND CONCRETE PAVEMENTS SHALL BE SAWCUT TO FULL DEPTH OF CONCRETE AND A MIN 50mm IN BITUMINOUS PAVING.
12. ALL CIVIL ENGINEERING DESIGN HAS BEEN DOCUMENTED UNDER THE ASSUMPTION THAT ALL NECESSARY SITE CONTAMINATION REMEDIATION WORKS HAVE BEEN SATISFACTORILY COMPLETED (IF APPLICABLE) AND THAT THE SITE IS NOT AFFECTED BY ANY SOIL STRATA OR GROUNDWATER TABLE CONTAMINATION.

STORMWATER DRAINAGE

1. **ALL STORMWATER PIPES TO CONFORM WITH ENVIRONMENTAL PRODUCT DECLARATION (EPD) IE. uPVC PIPES ARE NOT TO BE USED UNLESS APPROVED BY NORTHROP AND ESD CONSULTANT. BLACKMAX PIPES CAN BE USED FOR THE PROPOSED IN-GROUND STORMWATER SYSTEM.'.**
2. STORMWATER LINES PASSING UNDER FLOOR SLABS TO BE CONCRETE ENCASED.
3. PIPES EQUAL TO THAT OF THE STEEL REINFORCED CONCRETE PIPE CLASS SPECIFIED ON THE DRAWINGS MAY BE USED SUBJECT TO APPROVAL FROM THE SUPERINTENDENT.
4. ALL PIPE ARE TO BE LAID AT 1.0% MIN GRADE U.N.O.
5. COVERS
   - 5.1. USE HOT DIPPED GALVANISED COVERS AND GRATES COMPLYING WITH RELEVANT COUNCIL AND AUSTRALIAN STANDARDS.
   - 5.2. ALL COVERS AND GRATES TO BE POSITION IN A FRAME AND MANUFACTURED AS A UNIT.
   - 5.3. ALL COVERS AND GRATES TO BE FITTED WITH POSITIVE COVER LIFTING KEYS
   - 5.4. OBTAIN SUPERINTENDENTS APPROVAL FOR THE USE OF CAST IRON SOLID COVERS AND GRATES. CAST IRON SOLID COVERS (IF APPROVED) TO CONSIST OF CROSS-WEBBED, CELLULAR CONSTRUCTION WITH THE RIBS UPPERMOST TO ALLOW INFILLING WITH CONCRETE. INSTALL POSITIVE COVER LIFTING KEYS AND PLASTIC PLUGS.
   - 5.5. UNLESS DETAILED OR SPECIFIED OTHERWISE, COVERS AND GRATES TO BE CLASS 'D' IN VEHICULAR PAVEMENTS AND CLASS 'B' ELSEWHERE.
   - 5.6. ALL GRATED TRENCH DRAINS SHOULD BE 'CLASS D' CAST IRON WITHIN VEHICULAR PAVEMENTS AND CLASS 'B' HEEL SAFE WITHIN PEDESTRIAN PAVEMENTS.
6. ALL PIPE BENDS, JUNCTIONS, ETC ARE TO BE PROVIDED USING PURPOSE MADE FITTINGS OR STORMWATER PITS.
7. ALL CONNECTIONS TO EXISTING DRAINAGE STRUCTURES SHALL BE MADE IN A TRADESMAN-LIKE MANNER AND CEMENT RENDERED TO ENSURE A SMOOTH FINISH.
8. STORMWATER PIPEWORK TO FINISH FLUSH WITH INTERNAL PIT WALLS AND MUST NOT PROTRUDE. CONNECTION TO BE NEATLY RENDER AND MADE NEAT.
9. THE CONTRACTOR SHALL SUPPLY AND INSTALL ALL FITTINGS AND SPECIALS INCLUDING VARIOUS PIPE ADAPTORS TO ENSURE PROPER CONNECTION BETWEEN DISSIMILAR PIPEWORK.
10. U.N.O. MATERIAL USED FOR BEDDING OF PIPES SHALL BE APPROVED NON-COHESIVE GRANULAR MATERIAL HAVING HIGH PERMEABILITY AND HIGH STABILITY WHEN SATURATED AND FREE OF ORGANIC AND CLAY MATERIAL.
11. WHERE TRENCHES ARE IN ROCK, THE PIPE SHALL BE BEDDED ON A MIN 50mm CONCRETE BED (OR 75mm THICK BED OF 12mm BLUE METAL) UNDER THE BARREL OF THE PIPE. THE PIPE COLLAR AT NO POINT SHALL BEAR ON THE ROCK.
12. BEDDING SHALL BE U.N.O TYPE HS2 UNDER ROADS AND H2 UNDER GENERAL AREAS IN ACCORDANCE WITH CURRENT RELEVANT INDUSTRY STANDARDS AND GUIDELINES.
13. THE CONTRACTOR SHALL ENSURE AND PROTECT THE INTEGRITY OF ALL STORMWATER PIPES DURING CONSTRUCTION. ANY AND ALL DAMAGE TO THESE PIPES AS A RESULT OF THESE WORKS SHALL BE REPAIRED BY THE CONTRACTOR UNDER THE DIRECTION OF THE SUPERINTENDENT AND AT NO EXTRA COST.
14. NOTE THAT THE PIT COVER LEVEL NOMINATED IN GUTTERS ARE TO THE INVERT OF THE GUTTER WHICH ARE 40mm LOWER THAN THE PAVEMENT LEVEL AT LIP OF GUTTER. REFER KERB DETAILS FOR CONFIRMATION.

SUBSOIL DRAINAGE

15. Ø100mm SUBSOIL DRAINAGE LINES WITH NON-WOVEN GEOTEXTILE FILTER SOCK SURROUND SHALL BE CONNECTED TO A STORMWATER DRAINAGE PIT (AT MIN 1% LONGITUDINAL GRADE) AND PROVIDED IN THE FOLLOWING LOCATIONS;
   - 15.1. THE HIGH SIDE OF PROPOSED TRAFFICKED PAVEMENT AREAS.
   - 15.2. ALL PLANTER AND TREE BEDS PROPOSED ADJACENT TO PAVEMENT AREAS.
   - 15.3. BEHIND RETAINING WALLS (IN ACCORDANCE WITH RETAINING WALL DETAILS).
   - 15.4. ALL OTHER AREAS SHOWN ON DRAWINGS.
   - 15.5. CONTRACTOR IS TO MAKE ALLOWANCE IN BOTH TENDER AND CONSTRUCTION COSTING TO ALLOW FOR SUBSURFACE DRAINAGE BEHIND ALL RETAINING WALLS / ABOVE LOCATIONS AND TO MAKE CONNECTION TO STORMWATER SYSTEM.
16. WHERE SUBSOIL DRAINAGE PASSES BENEATH BUILDINGS / PAVED AREAS AND/OR PAVEMENTS. CONTRACTOR TO ENSURE Ø100mm CLASS 'SN10' uPVC DRAINAGE LINE IS USED AND THAT PROPRIETARY FITTINGS ARE USED TO RECONNECT SUBSOIL DRAINAGE LINE.
17. THE CONTRACTOR SHALL INSTALL INSPECTION OPENINGS / CLEAROUTS TO ALL SUBSOIL DRAINAGE LINES AND DOWNPIPE LINES AS SPECIFIED ON DRAWINGS AND IN ACCORDANCE WITH COUNCIL SPECIFICATIONS AT MAXIMUM 30m CENTRE AND AT ALL UPSTREAM ENDPOINTS.
18. PROVIDE 3.0m LENGTH OF Ø100 SUBSOIL DRAINAGE LINE WRAPPED IN NON-WOVEN GEOTEXTILE FILTER FABRIC TO THE UPSTREAM SIDE OF STORMWATER PITS, LAID IN STORMWATER PIPE TRENCHES AND CONNECTED TO DRAINAGE PIT.
19. IN AREAS WHERE DUMPED / HAND PLACED ROCK IS USED AS A MEANS OF SCOUR PROTECTION, CONTRACTOR IS TO EXCAVATE A MINIMUM OF 100mm FROM PROPOSED SURFACE, LEVEL AND COMPACT SUBGRADE AS SPECIFIED. ROCK TO THEN BE PLACED ON GEOTEXTILE FILTER FABRIC.

PRECAST STORMWATER PITS

1. THE USE OF PRE-CAST STORMWATER DRAINAGE PITS IS NOT ACCEPTED WITHOUT CONFIRMATION BETWEEN NORTHROP ENGINEERS AND THE CONTRACTOR REGARDING QUALITY CONTROL AND CERTIFICATION OF FINISHES.
2. REFER MANUFACTURERS SPECIFICATIONS FOR INSTALLATION GUIDELINES.
3. PRECAST PIT TO BE PLACED ON MINIMUM 150mm THICK CONCRETE PAD AND BED MINIMUM 50mm WHILST CONCRETE IS STILL PARTIALLY WET.
4. ENSURE PENETRATION IS CORED THROUGH PIT FACE TO ALLOW CONNECTION.
5. ENSURE A SMOOTH SEALED FINISH AT PIPE CONNECTIONS BY HAND APPLYING CONCRETE AROUND THE PIPE ON THE INTERNAL FACE OF THE PIT TO FILL IN ANY VOIDS CREATED WHEN PENETRATION FOR THE PIPE WAS CORED.
6. ENSURE A SEALED FINISH AT PIPE CONNECTIONS BY HAND-APPLYING MINIMUM 150mm THICK CONCRETE AROUND PIPE AT THE EXTERNAL FACE OF THE PIT. ENSURE CONCRETE DOES NOT AFFECT THE INTEGRITY OF THE SUBSOIL DRAINAGE CONNECTED TO THE PIT.
7. ENSURE PIPEWORK DOES NOT PROTRUDE INTO THE BEYOND THE WALL. PIPEWORK IS TO FINISH FLUSH WITH INTERNAL WALL (UNLESS OTHERWISE NOTED OR DETAILED).
8. ENSURE THE OUTLET PIPE IS CONNECTED AT THE INVERT LEVEL OF THE PIT TO DRAIN. ALTERNATIVELY FILL THE BASE OF THE PIT WITH MASS CONCRETE (MIN 50mm THICK) OR APPROVED GROUTING COMPOUND (LESS THAN 50mm THICK) TO DRAIN.
9. PROVIDE CONCRETE BENCHING TO SIDES OF PIT TO SUIT PIPE DIAMETER. HEIGHT TO MATCH MINIMUM 1/3 PIPE DIAMETER.

RAINWATER REUSE

1. REFER HYDRAULICS DRAWINGS FOR SPECIFICATIONS AND DETAILS OF RWT.
2. GUTTER GUARD TO BE INSTALLED ON ALL EAVES GUTTERS.
3. PRESSURE PUMP / TAP TO BE PROVIDED FOR THE REUSE OF CAPTURED TANK WATER.
4. A PERMANENT SIGN IS TO BE LOCATED IN THE VICINITY OF THE TANK STATING THE WATER IS "NON POTABLE WATER" WITH APPROPRIATE HAZARD IDENTIFICATION.
5. ALL RAINWATER SERVICES SHALL BE CLEARLY LABELLED "NON POTABLE WATER" WITH APPROPRIATE HAZARD IDENTIFICATION.
6. PIPEWORK USED FOR RAINWATER SERVICES SHALL BE COLOURED LILAC IN ACCORDANCE WITH AS1345.
7. ALL VALVES AND APERTURES SHALL BE CLEARLY AND PERMANENTLY LABELLED WITH SAFETY SIGNS TO COMPLY WITH AS1319.
8. AN AIR GAP OR RPZD TO ENSURE BACKFLOW PREVENTION (IF MAINS 'TOP UP' / BYPASS UTILISED)
9. RAINWATER TANK RETICULATION SYSTEM AND MAINS WATER BYPASS ARRANGEMENT TO BE INSTALLED IN ACCORDANCE WITH AS/NZS 3500.1.2-2003 AND THE NSW CODE OF PRACTICE - PLUMBING AND DRAINAGE.
10. A FIRST FLUSH FILTRATION DEVICE IS TO BYPASS THE FIRST 1mm OF RAINWATER.

SIGNAGE AND LINEMARKING

1. ALL SIGNAGE TO BE INSTALLED IN ACCORDANCE WITH AUSTRALIAN STANDARDS 1742 / RMS STANDARDS AND SPECIFICATIONS.
2. LINE MARKING AND PAINT SHALL BE IN ACCORDANCE WITH AS1742.3 AND RMS STANDARDS.
3. PAINT SHALL BE TYPE 3 CLASS 'A' AND THE COLOUR SHALL BE WHITE AND NOT SUBJECT TO DISCOLOURATION BY BITUMEN FROM ROAD SURFACE. ALL PAINT TO BE APPLIED BY MECHANICAL SPRAYER.
4. LINE MARKING SHALL BE SPOTTED OUT AND APPROVED PRIOR TO SPRAYING.
5. PAINT SHALL BE APPLIED AT A WET THICKNESS OF BETWEEN 0.35mm AND 0.40mm.
6. CARPARK LINEMARKING TO BE 80mm WIDE.

LANDSCAPING

1. REFER TO DRAWINGS BY OTHERS FOR DETAILS OF PROPOSED LANDSCAPING TREATMENT.
2. ALL DISTURBED SURFACE TO BE TEMPORARILY STABILISED WITH HYDROMULCH UPON COMPLETION OF WORKS.

PAVEMENTS

1. ALL PAVEMENT MATERIALS SHALL COMPLY WITH CURRENT RMS SPECIFICATIONS. PROVIDE MECHANICAL ANALYSIS FOR EACH BATCH OF PAVEMENT MATERIAL TO ENSURE CONFORMITY.
2. COMPACTION STANDARDS

BASE	98% MODIFIED MAXIMUM DRY DENSITY
SUBBASE	98% MODIFIED MAXIMUM DRY DENSITY
SUBGRADE	100% STANDARD MAXIMUM DRY DENSITY

3. THE CONTRACTOR SHALL CONFIRM THE DESIGN CBR WITH A MINIMUM OF 3 TESTS TAKEN AT SUBGRADE LEVEL. WHERE DISCREPANCY IS FOUND, CONTACT THE DESIGN ENGINEER.
4. ALLOW FOR COMPACTION TESTING BY A N.A.T.A. REGISTERED LABORATORY FOR BASE LAYER, SUBBASE LAYER AND SUBGRADE LAYER IN ACCORDANCE WITH THE LATEST VERSION OF AS3798 FOR PAVEMENTS (MINIMUM 2 TESTS PER LAYER). ALLOW FOR AT LEAST TWO SUCCESSFUL COMPACTION TESTS IN EACH LAYER.
5. MATCH NEW PAVEMENTS NEATLY AND FLUSH WITH EXISTING
6. AFTER BASE IS APPROVED, SWEEP CLEAN AND PRIME AT NOMINAL RATE OF 1.0L PER 1.0 sq.m.
7. PAVEMENT HOLD POINTS
   - 7.1. SUB-GRADE PROOF ROLL PRIOR TO SET-UP AND FORM FOR CONCRETE POUR.
   - 7.2. INSPECTION OF FORMWORK / STEEL PRIOR TO CONCRETE POUR.
   - 7.3. SUBMISSION OF SUB-GRADE AND BASE DENSITY TESTS.

ASPHALTIC CONCRETE

1. GENERAL
   - 1.1. ALL ASPHALTIC CONCRETE (AC) WORK TO BE PREPARED AND CARRIED OUT IN ACCORDANCE WITH GOOD ASPHALTIC PAVING PRACTICE AS DESCRIBED IN AS2150-2005 "ASPHALT (HOT-MIXED) PAVING - GUIDE TO GOOD PRACTICE" AND CURRENT RMS SPECIFICATIONS.
2. PAVEMENT PREPARATION
   - 2.1. THE FINISHED PAVEMENT SURFACE TO BE SEALED SHALL BE WITHIN +/- 2% OF THE OPTIMUM AND BROOMED BEFORE COMMENCEMENT OF WORK TO ENSURE COMPLETE REMOVAL OF ALL SUPERFICIAL FOREIGN MATTER.
   - 2.2. PRIME ALL SURFACES TO BE SEALED. ALLOW PRIME TO SETTLE FOR A MINIMUM OF 3 DAYS BEFORE APPLYING TACK COAT AND ASPHALT.
   - 2.3. SWEEP PRIMED SURFACES BEFORE APPLYING TACK COAT.
   - 2.4. ALL DEPRESSIONS OR UNEVEN AREAS ARE TO BE TACK-COATED AND BROUGHT UP TO GENERAL LEVEL OF PAVEMENT WITH ASPHALTIC CONCRETE BEFORE LAYING OF MAIN COURSE.
   - 2.5. ALL DEFECTS IN THE BASE COURSE INCLUDING CRACKS, SURFACE DEFORMATION AND THE LIKE SHALL BE REPAIRED AS DIRECTED BY THE SUPERINTENDENT PRIOR TO PLACEMENT OF TACK COAT AND/OR AC COURSES.
3. PLACEMENTS
   - 3.1. ALL ASPHALT SHALL BE PLACED UTILISING APPROVED MECHANICAL PAVING MACHINES. DO NOT HAND PLACE ASPHALT WITHOUT PRIOR APPROVAL FROM ENGINEER.
4. JOINTS
   - 4.1. THE NUMBER OF JOINTS BOTH LONGITUDINAL AND TRANSVERSE SHALL BE KEPT TO A MINIMUM.
   - 4.2. THE DENSITY AND SURFACE FINISH AT JOINTS SHALL BE SIMILAR TO THOSE OF THE REMAINDER OF THE LAYER.
5. COMPACTION
   - 5.1. ALL COMPACTION SHALL BE UNDERTAKEN USING SELF PROPELLED ROLLERS.
   - 5.2. INITIAL ROLLING SHALL BE COMPLETED BEFORE THE MIX TEMPERATURE FALLS BELOW 105°C USING A STEEL DRUM ROLLER HAVING A MINIMUM WEIGHT OF 8 TONNES AND A MAXIMUM UNIT LOAD ON THE REAR DRUM EQUIVALENT TO 55kN/m WIDTH OF DRUM.
   - 5.3. SECONDARY ROLLING SHALL BE COMPLETED BEFORE THE MIX TEMPERATURE FALLS BELOW 80°C USING A PNEUMATIC TYRED ROLLER OF AT LEAST 10 TONNES MASS. A MINIMUM TYRE PRESSURE OF 550kPA AND A MINIMUM TOTAL LOAD OF 1 TONNE ON EACH TYRE.
   - 5.4. ROLLED SURFACES SHALL BE SMOOTH AND FREE OF UNDULATIONS. BONY AND/OR UNEVEN SURFACES WILL BE REJECTED.
   - 5.5. PROVIDE 2 No. MINIMUM COMPACTION TESTS.
6. FINISHED SURFACE PROPERTIES
   - 6.1. FINISHED SURFACES SHALL BE SMOOTH, DENSE AND TRUE OF SHAPE AND SHALL NOT VARY MORE THAN;
     - 6.1.1. 3mm FROM THE SPECIFIED PLAN LEVEL AT ANY POINT.
     - 6.1.2. 3mm FROM THE BOTTOM OF A STRAIGHT EDGE LAID TRANSVERSELY.
     - 6.1.3. 5mm FROM THE BOTTOM OF A STRAIGHT EDGE LAID LONGITUDINALLY.
     - 6.1.4. MINUS 0 TO PLUS 2mm ADJACENT TO OTHER ELEMENTS SUCH AS KERBS AND THE LIKE TO AVOID POOLING OF SURFACE WATER.
     - 6.1.5. MINUS 0 FROM THE SPECIFIED THICKNESS.
7. DO NOT STORE PLANT EQUIPMENT OR TRAFFIC NEWLY LAID ASPHALTIC CONCRETE PAVEMENTS WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
8. DO NOT APPLY MARKING PAINTS UNTIL ASPHALT HAS CURED IN ACCORDANCE WITH PAINT MANUFACTURERS SPECIFICATIONS.

NOT FOR CONSTRUCTION

AMENDMENTS

REV	BY	DATE	DESCRIPTION
01	MM	21.06.21	ISSUED FOR DRAFT 50% DETAILED DESIGN
02	MM	08.07.21	ISSUED FOR 50% DETAILED DESIGN
03	MM	23.07.21	ISSUED FOR DRAFT 75% DETAILED DESIGN
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PEDAVOLI ARCHITECTS

DRAWING NAME
SPECIFICATION NOTES - SHEET 01

PROJECT
NEW PRIMARY SCHOOL IN MURRUMBATEMAN
FAIRLEY STREET, MURRUMBATEMAN

PROJECT NORTH

DRAWN	CHECKED	VERIFIED	DATE
MM	NS	JG	12.10.21

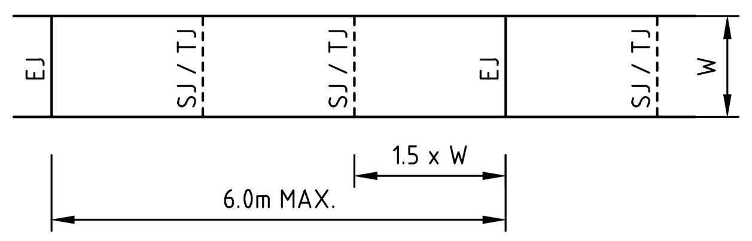
MURR-CV-DD-DWG-101.11

REVISION 07

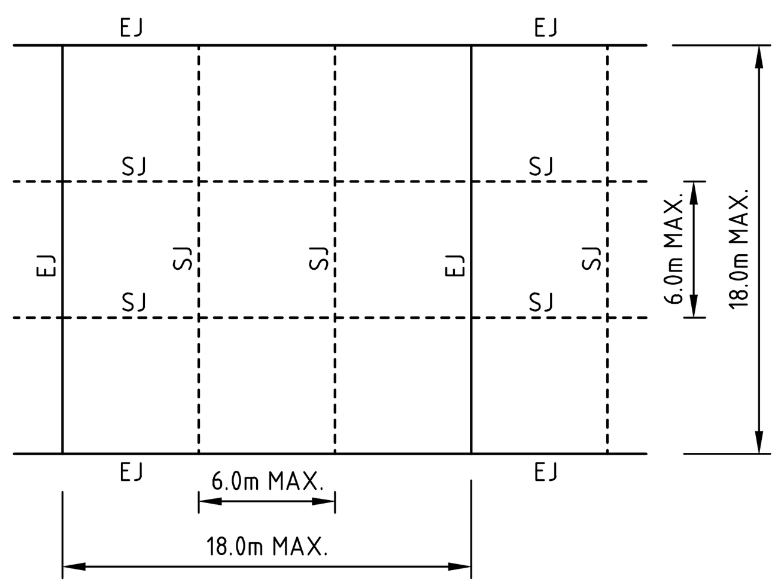
NOTE: ALL CIVIL ENGINEERING CONSTRUCTION WORKS TO BE CARRIED OUT IN ACCORDANCE WITH YASS VALLEY COUNCIL DEVELOPMENT GUIDELINES. READ IN CONJUNCTION WITH THE NOTES PROVIDED BELOW. IF CONFLICT ARISE, YASS VALLEY COUNCIL GUIDELINES AND SPECIFICATIONS TAKE PRECEDENCE. WHERE YASS VALLEY COUNCIL GUIDELINES AND SPECIFICATIONS ARE SILENT, THE SPECIFICATION NOTES BELOW TAKE PRECEDENCE

PAVEMENT JOINTS

1. PROVIDE 10mm ABLEFLEX BETWEEN NEW CONCRETE WORKS AND EXISTING STRUCTURES.
2. LOCAL AUTHORITY REQUIREMENTS SHALL TAKE PRECEDENCE WITHIN THE PUBLIC ROAD RESERVE.
3. DOWELS TO BE PLACED ON PROPRIETARY CRADLES TO ENSURE CORRECT SPACING AND ALIGNMENT.
4. PEDESTRIAN PAVEMENTS
   ALL PEDESTRIAN PAVEMENTS ARE TO BE JOINTED AS FOLLOWS U.N.O. ON THE DESIGN DRAWINGS.
5. EXPANSION JOINTS ARE TO BE LOCATED WHERE POSSIBLE AT TANGENT POINTS OF CURVES AND ELSEWHERE AT MAX. 6.0m CENTRES.
6. WEAKENED PLANE JOINTS (SAWN OR TOOL JOINTS) ARE TO BE LOCATED AT A MAX. SPACING OF 1.5m x WIDTH OF THE PAVEMENT.
7. WHERE POSSIBLE JOINTS SHOULD BE LOCATED TO MATCH KERBING AND OR ADJACENT PAVEMENT JOINTS.
8. TYPICAL PEDESTRIAN PAVEMENT JOINT DETAIL



9. VEHICULAR PAVEMENTS
   ALL VEHICULAR PAVEMENTS TO BE JOINTED AS FOLLOWS U.N.O. ON THE DESIGN DRAWINGS.
10. TIED KEYED CONSTRUCTION JOINTS SHOULD GENERALLY BE LOCATED LONGITUDINALLY AT A MAX. OF 6.0m CENTRES.
11. SAWN JOINTS SHOULD GENERALLY BE LOCATED LATERALLY AT A MAX. OF 6.0m CENTRES WITH DOWELED EXPANSION JOINTS AT MAX. 18.0m CENTRES.
12. TYPICAL VEHICULAR PAVEMENT JOINT DETAIL.



13. KERB EXPANSION JOINTS SHALL BE FORMED FROM 10mm ABLEFLEX FOR FULL DEPTH OF SECTION.
14. KERB EXPANSION JOINTS TO BE LOCATED AT DRAINAGE PITS, TANGENT POINTS OF CURVES / CORNERS AND AT 12m MAX CENTRES.
15. KERB TOOLED JOINTS TO BE MIN 3mm WIDE AND LOCATED AT MAX 3m CENTRES.
16. INTEGRAL KERB JOINTS SHALL MATCH THE LOCATION OF PAVEMENT JOINTS.

GREEN STAR DESIGN & AS-BUILT v1.3 ASSESSMENT REQUIREMENTS

THIS SPECIFICATION SHALL BE READ IN CONJUNCTION WITH THE 'ESD MASTER SPECIFICATION' (140521 MONARO SPEC S02 ESD MASTER SPECIFICATION [A]). THE GREEN START CREDITS ASSOCIATED WITH THE CIVIL DESIGN WORKS ARE LISTED IN FOLLOWING TABLE:

CIVIL DESIGN GREEN STAR DESIGN & AS-BUILT CREDIT REQUIREMENTS

GREEN STAR DESIGN & AS-BUILT v1.3 CREDITS	CREDIT NO.	CREDIT CRITERIA	POINTS AVAILABLE	POINTS TARGETED
COMMISSIONING AND TUNING	2.0	ENVIRONMENTAL PERFORMANCE TARGETS	MAN.	MAN.
COMMISSIONING AND TUNING	2.1	SERVICES AND MAINTAINABILITY REVIEW	1	1
ADAPTATION AND RESILIENCE	3.1	IMPLEMENTATION OF CLIMATE ADAPTATION PLAN	2	2
POTABLE WATER	18B.4	LANDSCAPE IRRIGATION	1	1
LIFE CYCLE IMPACTS	19B.1	CONCRETE	3	2
LIFE CYCLE IMPACTS	19B.2	STEEL	1	1
RESPONSIBLE BUILDING MATERIALS	20.3	PERMANENT FORMWORK, PIPES, FLOORING BLINDS AND CABLES	1	1
SUSTAINABLE PRODUCTS	21.1	PRODUCT TRANSPARENCY AND SUSTAINABILITY	3	TBC
STORMWATER	26.1	STORMWATER PEAK DISCHARGE	1	1
STORMWATER	26.2	STORMWATER POLLUTION TARGETS	1	1

CONCEPT SOIL & WATER MANAGEMENT

1. ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH RELEVANT ORDINANCES AND REGULATIONS; NOTE IN PARTICULAR THE REQUIREMENTS OF LANDCOMS MANAGING URBAN STORMWATER, SOILS AND CONSTRUCTION' (THE 'BLUE BOOK'). THIS SOIL AND WATER MANAGEMENT PLAN DETAILS THE ACTIONS TO BE TAKEN FOR THE MANAGEMENT AND DEWATERING OF STORMWATER DURING CONSTRUCTION OF THE PROPOSED BUILDING.
2. INSTALL SEDIMENT PROTECTION FILTERS ON ALL NEW AND EXISTING STORMWATER INLET PITS IN ACCORDANCE WITH EITHER THE MESH AND GRAVEL INLET FILTER DETAIL SD6-11 OR THE GEOTEXTILE INLET FILTER DETAIL SD6-12 OF THE 'BLUE BOOK'.
3. ESTABLISH ALL REQUIRED SEDIMENT FENCES IN ACCORDANCE WITH DETAIL SD6-8 OF THE 'BLUE BOOK'.
4. INSTALL SEDIMENT FENCING AROUND INDIVIDUAL BUILDING ZONES/AREAS AS REQUIRED AND AS DIRECTED BY THE SUPERINTENDENT.
5. ALL TRENCHES INCLUDING ALL SERVICE TRENCHES AND SWALE EXCAVATION SHALL BE SIDE-CAST TO THE HIGH SIDE AND CLOSED AT THE END OF EACH DAYS WORK.
6. THE CONTRACTOR SHALL ENSURE THAT ALL VEGETATION (TREE, SHRUB & GROUND COVER) WHICH IS TO BE RETAINED SHALL BE PROTECTED DURING THE DURATION OF CONSTRUCTION. REFER ARCHITECTS PLANS FOR TREES TO BE KEPT.
7. ALL VEGETATION TO BE REMOVED SHALL BE MULCHED ONSITE AND SPREAD/STOCKPILED AS DIRECTED BY THE SUPERINTENDENT.
8. STRIP TOPSOIL IN AREAS DESIGNATED FOR STRIPPING AND STOCKPILE FOR RE-USE AS REQUIRED. ANY SURPLUS MATERIAL SHALL BE REMOVED FROM SITE AND DISPOSED OF IN ACCORDANCE WITH EPA GUIDELINES.
9. CONSTRUCT AND MAINTAIN ALL MATERIAL STOCKPILES IN ACCORDANCE WITH DETAIL SD4-1 OF THE 'BLUE BOOK' (INCLUDING CUT-OFF SWALES TO THE HIGH SIDE AND SEDIMENT FENCES TO THE LOW SIDE).
10. ENSURE STOCKPILES DO NOT EXCEED 2.0m HIGH. PROVIDE WIND AND RAIN EROSION PROTECTION AS REQUIRED IN ACCORDANCE WITH THE 'BLUE BOOK'.
11. PROVIDE WATER TRUCKS OR SPRINKLER DEVICES DURING CONSTRUCTION AS REQUIRED TO SUPPRESS DUST.
12. ONCE CUT/FILL OPERATIONS HAVE BEEN FINALIZED ALL DISTURBED AREAS THAT ARE NOT BEING WORKED ON SHALL BE RE-VEGETATED AS SOON AS IS PRACTICAL.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING A DETAILED WRITTEN RECORD OF ALL EROSION & SEDIMENT CONTROLS ON-SITE DURING THE CONSTRUCTION PERIOD. THIS RECORD SHALL BE UPDATED ON A DAILY BASIS & SHALL CONTAIN DETAILS ON THE CONDITION OF CONTROLS AND ANY/ ALL MAINTENANCE, CLEANING & BREACHES. THIS RECORD SHALL BE KEPT ON-SITE AT ALL TIMES AND SHALL BE MADE AVAILABLE FOR INSPECTION BY THE PRINCIPAL CERTIFYING AUTHORITY AND THE SUPERINTENDENT DURING NORMAL WORKING HOURS.
14. GROUNDWATER SEEPAGE RATES AND QUALITY TO BE MONITORED AND TREATED IF REQUIRED DURING CONSTRUCTION IN ACCORDANCE WITH REQUIREMENTS OF SUPERVISING GEOTECHNICAL ENGINEER.

BASIN MANAGEMENT NOTES

1. PRIOR TO ANY FORECAST WEATHER EVENT, LIKELY TO RESULT IN SEDIMENT LADEN RUNOFF ON THE SITE, ANY EXISTING DETENTION BASINS/TRAPS SHALL BE DEWATERED TO PROVIDE SUFFICIENT CAPACITY TO CAPTURE SEDIMENT LADEN WATER FROM THE SITE.
2. ANY SEDIMENT LADEN WATER CAPTURED ON-SITE MUST BE TREATED TO ENSURE IT WILL ACHIEVE COUNCIL'S WATER QUALITY OBJECTIVES PRIOR TO ITS RELEASE FROM SITE. A SAMPLE OF THE RELEASED TREATED WATER MUST BE KEPT ON-SITE IN A CLEAR CONTAINER WITH THE SAMPLE DATE RECORDED.
3. NO ALUMINIUM BASED PRODUCTS MAY BE USED TO TREAT TURBID WATER (FLOCCULATING/COAGULANTS) ON-SITE WITHOUT THE PRIOR WRITTEN PERMISSION FROM AN APPROPRIATE COUNCIL OFFICER. THE APPLICANT MUST HAVE DEMONSTRATED ABILITY TO USED SUCH PRODUCTS CORRECTLY AND WITHOUT ENVIRONMENTAL HARM PRIOR TO NAY APPROVAL.
4. THE CHEMICALS/AGENTS (FLOCCULATING/COAGULANTS) USED IN TYPE 'D' AND TYPE 'F' BASINS TO TREAT TURBID WATER CAPTURED IN THE BASIN MUST BE APPLIED IN CONCENTRATIONS SUFFICIENT TO ACHIEVE COUNCIL'S WATER QUALITY OBJECTIVES (TSS <50 mg/L. TURBIDITY < 60 NTU. 6.5 < pH < 8.5) WITHIN THE 5-DAY RAINFALL DEPTH USED TO CALCULATE THE CAPACITY OF THE BASIN, AFTER A RAINFALL EVENT.
5. ALL MANUFACTURERS INSTRUCTIONS MUST BE FOLLOWED FOR THE USE OF ANY CHEMICALS/AGENTS USED ON-SITE. EXCEPT WHERE APPROVED BY THE RESPONSIBLE PERSON OR AN APPROPRIATE COUNCIL OFFICER.
6. SUFFICIENT QUANTITIES OF CHEMICALS/AGENTS TO TREAT TURBID WATER (FLOCCULATING/COAGULANTS) MUST BE PLACED SUCH THAT WATER ENTERING THE BASINS/SEDIMENT TRAP MIXES WITH THE CHEMICALS/AGENTS AND IS CARRIED INTO THE BASIN/TRAP.
7. ANY BASIN MUST BE DEWATERED AS SOON AS PRACTICAL, ONCE WATER CAPTURED IN THE BASIN ACHIEVES COUNCIL'S WATER QUALITY OBJECTIVES.
8. INSPECT THE SEDIMENT BASINS AFTER EACH RAINFALL EVENTS AND/OR WEEKLY. ENSURE THAT ALL THE SEDIMENT IS REMOVED ONCE THE SEDIMENT STORAGE ZONE IS FULL. ENSURE THAT OUTLET AND EMERGENCY SPILLWAY WORKS ARE MAINTAINED IN A FULLY OPERATIONSL CONDITION AT ALL TIMES.

NOT FOR CONSTRUCTION

AMENDMENTS

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VINCE PEDAVOLI
NSW REG. No. 5045

PEDAVOLI ARCHITECTS

DRAWING NAME
SPECIFICATION NOTES - SHEET 02

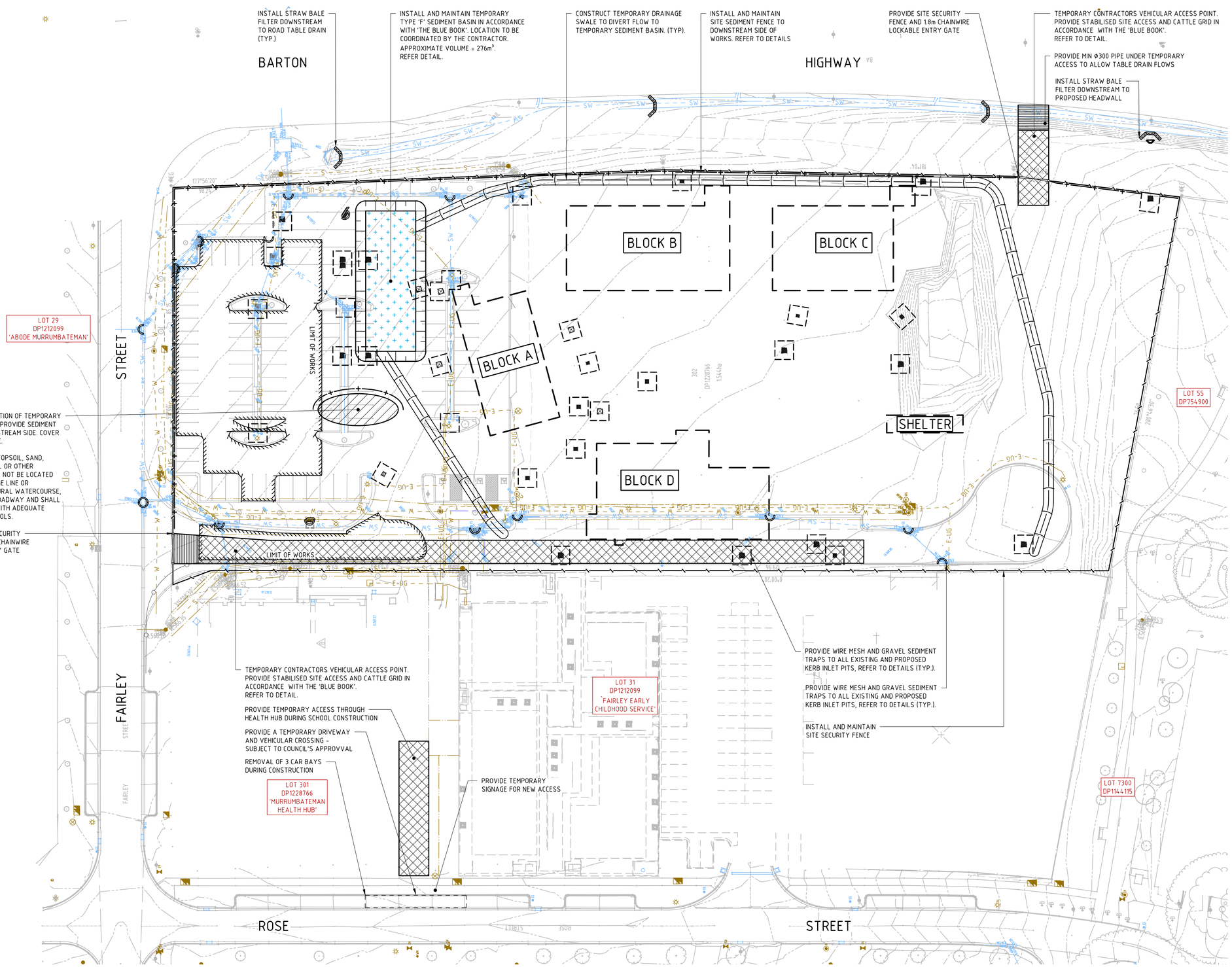
PROJECT
NEW PRIMARY SCHOOL IN MURRUMBATEMAN
FAIRLEY STREET, MURRUMBATEMAN

PROJECT NORTH

DRAWN	CHECKED	VERIFIED	DATE
MM	NS	JG	12.10.21

MURR-CV-DD-DWG-101.12

REVISION 07



LEGEND

- SITE BOUNDARY LINE
- ADJACENT BOUNDARY LINE
- EASEMENT LINE
- BUILDING LINE
- EXISTING STORMWATER
- EXISTING ELECTRICITY
- EXISTING TELECOMMUNICATIONS
- EXISTING WATER
- EXISTING SEWER
- EXISTING CONTOURS
- SEDIMENT FENCE
- SECURITY FENCE
- SECURITY GATE
- WIRE MESH AND GRAVEL SEDIMENT FILTER
- STRAW BALE FILTER
- GEOTEXTILE INLET FILTER TRAP
- TEMPORARY DRAINAGE SWALE
- STABILISED SITE ACCESS
- STOCKPILE
- SEDIMENT BASIN - WET
- LIMIT OF WORKS — LIMIT OF WORKS

NOTES

1. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH COUNCIL / RELEVANT AUTHORITY SPECIFICATIONS AND DETAILS.
2. ALL SEDIMENT AND EROSION CONTROL MEASURES TO BE INSTALLED IN ACCORDANCE WITH THE 'BLUE BOOK'. CONTRACTOR TO ENSURE THESE MEASURES ARE IN PLACE AND MAINTAINED AT ALL TIMES DURING CONSTRUCTION WORKS.

SEDIMENT BASIN CALCULATIONS

PARAMETER	ADOPTED VALUE
TOTAL DISTURBED AREA (ha)	1.2ha
SOIL TEXTURE GROUP	F
DESIGN RAINFALL DEPTH (DAYS)	5
DESIGN RAINFALL DEPTH (PERCENTILE)	80
x-DAY, y-PERCENTILE RAINFALL EVENT	30
Cv	0.510
SETTLING ZONE VOLUME (m^3)	183.600
SEDIMENT STORAGE VOLUME (m^3)	92
TOTAL BAISN VOLUME (m^3)	275.400

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NOMINATED ARCHITECT:
VINCE PEDAVOLI
NSW REG. No. 5545

PEDAVOLI ARCHITECTS

DRAWING NAME
CONCEPT SEDIMENT & EROSION CONTROL PLAN

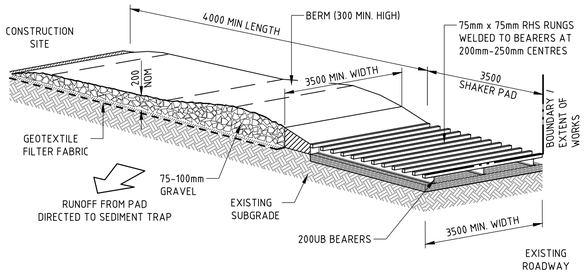
PROJECT
NEW PRIMARY SCHOOL IN MURRUMBATEMAN
FAIRLEY STREET, MURRUMBATEMAN

PROJECT NORTH
NORTH

SCALE 1:400@ A1 (0 4 8 12 16 20m)

DRAWN	CHECKED	VERIFIED	DATE		REVISION
MM	NS	JG	12.10.21		

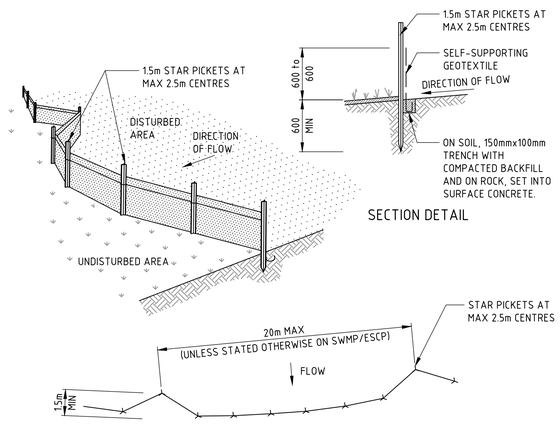
MURR-CV-DD-DWG-102.01 07



CONSTRUCTION NOTES

1. THE TEMPORARY ACCESS SHALL BE MAINTAINED IN A CONDITION THAT PREVENTS TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS OF WAY,
   - THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL GRAVEL AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT,
2. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS OF WAY MUST BE REMOVED IMMEDIATELY.
3. INSTALL BARRIER ON EITHER SIDE OF SHAKER PAD. TO ENSURE VEHICLES ARE GUIDED ON TO THE PAD.
4. INVERT OF SHAKER PAD TO BE DRAINED VIA AGRICULTURAL PIPE WRAPPED IN GEOTEXTILE FABRIC.

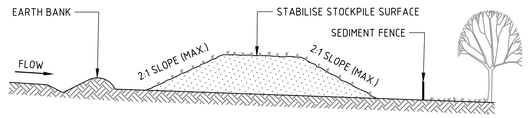
STABILISED SITE ACCESS



CONSTRUCTION NOTES

1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 1.5 METRE LONG STAR PICKETS INTO GROUND AT 2.5 METRE INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

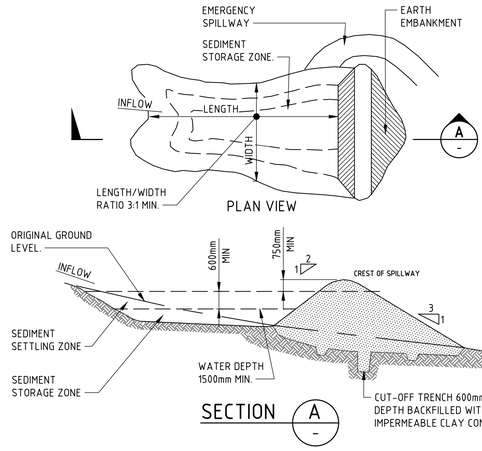
SEDIMENT FENCE



CONSTRUCTION NOTES

1. PLACE STOCKPILES MORE THAN 2m (PREFERABLY 5m) FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2m IN HEIGHT.
4. WHERE THEY ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
5. CONSTRUCT EARTH BANKS (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES (STANDARD DRAWING 6-8) 1 TO 2m DOWNSLOPE.

STOCKPILE

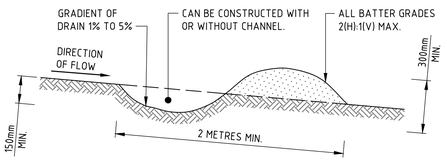


CONSTRUCTION NOTES

1. REMOVE ALL VEGETATION AND TOPSOIL FROM UNDER THE DAM WALL AND FROM WITHIN THE STORAGE AREA.
2. CONSTRUCT A CUT-OFF TRENCH 500mm DEEP AND 1200mm WIDE ALONG THE CENTRELINE OF THE EMBANKMENT EXTENDING TO A POINT ON THE GULLY WALL LEVEL WITH THE RISER CREST.
3. MAINTAIN THE TRENCH FREE OF WATER AND RECOMPACT THE MATERIALS WITH EQUIPMENT AS SPECIFIED IN THE SWMP TO 95 PER CENT STANDARD PROCTOR DENSITY.
4. SELECT FILL FOLLOWING THE SWMP THAT IS FREE OF ROOTS, WOOD, ROCK, LARGE STONE OR FOREIGN MATERIAL.
5. PREPARE THE SITE UNDER THE EMBANKMENT BY RIPPING TO AT LEAST 100mm TO HELP BOND COMPACTED FILL TO THE EXISTING SUBSTRATE.
6. SPREAD THE FILL IN 100mm TO 150mm LAYERS AND COMPACT IT AT OPTIMUM MOISTURE CONTENT FOLLOWING THE SWMP.
7. CONSTRUCT THE EMERGENCY SPILLWAY.
8. REHABILITATE THE STRUCTURE FOLLOWING THE SWMP.

(APPLIES TO 'TYPE D' AND 'TYPE F' SOILS ONLY)

SEDIMENT BASIN - WET (TYPE-F)



CONSTRUCTION NOTES

1. BUILD WITH GRADIENTS BETWEEN 1 AND 5 PERCENT.
2. AVOID REMOVING TREES AND SHRUBS IF POSSIBLE - WORK AROUND THEM.
3. ENSURE THE STRUCTURES ARE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT COULD IMPEDE WATER FLOW.
4. BUILD THE DRAINS WITH CIRCULAR, PARABOLIC OR TRAPEZOIDAL CROSS SECTIONS, NOT V SHAPED.
5. ENSURE THE BANKS ARE PROPERLY COMPACTED TO PREVENT FAILURE.
6. COMPLETE PERMANENT OR TEMPORARY STABILISATION WITHIN 10 DAYS OF CONSTRUCTION.

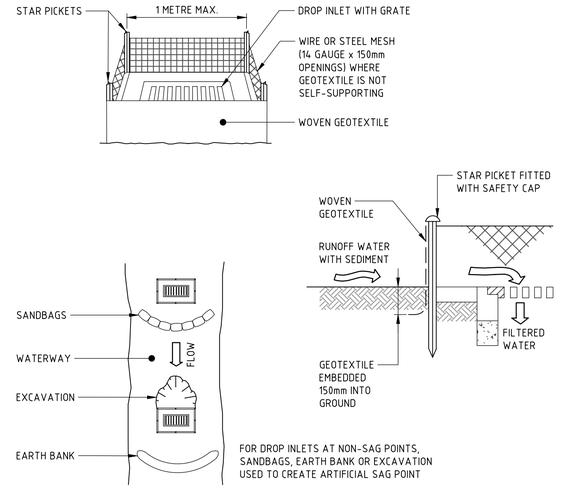
NOTE: ONLY TO BE USED AS TEMPORARY BANK WHERE MAXIMUM UPSLOPE LENGTH IS 80 METRES.

TEMPORARY DRAINAGE SWALE - LOW FLOW

CONSTRUCTION NOTES

1. CONSTRUCT THE STRAW BALE FILTER AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE.
2. PLACE BALES LENGTHWISE IN A ROW WITH ENDS TIGHTLY ABUTTING. USE STRAW TO FILL ANY GAPS BETWEEN BALES. STRAWS ARE TO BE PLACED PARALLEL TO GROUND.
3. ENSURE THAT THE MAXIMUM HEIGHT OF THE FILTER IS ONE BALE.
4. EMBED EACH BALE IN THE GROUND 75mm TO 100mm AND ANCHOR WITH TWO 1.2 METRE STAR PICKETS OR STAKES. ANGLE THE FIRST STAR PICKET OR STAKE IN EACH BALE TOWARDS THE PREVIOUSLY LAID BALE. DRIVE THEM 600mm INTO THE GROUND AND, IF POSSIBLE, FLUSH WITH THE TOP OF THE BALES. WHERE STAR PICKETS ARE USED AND THEY PROTRUDE ABOVE THE BALES, ENSURE THEY ARE FITTED WITH SAFETY CAPS.
5. WHERE A STRAW BALE FILTER IS CONSTRUCTED DOWNSLOPE FROM A DISTURBED BATTER, ENSURE THE BALES ARE PLACED 1 TO 2 METRES DOWNSLOPE FROM THE TOE.
6. ESTABLISH A MAINTENANCE PROGRAM THAT ENSURES THE INTEGRITY OF THE BALES IS RETAINED - THEY COULD REQUIRE REPLACEMENT EACH TWO TO FOUR MONTHS.

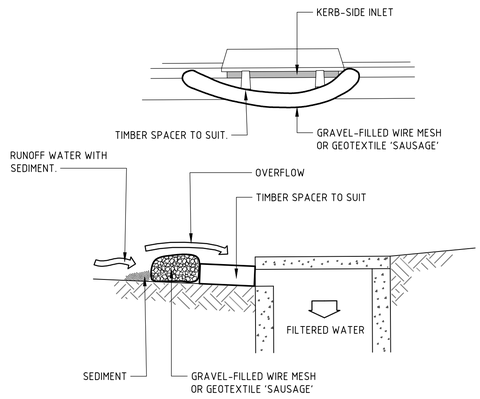
STRAW BALE FILTER



CONSTRUCTION NOTES

1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
2. FOLLOW STANDARD DRAWING 6-7 AND STANDARD DRAWING 6-8 FOR INSTALLATION PROCEDURES FOR THE STRAW BALES OR GEOFABRIC. REDUCE THE PICKET SPACING TO 1 METRE CENTRES.
3. IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
4. DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.

GEOTEXTILE INLET FILTER TRAPS



NOTE:THIS PRACTICE ONLY TO BE USED WHERE SPECIFIED IN APPROVED SWMP/ESCP.

CONSTRUCTION NOTES

1. INSTALL FILTERS TO KERB INLETS ONLY AT SAG POINTS.
2. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL.
3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.
4. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.
5. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER.
6. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

WIRE MESH AND GRAVEL SEDIMENT FILTER

NOT FOR CONSTRUCTION

AMENDMENTS

REV	BY	DATE	DESCRIPTION
01	MM	21.06.21	ISSUED FOR DRAFT 50% DETAILED DESIGN
02	MM	08.07.21	ISSUED FOR 50% DETAILED DESIGN
03	MM	23.07.21	ISSUED FOR DRAFT 75% DETAILED DESIGN
04	MM	12.08.21	ISSUED FOR DRAFT 75% DETAILED DESIGN
05	MM	25.08.21	ISSUED FOR TENDER
06	MM	16.09.21	ISSUED FOR 100% DETAILED DESIGN
07	TB	12.10.21	ISSUED FOR CONTRACT DOCUMENTATION

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Sydney
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ULTIMO NSW 2007 AUSTRALIA
TEL: +61 2 9291 0000
WEB: www.pp-a.com.au
NOMINATED ARCHITECT:
VINCE PEDAVOLI
NSW REG. No. 5045

PEDAVOLI ARCHITECTS

DRAWING NAME
SEDIMENT & EROSION CONTROL DETAILS

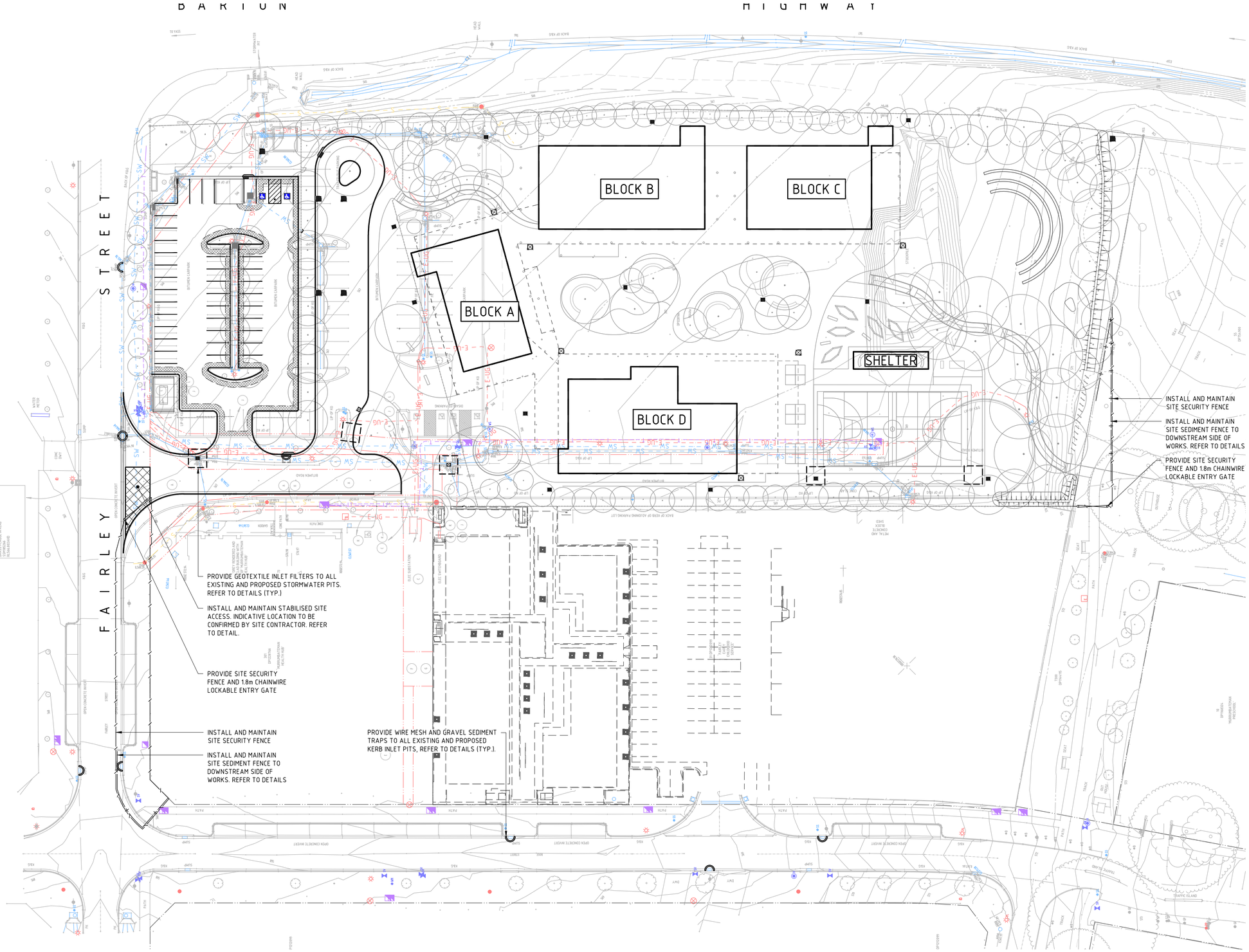
PROJECT
NEW PRIMARY SCHOOL IN MURRUMBATEMAN
FAIRLEY STREET, MURRUMBATEMAN

PROJECT NORTH

SCALE VARIES

DRAWN	CHECKED	VERIFIED	DATE	REVISION
MM	NS	JG	12.10.21	07

MURR-CV-DD-DWG-102.11



LEGEND

- SITE BOUNDARY LINE
- ADJACENT BOUNDARY LINE
- EASEMENT LINE
- BUILDING LINE
- EXISTING ELECTRICITY
- EXISTING TELECOMMUNICATIONS
- EXISTING WATER
- EXISTING SEWER
- EXISTING STORMWATER
- EXISTING CONTOURS
- SEDIMENT FENCE
- SECURITY FENCE
- SECURITY GATE
- WIRE MESH AND GRAVEL SEDIMENT FILTER
- GEOTEXTILE INLET FILTER TRAP
- STABILISED SITE ACCESS

NOTES

1. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH COUNCIL / RELEVANT AUTHORITY SPECIFICATIONS AND DETAILS.
2. ALL SEDIMENT AND EROSION CONTROL MEASURES TO BE INSTALLED IN ACCORDANCE WITH THE 'BLUE BOOK'. CONTRACTOR TO ENSURE THESE MEASURES ARE IN PLACE AND MAINTAINED AT ALL TIMES DURING CONSTRUCTION WORKS.

NOT FOR CONSTRUCTION

AMENDMENTS

REV	BY	DATE	DESCRIPTION
01	MM	14.07.21	ISSUED FOR 50% DETAILED DESIGN

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WEB: www.pp-a.com.au

NOMINATED ARCHITECT:
VINCE PEDAVOLI
NSW REG. No. 5045

PEDAVOLI ARCHITECTS

DRAWING NAME
CONCEPT SEDIMENT & EROSION CONTROL PLAN

PROJECT
NEW PRIMARY SCHOOL IN MURRUMBATEMAN
FAIRLEY STREET, MURRUMBATEMAN

PROJECT NORTH
NORTH

SCALE 1:400@ A1 (0 4 8 12 16 20m)

DRAWN	CHECKED	VERIFIED	DATE	REVISION
MM	PC		14.07.21	

MURR-CV-DD-DWG-202.01 01

Appendix B – Sediment Basin Calculations

If type D and F

Parameter	Adopted value	
Total area (ha)	1.2	
Soil Texture Group	F	See 1) Soil Hydrological groups
Design rainfall depth (days)	5	See 2) Rainfall depth (days)
Design rainfall depth (percentille)	80	See 3) Rainfall depth (percentille)
x-day, y-percentile rainfall event	30	See Sheet x-day-y-p%
Cv	0.51	See 4) Cv
Settling zone volume (m^3)	183.600	(calculated)
Sediment storage volume (m^3)	91.800	(calculated)
Total basin volume (m^3)	**275.400**	(calculated)

Red means manually input

1) Soil Texture Group
Source: The Blue Book, Volume 1, 2004. Page 6-12.

Table 6.1 Summary of selected sediment basin types and design criteria

Soil Type	Soil characteristics	Treatment process	Basin design capacity	
			Settling zone	Sediment storage zone
Type D (dispersible)	10 percent or more of the soil materials are dispersible. Particle size is irrelevant	Aided flocculation in wet basins	Capacity to contain all runoff expected from the y percentile, x-day rainfall depth where, depending on the sensitivity of the receiving waters and/or the duration that the structure is in use: x is 2, 5, 10 or 20-days y is the 75th, 80th, 85th or 90th percentile	Normally taken as 50 percent of the capacity of the settling zone. However, it can be taken as two months soil loss as calculated by the RUSLE
Type C (coarse)	Less than 33 percent finer than 0.02 mm and less than 10 percent of the soil materials are dispersible	Rapid settling in wet or dry basins	Surface area of 4,100 m^3/m^3/sec in the 3-month ARI flow, minimum depth of 0.6m, and length:width ratio of >3:1	Normally taken as 100 percent of the capacity of the settling zone. However, it can be taken as two months soil loss as calculated by the RUSLE
Type F (fine)	33 percent or more of the particles are finer than 0.02 mm and less than 10 percent of the soil materials are dispersible	Slow settling in wet basins	Capacity to contain all runoff expected from the y percentile, x-day rainfall depth where, depending on the sensitivity of the receiving waters and/or the duration that the structure is in use: x varies between 2 and 20 days y is the 75th, 80th, 85th or 90th percentile	Normally taken as 50 percent of the capacity of the settling zone. However, it can be taken as two months soil loss as calculated by the RUSLE

For type D and F
V = settling zone + sediment storage zone

Settling Zone Type D/F = 10 x Cv x A x R (y %ile, 5 day)

where:
- 10 is a unit conversion factor
- Cv is a volumetric runoff coefficient, defined as that proportion of rainfall that runs off as stormwater[13]
- A is the catchment area of the basin (hectares)
- R(y %ile, 5 day) is the 5-day total rainfall depth (mm) that is not exceeded in y percent of rainfall events. This figure can be determined from Appendix L. Rainfall depths corresponding to management periods more and less than 5 days can be adopted, as site characteristics allow and as detailed previously

2) Rainfall depth (days)
Source: The Blue Book, Volume 1, 2004. Page 6-15.

A **5-day** rainfall depth can be adopted as standard in the design of the settling zone where the soils being disturbed are Type D or Type F. This assumes that five days or less are required following a rainfall event to achieve effective flocculation if necessary, settling and subsequent discharge of the supernatant stormwater (Appendix E and Section 6.3.3(d)).
In certain conditions, basins can be designed for rainfall depths and management periods of between 2 and 20 days, to accommodate a range of site constraints and opportunities that may be present :

(i) Where the site area is insufficient to allow building structures as required for the y-percentile 5-day criterion, a 2, 3 or 4-day rainfall depth can be adopted providing flocculation, settlement and discharge can be achieved in that time. However, this will usually require the use of a special range of flocculants and specialised techniques that will achieve sufficiently fast settling (Section E4.2). Many such flocculants can cause environmental harm if not managed properly and the plans for sediment control must also include a detailed plan of management of these.
(ii) Where site conditions permit the construction of extremely large structures, a 6 to 20-day rainfall depth can be adopted. These large structures allow longer periods for reuse (e.g. dust suppression) or flocculation, settling and discharge.

3) Design rainfall depth (percentille)
Source: The Blue Book, Volume 1, 2004. Page 6-21.

Unless Council's Stormwater Management Plan states differently:[11]
(i) on most sites the 75th percentile storm depth is recommended for use if the duration of disturbance is likely to be six months or less, while the 80th percentile storm depth is recommended if the duration of disturbance is likely to be more than six months;
(ii) where receiving waters are considered particularly sensitive, either by the development proponent/designer, local council or other consent authority, a higher level of protection can be provided, e.g.: the 80th percentile storm depth is recommended for use if the duration of disturbance is likely to be six months or less, while the 85th percentile storm depth is recommended if the duration of disturbance is likely to be more than six months.
Longer term land disturbances, such as waste depots, extractive sites and some road construction activities, warrant

4) Cv
Source: The Blue Book, Volume 1, 2004. Appendix F, Page F-4.

Table F2. Runoff coefficients (Cv) for volumetric data in disturbed catchments (adapted from USDA, 1996)

Soil Hydrologic Group	Design Rainfall depth (mm)							Runoff potential
	<20	21-25	26-30	31-40	41-50	51-60	61-80	
A	0.01	0.05	0.08	0.15	0.22	0.28	0.37	very low
B	0.10	0.19	0.25	0.34	0.42	0.48	0.57	low to moderate
C	0.25	0.35	0.42	0.51	0.58	0.63	0.70	moderate to high
D	0.39	0.50	0.56	0.64	0.69	0.74	0.79	high

Where the Soil Hydrologic Group is not known and/or cannot be found out without an additional soil survey (but see Appendix C), adopting a default volumetric runoff coefficient of 0.5 is reasonable. However, higher values should be considered for high-density development or other sites that can be subject to very high levels of surface sealing (e.g. wheel compaction). Alternatively, lower values can be adopted where a significant proportion of the site is to remain undisturbed (i.e. vegetated), if that value is properly justified. However, the correct Soil Hydrologic Group should be determined on all sites where design is to greater than the standard 85th percentile, x-day rainfall depth and/or where the receiving waters are deemed to be highly or extremely sensitive.

Soil hydrological group

A	Group A – very low runoff potential. Water moves into and through these soil materials relatively quickly, when thoroughly wetted. Usually, they consist of deep (>1.0 metres), well-drained sandy loams, sands or gravels. They shed runoff only in extreme storm events.
B	Group B – low to moderate runoff potential. Water moves into and through these soil materials at a moderate rate when thoroughly wetted. Usually, they consist of moderately deep (>0.5 metres), well-drained soils with medium, loamy textures or clay loams with moderate structure. They shed runoff only infrequently.
C	Group C – moderate to high runoff potential. Water moves into and through these soil materials at slow to moderate rates when thoroughly wetted. Usually, they consist of soils that have: - moderately fine (clay loam) to fine (clay) texture - weak to moderate structure and/or - a layer near the surface that impedes free downward movement of water. They regularly shed runoff from moderate rainfall events.
D	Group D – very high runoff potential. Water moves into and through these soils very slowly when thoroughly wetted. Usually, they consist of soils: that are fine-textured (clay), poorly structured, surface-sealed or have high shrink/swell properties, and/or with a permanent high watertable, and/or with a layer near the surface that is nearly impervious. They shed runoff from most rainfall events.

Appendix C – CV

Nicole Sutherland

Associate | Senior Civil Engineer

BE (Civil) (Hons)

Nicole started her engineering career as a Graduate in 2001; and joined Northrop as a young engineer in 2003. Nicole has gained over 16 years of valuable engineering experience at Northrop, providing technical and design expertise for clients externally and undertaking key roles internally to support the business. Nicole started working in the Sydney office initially, then relocated to our Wollongong office, and now pioneers our flexible working arrangements by working remotely from home.

Nicole enjoys getting involved in the early feasibility stages of a project, and seeing it evolve through the different phases of design development, right to construction. Early engagement, along with her utilisation of client-side thinking provides opportunity to create the best engineering solutions and project outcomes. Nicole is an Associate and is actively involved in our Diversity and Inclusion and our Technology and Innovation committees, which all work to develop and improve our overall business.

Project Experience

Industrial and Commercial

- Bucher Municipal
- Flower Power, Erskine Park
- Axxess Business Park
- ALDI Stores Supermarkets, NSW
- Batemans Bay Shopping Centre
- Bathurst Correctional Centre
- Sydney Business Park, Marsden Park
  - Bucher Municipal
  - Iron Mountain
  - Tigerpak
  - Stage 3 Subdivision
  - Tradecentre

Stormwater Management

- RTA Rosehill
- Metella Road
- Riverstone Flood Study
- Norwest Business Park OSD Basin
- Gibson Avenue Padstow
- Howard Court Stage 2, Wollongong
- Dwyers Dealership, Wollongong

Education

- Meadowbank TAFE
- Edmondson Park Primary and High School
- East Leppington Primary School
- Catherine Field Primary School
- Monaro Schools – Murrumbateman and Googong Schools

Residential and Aged Care

- RSL Agris House
- UCA Mayflower, Gerringong
- Bowden Brae, Normanhurst
- The Arbour Aged Care Facility, Berry
- Treeview Estates Retirement Village, Lithgow
- Anglican Retirement Village, Pennant Hills
- Epping Road, Apartments
- Single Dwelling Houses in the Sydney area
- Dalmeny Road Subdivision

Council

- Blacktown City Council – International Centre of Training Excellence
- South Sydney Council – Green Square Public Domain
- City of Sydney Council- Glebe Foreshore Project
- Baulkham Hills Shire Council- Caddies Creek Reserve Sportsfields.
- Baulkham Hills Shire Council- Withers Road Reserve

Appendix D – Consultation Record

Post Approval Consultation Record

Identified Party to Consult:	Yass Council
Consultation type:	Conversation
When is consultation required?	During the SSDA Design and Documentation Phase
Why	Confirmation on Engineering requirements such as OSD, Water Quality and Soil and Water Management for the site
When was consultation scheduled/held	Phone call
When was consultation held	13th May 2021
Identify persons and positions who were involved	Terry Cooper – Engineering Services Manager
Provide the details of the consultation	OSD, Water Quality and Soil and Water Management for the site
What specific matters were discussed?	Council advised that OSD would be required however Council do not have policies on OSD and Water Quality and the Soil and Water Management should be provided in accordance with 'The Blue Book'
What matters were resolved?	Council satisfied with our Engineering concepts of design.
What matters are unresolved?	N/A
Any remaining points of disagreement?	no
How will SINSW address matters not resolved?	N/A

A.8 Construction Waste Management Sub-Plan (CWMSP)

CONSTRUCTION WASTE MANAGEMENT PLAN (CWMP)

NEW PRIMARY SCHOOL AT MURRUMBATEMAN

SSD-11233241

REVISION NUMBER:

VERSION 3

REPORT DATE:

13/12/2021

SUBMITTED TO:

PAUL TODHUNTER

HANSEN YUNCKEN PTY LTD

PRESENTED BY:

JO DRUMMOND

ECCELL ENVIRONMENTAL MANAGEMENT
35 WAVERLY CRST, BONDI JUNCTION 2022
www.eccellenvironmental.com.au

TABLE OF CONTENTS

DISCLAIMER
This report is based on information provided by Hansen Yuncken Pty Ltd. To that extent this report relies on the accuracy of the information provided to the consultant This report is not a substitute for legal advice on the relevant environmental related legislation, which applies to businesses, contractors or other bodies. Accordingly, EcCell Environmental will not be liable for any loss or damage that may arise out of this project.

DOCUMENT CONTROL				
ISSUE NUMBER	DATE	COMMENT	AUTHOR	REVIEW
VERSION 1	12/05/2021	Issue	Simon Lunn	Jo Drummond
VERSION 2	2/11/2021	Issue	Jo Drummond	Patrick Nolan
VERSION 3	13/11/2021	Final Issue	Jo Drummond	Patrick Nolan

INTRODUCTION

OVERVIEW

This Construction Waste Management Plan (CWMP) accompanies an Environmental Impact Statement (EIS) pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act) in support of an application for a State Significant Development (SSD-11233241).

The development is for a new primary school located at 2 Fairley Street, Murrumbateman.

This report addresses Development Consent Conditions B17 of SSD-11233241 as follows

The Construction Waste Management Sub-Plan (CWMSP) must address but is not limited to

- (a)The recording of quantities, classification (for materials to be removed) and validation (for materials to remain) of each type of waste generated during construction and proposed use:
- (b)Information regarding the recycling and disposal locations
- (c) Confirmation of the contamination status on the areas of the site based on validation results

The purpose of this CWMP is to:

a) Identify, quantity and classify waste streams to be generated during construction.
b) Identify appropriate servicing arrangements (including but not limited to, waste management, loading zones, mechanical plant) for the site.
c) To ensure storage and collection of waste is designed and managed having appropriate regard to space, location, amenity and ongoing management of waste management facilities.
d) Describe measures to be implemented to manage, reuse, and recycle and safely dispose of the waste.
e) To maximise reuse and recycling of demolition and construction materials and materials from development.
f) To encourage building design techniques in general which minimise waste generation.
g) To minimise the amount of waste being deposited to landfill with targets to reuse or recycle at least 90% of construction and demolition waste as per the EFSG DG02 2.7.1 Construction and demolition waste requirements.
h) To comply to 4 Green Stars

PROJECT DESCRIPTION

The Proposal

The proposed development is for construction and operation of a new primary school with Core 21 facilities in Murrumbateman that will accommodate up to 368 students.
The proposed development includes:

- A collection of 1-2 storey buildings containing 14 home base units, 2 special education learning units, hall, administration facilities and library.
- On-site parking lot with 40 spaces and kiss-and-ride area.
- Outdoor sports court and play area.
- Integrated landscaping, fencing and signage.

Site Description

The site is located at 2 Fairley Street, Murrumbateman, in the local government area of Yass Valley Council. The site is formally described as Lot 302 DP1228766 (refer to Figure 1). The site is irregular in shape and has an area of 15,434.92m².

The site is located at the northern end of the Murrumbateman village, which is characterised by a mix of uses including low density residential and some commercial.

Immediately surrounding development includes a tourist hotel to the north across Fairley Street, Murrumbateman Library (located in the former Murrumbateman schoolhouse, a local heritage item) to the south, a medical centre and childcare centre to the west, and rural land and equestrian facilities to the east across Barton Highway. There is also a cycling and equestrian pathway to the south between the site and library.

The site contains an existing parking lot in its northern end and a driveway along its western boundary. There is also a mound of soil at the southern end of the site. An internal road and two parking bays in the existing carpark and road will be partially demolished

Figure 1 – Site aerial photograph (*Source: Nearmap)*

RESPONSE TO SEARS

The CWMP is required by the Secretary's Environmental Assessment Requirements (SEARs) for SSD11233241. This table identifies the SEARs and relevant reference within this report.

Table 1 - SSD Requirement & CWMP Page Reference

SSD-11233241 Item B17	Report Reference Page
The Construction Waste Management Sub-Plan (CWMSP) (A) The recording of quantities, classification (for materials to be removed) and validation (for materials to remain) of each type of waste generated during construction and proposed use:	Page 7-10 PROJECT PHASE
(B) Information regarding the recycling and disposal locations	Page 7-10 PROJECT PHASE
(C) Confirmation of the contamination status on the areas of the site based on validation results	Page 9 Douglas Partners Geo Tech Report Preliminary Site Investigation (Contamination) May 2021

NSW LEGISLATIVE REQUIREMENTS AND GUIDELINES

Relevant key legislation and guidelines applicable to the project include:

- Protection of the Environment Operations Act 1997
- Protection of the Environment (General) Operations Act 1998
- Waste Avoidance and Resource Recovery Act 2014
- Protection of the Environment Operations (Waste) Regulation 2014
- Waste Classification Guidelines (EPA, 2014)
- NSW Department of Planning and Environment, Secretary's Environmental Assessment Requirements (SEARs)

WASTE MANAGEMENT STRATEGIES

SERVICING ARRANGMENTS

The current legislation determines that the generator of waste is the owner of the waste until the waste crosses a calibrated weighbridge into a licensed facility. Waste contractors to demolition and construction contractors are the primary transporters of waste off-site, accordingly, waste contractors will be required to provide verifiable monthly reports on waste reused, reprocessed or recycled (diverted from landfill) or waste sent to landfill. These reports have a direct bearing on the generator's compliance with the relevant regulations.

The CWMP will be implemented on site throughout including singularly or collectively the demolition, construction and fit out phases.

A Waste Data File must be maintained on-site and all entries are to include:

- The classification of the waste
- The time and date of material removed
- A description of and the volume of waste collected
- The location and name of the waste facility that the waste is transferred to
- The vehicle registration and the name of the waste contractor's company

The Waste Data File will be made available for inspection to any authorized officer at any time during the life of the site works. At the conclusion of site works, the designated person will retain all waste documentation and make this validating documentation available for inspection.

Arrangement's will be made with the Waste Contractor to increase bin supply if there is an unexpected increase in waste generation.

WASTE MANAGEMENT EQUIPMENT, BIN SIZES AND COLLECTION FREQUENCY

All waste will be removed by a licensed waste contractor using 15-meter bins on site. The construction and demolition waste will be removed when bins are full and within the construction site hours to reduce disturbance of the neighbours.

ROLES AND RESPONSIBILITIES

The waste management strategy for the project will operate over the design, procurement, and construction including fit out of the project and is detailed in Table 2.

Table 2 - Breakdown of Tasks and Responsibilities

Management Strategies	Responsibilities
Design:	
Design for materials to standard sizes	Architect, Subcontractors
Design for operational waste minimisation	Architect & Builder
Consider ways to avoid, reuse and recycle construction wastes	Subcontractors.
Procurement:	
Select recycled and reprocesses materials	Architect, Engineer, Builder & Sub Contractors
Select components that can be reused after deconstruction	Architect, Engineer & Builder
Prioritise suppliers that take back offcuts and unused product.	Sub-Contractors
Encourage contractors and subcontractors that use unneeded offcuts and unused product for use on other jobs	
Ordering the right quantities of materials (Purchasing Policy);	Sub-Contractors
Include prefabrication of materials	
Pre-construction:	
Waste management plan to be reviewed & approved prior to construction.	Builder
Contract a Waste Contractor	Waste Contractor
Construction on-site:	
Use the avoid, reuse, reduce, recycle principles	Builder & Waste Contractor

Management Strategies	Responsibilities
Minimisation of recurring packaging materials	Sub-contractors
Returning packaging to the supplier	Builder & Sub-contractor
Separation of recycling of materials off site	Waste Contractor
Audit & monitor the correct usage of bins	Builder & Waste Contractor
Audit and monitor the Waste Contractor	Builder
<u>Avoiding construction waste</u> Reduce extraneous packaging use reusable padding and careful packing. All packaging generated on site should be captured for reuse or recycling wherever possible. Reuse formwork; Use reuse non-returnable containers on the job site to the maximum extent possible	Builder

ON SITE WASTE MANAGEMENT REQUIREMENTS

There will be a designated waste storage area for the disposal and storage of construction waste prior to collection. This area will be located conveniently for demolition and construction work team to use the bins as well as for waste contractors to collect. An indicative location has been provided in Appendix A. Other requirements include:

- The routes for movement of waste between work site and waste storage area are to be kept obstruction-free.
- The routes for movement of bins and waste between storage and collection points are marked in the site drawing, and will be kept obstruction-free (if waste is moved between the waste storage area(s).
- The waste bin collection point provided will be accessible for waste collection vehicles. There are no obstructions to turning or reversing, pulling up vehicles and lifting bins.
- Access for waste collection vehicles will not be compromised by construction-related activities vehicles or other consequences of construction staging.
- All waste not being reused on site will be removed during, or at the completion of, the construction stage.
- No waste will be left on site unless it is part of valid reuse on site, which is integral to and in place in the design.
- In order to manage noise levels, collection of waste from the construction site will only occur during hours approved for construction work.
- All vehicles entering or leaving the site must have their loads covered.
- All vehicles, before leaving the site, to be cleaned of dirt, sand and other materials, to avoid tracking these materials onto public roads.
- At the completion of the works, the work site is left clear of waste and debris.

UNEXPECTED FINDS PROTOCOL

The fill material encountered beneath the site would be suitable for on-site reuse;

Should any fill or stockpiled material be required to be disposed off-site, they must first be assessed in accordance with NSW EPA Waste Classification Guidelines Part 1 Classifying Waste (2014) and assigned a waste classification prior to off-site disposal. If unexpected finds occur the following procedure is required;

An unexpected find can be defined as:

- Any unanticipated archaeological discovery e.g. aboriginal relics, items of significance, etc.;
- Buried or surface asbestos containing materials (Bonded, Friable or other);
- Buried waste materials e.g. medical waste, contaminated waste, etc.;
- Septic or underground storage tanks;
- Animal burial pits; or
- discoloured and odorous soils and groundwater/seepage.

Should an unexpected find of potential contamination be encountered during the works, the following procedure should be followed:

- Identified finding by worker;
- Cease work as soon as safe to do so and move clear of the finding;
- Do not tamper or attempt to remove the finding;
- Contact Construction Management immediately;
- Site Management to delineate an exclusion or quarantine zone around the area using fencing and or appropriate barriers and signage;
- Preliminary assessment of the find and need for immediate management controls;
- Further assessment and/or remediation works are required and how such works are to be undertaken in accordance with contaminated site regulations and guidelines;
- Any unexpected finds must be documented, and records of volumes and types of materials identified removed from the site must be kept on file;
- Receipt documentation from the licensed facility confirming volume received.

WASTE MANAGEMENT PLAN APPLICATION

PROJECT:
New Primary School at Murrumbateman
ADDRESS:
2 Fairley Street, Murrumbateman, 2582, NSW (Lot 302 DP1228766)
OWNERS:
Schools Infrastructure NSW (SINSW)
DETAILS OF APPLICANT
Department of Education
DESCRIPTION OF BUILDINGS AND OTHER STRUCTURES CURRENTLY ON THE SITE:
This school is planned to be built on a greenfield site and will be a completely new school. An internal road and two parking bays in the existing carpark and road will be partially demolished.
BRIEF DESCRIPTION OF PROPOSAL:
The project consists of a school with core facilities for a Core 21 school and homebases for a capacity of 368 students.
IF MATERIALS / WASTE IS REUSED ON SITE OR OFF SITE, HOW WILL IT BE RE-USED:
There is minimal excavation of ENM, which will be used back on the site for landscaping. This material will be covered to reduce soil displacement and prevent air pollution.

	Name	Signed	Contact Number	Date
Prepared by:	Jo Drummond		0412214233	13/12/2021

PROJECT PHASE

DEMOLITION

Material Type on Site	Estimated Volume (m^3) or Weight (t) (Most Favourable → Least)		ON-SITE TREATMENT	OFF-SITE TREATMENT	
	Recycling	Disposal	Proposed reuse and/or recycling collection methods	Disposal / Transport Contractor	Licensed Waste Depot, Licensed Recycling Outlet or Licensed Landfill site
Concrete Existing Kerbs	8 m^3		Removed from site and recycled	TBA	TBA
Metal, Steel reinforcement, signs, poles & railing	2 m^3		Removed from site and recycled	TBA	TBA
Bitumen /Ashfelt	15 m^3		Removed from site and recycled	TBA	TBA
Subtotal	**25m3**	**Nil**			
Total	**25m3**				
Narrative: An internal road and two parking bays in the existing carpark and road will be partially demolished. (demolisher to be advised (TBA). .					

EXCAVATION

Material Type on Site	Estimated Volume (m^3) or Weight (t) (Most Favourable → Least)			ON-SITE TREATMENT	OFF-SITE TREATMENT	
	Reuse	Recycling	Disposal	Proposed reuse and/or recycling collection methods	Disposal / Transport Contractor	Waste Depot, Recycling Outlet or Landfill site
Excavated Natural Material (ENM) Greenfield site Cut 2,674		Reused Volume	Nil	Reuse on site	N/A	N/A
Fill 2,439		2,439				
Sub Total			**235 Cubic m3**			
TOTAL	**2,674Cubic m3**					

Narrative:

Douglas Partners Preliminary Site Investigation (Contamination) New Primary School in Murrumbateman 2 Fairley Street, Murrumbateman Prepared for Hansen Yuncken Pty Ltd Project 203624.01 May 2021Based on the current investigation, the following potential sources of contamination and associated contaminants of potential concern (COPC) have been identified:

• S1: Fill: Associated with residential subdivision earthworks. Whilst it is noted that the fill was likely sourced from the wider subdivision, DP are not aware that a contamination assessment was undertaken prior to the subdivision works, therefore, the quality of the fill material is unknown. o COPC include metals, total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene, xylene (BTEX), polycyclic aromatic hydrocarbons (PAH), polychlorinated biphenyls (PCB), organochlorine pesticides and organophosphate pesticides (OCP/OPP) and asbestos.

• S2: Potential use of pesticides during former agricultural use of the site. o COPC include arsenic, OCP and OPP.

Exported excavation material required to be disposed off-site, must first be assessed in accordance with NSW EPA Waste Classification Guidelines Part 1 Classifying Waste (2014) and assigned a waste classification prior to off-site disposal.

CONSTRUCTION

Material Type on Site	Estimated Volume (m^3) or Weight (t) (Most Favourable → Least)			ON-SITE TREATMENT	OFF-SITE TREATMENT	
	Reuse	Recycling	Disposal	Proposed reuse and/or recycling collection methods	Disposal / Transport Contractor	Waste Depot, Recycling Outlet or Landfill site
Concrete Brick Block-work & Tile		105 m^3		Co-mingled Bins	TBA	Crushed for road base
Metals		45 m^3		Co-mingled Bins	TBA	Scrap Metal Dealer for smelting
Timber off-cuts		125 m^3		Co-mingled Bins	TBA	Recycled for chips and mulch
Cardboard		90 m^3		Co-mingled Bins	TBA	Recycled into cardboard
Plasterboard		105 m^3		Co-mingled Bins	TBA	Recycled as soil conditioner
Plastics, plastic packaging, paint drums*, containers		45 m^3	25 m^3	Co-mingled Bins	TBA	- Styrene and plastic to landfill * Paint drums nested and recycled
Pallets and Reels	40 units			Separated onsite	TBA	Returned to the supplier
Liquid Waste			15 m^3	Separated onsite	TBA	Transferred to licensed landfill
General Waste			115m^3	Co-mingled Bins	TBA	Transferred to licensed landfill
Sub Total	**40 units**	**515 m^3**	**155 m^3**			
TOTAL	670 m^3			NB: Plus, an additional 40 pallets (single units returned to suppliers for reuse)		
Narrative: As the contracts for all contractors have not been let there are still those including the waste contractor To Be Advised (TBA). All waste will be co-mingled and taken for off-site separation and reuse or recycling except Pallets and Reels.						

APPENDIX A DEMOLITION AND CONSTRUCTION WASTE PLAN DRAWING

A.9 Executive Summary from Preliminary Site Investigation (Contamination) Report

Douglas Partners
Geotechnics / Environment / Groundwater

Integrated Practical Solutions

Report on
Preliminary Site Investigation (Contamination)

New Primary School in Murrumbateman
2 Fairley Street, Murrumbateman

Prepared for
Hansen Yuncken Pty Ltd

Project 203624.01
May 2021

Document History

Document details

Project No.	203624.01	Document No.	R.001.Rev0
Document title	Report on Preliminary Site Investigation (Contamination) New Primary School in Murrumbateman		
Site address	2 Fairley Street, Murrumbateman		
Report prepared for	Hansen Yuncken Pty Ltd		
File name	203624.01.R.001.Rev0.docx		

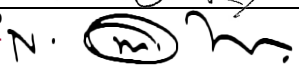
Document status and review

Status	Prepared by	Reviewed by	Date issued
Revision 0	Peter Storey	Dean Woods	27 May 2021

Distribution of copies

Status	Electronic	Paper	Issued to
Revision 0	1	0	Paul Todhunter, Hansen Yuncken Pty Ltd

The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

	Signature		Date
Author		Peter Storey	27 May 2021
Reviewer	pp 	Dean Woods	27 May 2021

FS 604853

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Executive Summary

This Douglas Partners Pty Ltd Preliminary Site Investigation (Contamination) Report was prepared to accompany an Environmental Impact Statement (EIS) pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act) in support of an application for a State Significant Development (SSD-11233241).

The development is for a new primary school located at 2 Fairley Street, Murrumbateman.

This report addresses the relevant Secretary's Environmental Assessment Requirements (SEARs), namely:

- Key Issue 17: Soil and Water; and
- Key Issue 19: Contamination

The objective of the PSI were:

- To identify potential sources of contamination (if any) and determine the potential contaminants of concern, identify areas of potential contamination, identify human and ecological receptors associated with the proposed development and identify potentially affected media (soil, groundwater, ground gas etc.); and
- To comment on the need for further investigation and/or management with regard to the proposed development.

DP undertook the following scope of works to meet the project objectives:

- Reviewed readily available site history information, comprising historic and current titles and deposited plans; historic and recent aerial photographs; public databases held under the Contaminated Land Management Act 1997 and the Protection of the Environment Operations Act 1997; readily accessible Council Records; and the Section 10.7 (2&5) planning certificate;
- Reviewed site information, including published information on geological, topographical hydrogeological, soil salinity and acid sulfate soil (ASS) conditions;
- Completed a site walkover and observed situations that indicate a potential for contamination and identified environmental receptors;
- Development of a preliminary conceptual site model (CSM);
- Excavation of 7 test pits and drilling of 8 boreholes across the site using an excavator or drill rig. It is noted that locations of the pits were informed by the geotechnical investigation undertaken by DP;
- Collection of soil samples at regular intervals or obvious signs or potential contamination;
- Laboratory testing on 19 samples for a combination of the following
    - Total recoverable hydrocarbons (TRH);
    - Benzene, toluene, ethylbenzene and total xylenes (BTEX);
    - Polycyclic aromatic hydrocarbons (PAHs);
    - Polychlorinated biphenyls (PCBs);
    - Organochlorine pesticides/organophosphate pesticides (OCP/OPP); and

  - Metals (As, Cd, Cr, Cu, Hg, Ni, Pb and Zn);
  - Asbestos;
- Two additional samples were tested for quality control purposes for TRH, BTEX, PAH and metals; and two samples were also be tested for pH, clay content and cation exchange capacity in order to produce site specific investigation levels; and
- Preparation of this report presenting the results of the assessment and recommendations as to the necessity for further investigations to be carried out on the site and the suitability of the site to be used for its intended and permitted purposes.

Based on the current investigation, the following potential sources of contamination and associated contaminants of potential concern (COPC) have been identified:

- S1: Fill: Associated with residential subdivision earthworks. Whilst it is noted that the fill was likely sourced from the wider subdivision, DP are not aware that a contamination assessment was undertaken prior to the subdivision works, therefore, the quality of the fill material is unknown.
  - COPC include metals, total recoverable hydrocarbons (TRH), benzene, toluene, ethylbenzene, xylene (BTEX), polycyclic aromatic hydrocarbons (PAH), polychlorinated biphenyls (PCB), organochlorine pesticides and organophosphate pesticides (OCP/OPP) and asbestos.
- S2: Potential use of pesticides during former agricultural use of the site.
  - COPC include arsenic, OCP and OPP.

The results of the laboratory analysis indicated that reported concentrations of contaminants of concern for fill and potential use of pesticides, were below the adopted assessment criteria or not detected.

DP considers that the site is suitable for use as a primary school, subject to the following measures during any potential future development works:

- A Construction Environment Management Plan should be prepared including an ‘unexpected finds protocol’ (i.e. asbestos in fill, hydrocarbon affected soils including staining and odours and evidence of heavy pesticide use) and implemented during potential future site works;
- Should suspected asbestos containing materials be encountered at the site, the affected area should be fenced off and assessed by a licensed asbestos assessor;
- The fill material encountered beneath the site would be suitable for on-site reuse; and
- Should any fill or stockpiled material be required to be disposed off-site, they must first be assessed in accordance with NSW EPA Waste Classification Guidelines Part 1 Classifying Waste (2014) and assigned a waste classification prior to off-site disposal.

A.10 SSDA Compliance Conditions

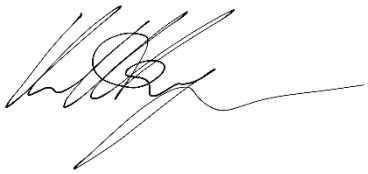
Development Consent

Section 4.38 of the Environmental Planning and Assessment Act 1979

As delegate of the Minister for Planning and Public Spaces under delegation executed on 26 April 2021, I approve the Development Application referred to in Schedule 1, subject to the conditions specified in Schedule 2.

These conditions are required to:

- prevent, minimise, or offset adverse environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the ongoing environmental management of the development.



Karen Harragon
Director
Social and Infrastructure Assessments

Sydney 26 October 2021

SCHEDULE 1

Application Number:	SSD-11233241
Applicant:	Department of Education
Consent Authority:	Minister for Planning and Public Spaces
Site:	2 Fairley Street, Murrumbateman (Lot 302 DP1228766)
Development:	Construction and operation of a new primary school, comprising: • demolition and site preparation including bulk earthworks; • three new two-storey buildings containing home base rooms, library, administrative facilities, canteen, storage rooms and amenities; • single-storey hall/out of school hours building with covered outdoor learning area; • landscaping works, outdoor play areas and sports court; • on site car parking and drop-off/pick-up facility, and on street bus bay; and • associated works including fencing, drainage works, bicycle parking and school signage.

DEFINITIONS

Aboriginal object	Has the same meaning as the definition of the term in section 5 of the *National Parks and Wildlife Act 1974*
Aboriginal place	Has the same meaning as the definition of the term in section 5 of the *National Parks and Wildlife Act 1974*
Accredited Certifier	Means the holder of accreditation as an accredited certifier under the *Building Professionals Act 2005* acting in relation to matters to which the accreditation applies
Advisory Notes	Advisory information relating to the consent but do not form a part of this consent
Applicant	NSW Department of Education or any other person carrying out any development to which this consent applies
BCA	Building Code of Australia
BC Act	*Biodiversity Conservation Act 2016*
CEMP	Construction Environmental Management Plan
Certification of Crown building work	Certification under section 6.28(2) of the EP&A Act
Certifier	Means a council or accredited certifier or in the case of Crown development, a person qualified to conduct a Certification of Crown Building work
Compliance Reporting Post Approval Requirements	Compliance Reporting Post Approval Requirements as available on the Department's website
Conditions of this consent	The conditions contained in Schedule 2 of this document
Construction	All physical work to enable operation including (unless specifically excluded by a condition) but not limited to the demolition and removal of buildings, the carrying out of works for the purposes of the development, including bulk earthworks, and erection of buildings and other infrastructure permitted by this consent, but excluding the following: • demolition of internal roadways; • building and road dilapidation surveys; • investigative drilling or investigative excavation; • Archaeological Salvage; • establishing temporary site offices (in locations identified by the conditions of this consent); • installation of environmental impact mitigation measures, fencing, enabling works; and • minor adjustments to services or utilities However, where heritage items, or threatened species or threatened ecological communities (within the meaning of the *Biodiversity Conservation Act 2016 or Environment Protection and Biodiversity Conservation Act 1999*) are affected or potentially affected by any physical work, that work is construction, unless otherwise determined by the Planning Secretary in consultation with EES Group or DPIE Fisheries (in the case of impact upon fish, aquatic invertebrates or marine vegetation)
Council	Yass Valley Council
Day	The period from 7am to 6pm on Monday to Saturday, and 8am to 6pm on Sundays and Public Holidays
Demolition	The deconstruction and removal of buildings, sheds and other structures on the site
Department	NSW Department of Planning, Industry and Environment

Development	The development described in the EIS and Response to Submissions, including the works and activities comprising as specified in Schedule 1and as modified by the conditions of this consent
Earthworks	Bulk earthworks, site levelling, import and compaction of fill material, excavation for installation of drainage and services
EES Group	Environment, Energy and Science Group of the Department of Planning, Industry and Environment
EIS	The Environmental Impact Statement titled Environmental Impact Statement New Primary School at Murrumbateman (SSD-11233241), prepared by Mecone dated June 2021, submitted with the application for consent for the development, including any additional information provided by the Applicant in support of the application
ENM	Excavated Natural Material
Environment	Includes all aspects of the surroundings of humans, whether affecting any human as an individual or in his or her social groupings
EPA	NSW Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	Environmental Planning and Assessment Regulation 2000
Evening	The period from 6pm to 10pm
Feasible	Means what is possible and practical in the circumstances
Heritage	Encompasses both Aboriginal and historic heritage including sites that predate European settlement, and a shared history since European settlement
Heritage NSW	Heritage, Community Engagement of the Department of Premier and Cabinet
Heritage Item	An item as defined under the *Heritage Act 1977,* and assessed as being of local, State and/ or National heritage significance*,* and/or an Aboriginal Object or Aboriginal Place as defined under the *National Parks and Wildlife Act 1974'*, the World Heritage List, or the National Heritage List or Commonwealth Heritage List under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth), or anything identified as a heritage item under the conditions of this consent
Incident	An occurrence or set of circumstances that causes, or threatens to cause, material harm and which may or may not be, or cause, a non-compliance *Note: "material harm" is defined in this consent*
Independent Audit Post Approval Requirements	Independent Audit Post Approval Requirements as available on the Department's website
Land	Has the same meaning as the definition of the term in section 1.4 of the EP&A Act
EMP	Environmental Management Plan
Management and mitigation measures	The management and mitigation measures set out in Section 10 of the EIS
Material harm	Is harm that: a) involves actual or potential harm to the health or safety of human beings or to the environment that is not trivial; or b) results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000, (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment)
Minister	NSW Minister for Planning and Public Spaces (or delegate)

Mitigation	Activities associated with reducing the impacts of the development prior to or during those impacts occurring
Monitoring	Any monitoring required under this consent must be undertaken in accordance with section 9.39 of the EP&A Act
Night	The period from 10pm to 7am on Monday to Saturday, and 10pm to 8am on Sundays and Public Holidays
Non-compliance	An occurrence, set of circumstances or development that is a breach of this consent
NSW RFS	New South Wales Rural Fire Service
Operation	The carrying out of the approved purpose of the development upon completion of construction excluding operational readiness work
Operational readiness work	Use of the completed areas of the development by school staff to prepare for the operation of the development
Planning Secretary	Planning Secretary under the EP&A Act, or nominee
POEO Act	*Protection of the Environment Operations Act 1997*
Reasonable	Means applying judgement in arriving at a decision, taking into account: mitigation, benefits, costs of mitigation versus benefits provided, community views, and the nature and extent of potential improvements
Registered Aboriginal Parties	Means the Aboriginal persons identified in accordance with the document entitled "*Aboriginal cultural heritage consultation requirements for proponents 2010*" (DECCW)
Rehabilitation	The restoration of land disturbed by the development to a good condition, to ensure it is safe, stable and non-polluting
Response to submissions	The Applicant's response to issues raised in submissions received in relation to the application for consent for the development under the EP&A Act
RtS	Response to Submissions
Sensitive receivers	A location where people are likely to work, occupy or reside, including a dwelling, school, hospital, office or public recreational area
Site	The land defined in Schedule 1
TfNSW	Transport for New South Wales
VENM	Virgin Excavated Natural Material
Waste	Has the same meaning as the definition of the term in the Dictionary to the POEO Act
Year	A period of 12 consecutive months

SCHEDULE 2

PART A ADMINISTRATIVE CONDITIONS

Obligation to Minimise Harm to the Environment

A1. In addition to meeting the specific performance measures and criteria in this consent, all reasonable and feasible measures must be implemented to prevent, and, if prevention is not reasonable and feasible, minimise any material harm to the environment that may result from the construction and operation of the development.

Terms of Consent

A2. The development may only be carried out:

(a) in compliance with the conditions of this consent;

(b) in accordance with all written directions of the Planning Secretary;

(c) generally in accordance with the EIS and Response to Submissions;

(d) in accordance with the approved plans in the table below:

Architectural drawings prepared by *Pedavoli Architects*			
Dwg No.	**Rev**	**Name of Plan**	**Date**
MURR - SSDA - 001	F	SITE PLAN	24/08/2021
MURR - SSDA - 003	E	SITE DEMOLITION PLAN	17/08/2021
MURR - SSDA - 005	E	FENCING PLAN AND DETAILS	17/08/2021
MURR - SSDA - 006	B	SITE SECTION	17/08/2021
MURR - SSDA - 011	E	COMPOSITE PLAN - GROUND FLOOR	17/08/2021
MURR - SSDA - 012	E	COMPOSITE PLAN - FIRST FLOOR	17/08/2021
MURR - SSDA - 021	E	COMPOSITE PLAN - ROOF PLAN	17/08/2021
MURR - SSDA - 101	E	ELEVATIONS - SHEET 1	17/08/2021
MURR - SSDA - 102	E	ELEVATIONS - SHEET 2	17/08/2021
MURR - SSDA - 201	E	SECTIONS - SHEET 1	17/08/2021
MURR - SSDA - 401	E	RENDERS AND MATERIAL BOARD	17/08/2021
MURR - SSDA - 501	E	GFA PLANS AND AREA CALCULATION	17/08/2021
Civil Engineering Plan prepared by *Northrop*			
Dwg No.	**Rev**	**Name of Plan**	**Date**
MURR-CV-SD-DWG-103.01	05	BULK EARTHWORKS CUT & FILL PLAN	12/08/2021
Public Domain Plan prepared by *Northrop*			
Dwg No.	**Rev**	**Name of Plan**	**Date**
MURR-CV-DD-DWG-206.11	02	Public Domain Plan	23/08/2021

A3. Consistent with the requirements in this consent, the Planning Secretary may make written directions to the Applicant in relation to:

(a) the content of any strategy, study, system, plan, program, review, audit, notification, report or correspondence submitted under or otherwise made in relation to this consent, including those that are required to be, and have been, approved by the Planning Secretary;

(b) any reports, reviews or audits commissioned by the Planning Secretary regarding compliance with this approval; and

(c) the implementation of any actions or measures contained in any such document referred to in (a) above.

A4. The conditions of this consent and directions of the Planning Secretary prevail to the extent of any inconsistency, ambiguity or conflict between them and a document listed in condition A2(c). In the event of an inconsistency, ambiguity or conflict between any of the documents listed in condition A2(c), the most recent document prevails to the extent of the inconsistency, ambiguity or conflict.

Limits of Consent

A5. This consent lapses five years after the date of consent unless work is physically commenced.

Prescribed Conditions

A6. The Applicant must comply with all relevant prescribed conditions of development consent under Part 6, Division 8A of the EP&A Regulation.

Planning Secretary as Moderator

A7. In the event of a dispute between the Applicant and a public authority, in relation to an applicable requirement in this approval or relevant matter relating to the Development, either party may refer the matter to the Planning Secretary for resolution. The Planning Secretary's resolution of the matter must be binding on the parties.

Evidence of Consultation

A8. Where conditions of this consent require consultation with an identified party, the Applicant must:

(a) consult with the relevant party prior to submitting the subject document for information or approval; and

(b) provide details of the consultation undertaken including:

(i) the outcome of that consultation, matters resolved and unresolved; and

(ii) details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved.

Staging

A9. The project may be constructed and operated in stages. Where compliance with conditions is required to be staged due to staged construction or operation, a Staging Report (for either or both construction and operation as the case may be) must be prepared and submitted to the satisfaction of the Planning Secretary. The Staging Report must be submitted to the Planning Secretary no later than one month before the commencement of construction of the first of the proposed stages of construction (or if only staged operation is proposed, one month before the commencement of operation of the first of the proposed stages of operation).

A10. A Staging Report prepared in accordance with condition A9 must:

(a) if staged construction is proposed, set out how the construction of the whole of the project will be staged, including details of work and other activities to be carried out in each stage and the general timing of when construction of each stage will commence and finish;

(b) if staged operation is proposed, set out how the operation of the whole of the project will be staged, including details of work and other activities to be carried out in each stage and the general timing of when operation of each stage will commence and finish (if relevant);

(c) specify how compliance with conditions will be achieved across and between each of the stages of the project; and

(d) set out mechanisms for managing any cumulative impacts arising from the proposed staging.

A11. Where a Staging Report is required, the project must be staged in accordance with the Staging Report, as approved by the Planning Secretary.

A12. Where construction or operation is being staged in accordance with a Staging Report, the terms of this consent that apply or are relevant to the works or activities to be carried out in a specific stage must be complied with at the relevant time for that stage as identified in the Staging Report.

Staging, Combining and Updating Strategies, Plans or Programs

A13. The Applicant may:

(a) prepare and submit any strategy, plan (including management plan, architectural or design plan) or program required by this consent on a staged basis (if a clear description is provided as to the specific stage and scope of the development to which the strategy, plan (including management plan, architectural or design plan) or program applies, the relationship of the stage to any future stages and the trigger for updating the strategy, plan (including management plan, architectural or design plan) or program);

(b) combine any strategy, plan (including management plan, architectural or design plan), or program required by this consent (if a clear relationship is demonstrated between the strategies, plans (including management plan, architectural or design plan) or programs that are proposed to be combined); and

(c) update any strategy, plan (including management plan, architectural or design plan), or program required by this consent (to ensure the strategies, plans (including management plan, architectural or design plan), or programs required under this consent are updated on a regular basis and incorporate additional measures or amendments to improve the environmental performance of the development).

A14. Any strategy, plan or program prepared in accordance with condition A13, where previously approved by the Planning Secretary under this consent, must be submitted to the satisfaction of the Planning Secretary.

A15. If the Planning Secretary agrees, a strategy, plan (including management plan, architectural or design plan), or program may be staged or updated without consultation being undertaken with all parties required to be consulted in the relevant condition in this consent.

A16. Updated strategies, plans (including management plan, architectural or design plan), or programs supersede the previous versions of them and must be implemented in accordance with the condition that requires the strategy, plan, program or drawing.

Structural Adequacy

A17. All new buildings and structures, and any alterations or additions to existing buildings and structures, that are part of the development, must be constructed in accordance with the relevant requirements of the BCA.

Notes: Part 8 of the EP&A Regulation sets out the requirements for the certification of the development.

External Walls and Cladding

A18. The external walls of all buildings including additions to existing buildings must comply with the relevant requirements of the BCA.

External Materials

A19. The external colours, materials and finishes of the buildings must be consistent with the approved plans referenced in Condition A2. Any minor changes to the colour and finish of approved external materials may be approved by the Certifier provided:

(a) the alternative colour/material is of a similar tone/shade and finish to the approved external colours/building materials;

(b) the quality and durability of any alternative material is the same standard as the approved external building materials; and

(c) a copy of any approved changes to the external colours and/or building materials is provided to the Planning Secretary for information.

Design and Construction for Bush Fire

A20. Construction of Buildings B and C and the connecting roof must comply with Sections 3 and 5 (BAL 12.5) Australian Standard AS3959-2009 Construction of buildings in bushfire-prone areas or NASH National Standard Steel Framed Construction in Bushfire Areas (as updated) as appropriate and section 7.5 of Planning for Bush Fire Protection 2019.

A21. Fire hydrants are to be installed to ensure compliance with Planning for Bush Fire Protection 2019 and AS 2419.1 – 2005 Fire Hydrant Installations - System Design, Installation and Commissioning (AS 2419).

A22. Any gas services are to be installed and maintained in accordance with AS/NZS 1596- 2014 The storage and handling of LP gas.

Applicability of Guidelines

A23. References in the conditions of this consent to any guideline, protocol, Australian Standard or policy are to such guidelines, protocols, Standards or policies in the form they are in as at the date of this consent.

A24. Consistent with the conditions of this consent and without altering any limits or criteria in this consent, the Planning Secretary may, when issuing directions under this consent in respect of ongoing monitoring and management obligations, require compliance with an updated or revised version of such a guideline, protocol, Standard or policy, or a replacement of them.

Monitoring and Environmental Audits

A25. Any condition of this consent that requires the carrying out of monitoring or an environmental audit, whether directly or by way of a plan, strategy or program, is taken to be a condition requiring monitoring or an environmental audit under Division 9.4 of Part 9 of the EP&A Act. This includes conditions in respect of incident notification, reporting and response, non-compliance notification, Site audit report and independent auditing.

Note: For the purposes of this condition, as set out in the EP&A Act, "monitoring" is monitoring of the development to provide data on compliance with the consent or on the environmental impact of the development, and an "environmental audit" is a periodic or particular documented evaluation of the development to provide information on compliance with the consent or the environmental management or impact of the development.

Access to Information

A26. At least 48 hours before the commencement of construction until the completion of all works under this consent, or such other time as agreed by the Planning Secretary, the Applicant must:

(a) make the following information and documents (as they are obtained or approved) publicly available on its website:

(i) the documents referred to in condition A2 of this consent;

(ii) all current statutory approvals for the development;

(iii) all approved strategies, plans and programs required under the conditions of this consent;

(iv) regular reporting on the environmental performance of the development in accordance with the reporting arrangements in any plans or programs approved under the conditions of this consent;

(v) a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs;

(vi) a summary of the current stage and progress of the development;

(vii) contact details to enquire about the development or to make a complaint;

(viii) a complaints register, updated monthly;

(ix) audit reports prepared as part of any independent audit of the development and the Applicant's response to the recommendations in any audit report;

(x) any other matter required by the Planning Secretary; and

(b) keep such information up to date, to the satisfaction of the Planning Secretary and publicly available for 12 months after the commencement of operations.

Compliance

A27. The Applicant must ensure that all of its employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with, the conditions of this consent relevant to activities they carry out in respect of the development.

Incident Notification, Reporting and Response

A28. The Planning Secretary must be notified through the major projects portal immediately after the Applicant becomes aware of an incident. The notification must identify the development (including the development application number and the name of the development if it has one) and set out the location and nature of the incident.

A29. Subsequent notification must be given and reports submitted in accordance with the requirements set out in **Appendix 2**.

Non-Compliance Notification

A30. The Planning Secretary must be notified through the major projects portal within seven days after the Applicant becomes aware of any non-compliance. The Certifier must also notify the Planning Secretary through the major projects portal within seven days after they identify any non-compliance.

A31. The notification must identify the development and the application number for it, set out the condition of consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.

A32. A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.

Revision of Strategies, Plans and Programs

A33. Within three months of:

(a) the submission of a compliance report under condition A36;

(b) the submission of an incident report under condition A29;

(c) the submission of an Independent Audit under condition C36 or C37;

(d) the approval of any modification of the conditions of this consent; or

(e) the issue of a direction of the Planning Secretary under condition A2 which requires a review,

the strategies, plans and programs required under this consent must be reviewed, and the Planning Secretary and the Certifier must be notified in writing that a review is being carried out.

A34. If necessary to either improve the environmental performance of the development, cater for a modification or comply with a direction, the strategies, plans, programs or drawings required under this consent must be revised, to the satisfaction of the Planning Secretary or Certifier (where previously approved by the Certifier). Where revisions are required, the revised document must be submitted to the Planning Secretary and / or Certifier for approval and / or information (where relevant) within six weeks of the review.

Note: This is to ensure strategies, plans and programs are updated on a regular basis and to incorporate any recommended measures to improve the environmental performance of the development.

Compliance Reporting

A35. Compliance Reports of the project must be carried out in accordance with the Compliance Reporting Post Approval Requirements.

A36. Compliance Reports must be submitted to the Department in accordance with the timeframes set out in the Compliance Reporting Post Approval Requirements, unless otherwise agreed by the Planning Secretary.

A37. The Applicant must make each Compliance Report publicly available 60 days after submitting it to the Planning Secretary.

A38. Notwithstanding the requirements of the Compliance Reporting Post Approval Requirements, the Planning Secretary may approve a request for ongoing annual operational compliance reports to be ceased, where it has been demonstrated to the Planning Secretary's satisfaction that an operational compliance report has demonstrated operational compliance.

PART B PRIOR TO COMMENCEMENT OF CONSTRUCTION

Notification of Commencement

B1. The Applicant must notify the Planning Secretary in writing of the dates of the intended commencement of construction and operation at least 48 hours before those dates.

B2. If the construction or operation of the development is to be staged, the Planning Secretary must be notified in writing at least 48 hours before the commencement of each stage, of the date of commencement and the development to be carried out in that stage.

Certified Drawings

B3. Prior to the commencement of construction, the Applicant must submit to the satisfaction of the Certifier structural drawings prepared and signed by a suitably qualified practising Structural Engineer that demonstrates compliance with this development consent.

External Walls and Cladding

B4. Prior to the commencement of construction, the Applicant must provide the Certifier with documented evidence that the products and systems proposed for use or used in the construction of external walls, including finishes and claddings such as synthetic or aluminium composite panels, comply with the requirements of the BCA. The Applicant must provide a copy of the documentation given to the Certifier to the Planning Secretary within seven days after the Certifier accepts it.

Pre-Construction Dilapidation Report – Protection of Public Infrastructure

B5. Prior to the commencement of construction and demolition of internal roadways, the Applicant must:

(a) consult with the relevant owner and provider of services and Infrastructure that are likely to be affected by the development to make suitable arrangements for access to, diversion, protection and support of the affected infrastructure;

(b) prepare a Pre-Construction Dilapidation Report identifying the condition of all public (non-residential) infrastructure and assets in the vicinity of the site (including roads, gutters and footpaths) that have potential to be affected;

(c) submit a copy of the Pre-Construction Dilapidation Report to the asset owner, Certifier and Council; and

(d) provide a copy of the Pre-Construction Dilapidation Report to the Planning Secretary when requested.

Pre-Construction Survey – Residential Properties

B6. Prior to the commencement of any construction and demolition of internal roadways, the Applicant must offer a pre-construction survey to owners of residential buildings that are likely to be impacted by the development.

B7. Where the offer for a pre-construction survey is accepted (as required by condition B6), the Applicant must arrange for a survey to be undertaken by a suitably qualified and experienced expert prior to the commencement of vibration generating works that could impact on the identified buildings.

B8. Prior to the commencement of any vibration generating works that could impact on the buildings surveyed as required by condition B7, the Applicant must:

(a) provide a copy of the relevant survey to the owner of each residential building surveyed in the form of a Pre-Construction Survey Report;

(b) submit a copy of the Pre-Construction Survey Report to the Certifier; and

(c) provide a copy of the Pre-Construction Survey Report to the Planning Secretary when requested.

Community Communication Strategy

B9. No later than 48 hours before the commencement of construction, a Community Communication Strategy must be submitted to the Planning Secretary for information. The Community

Communication Strategy must provide mechanisms to facilitate communication between the Applicant, the relevant Council and the community (including adjoining affected landowners and businesses, and others directly impacted by the development), during the design and construction of the development and for a minimum of 12 months following the completion of construction.

The Community Communication Strategy must:

(a) identify people to be consulted during the design and construction phases;

(b) set out procedures and mechanisms for the regular distribution of accessible information about or relevant to the development;

(c) provide for the formation of community-based forums, if required, that focus on key environmental management issues for the development;

(d) set out procedures and mechanisms:

  (i) through which the community can discuss or provide feedback to the Applicant;

  (ii) through which the Applicant will respond to enquiries or feedback from the community; and

  (iii) to resolve any issues and mediate any disputes that may arise in relation to construction and operation of the development, including disputes regarding rectification or compensation.

Ecologically Sustainable Development

B10. Prior to the commencement of construction, unless otherwise agreed by the Planning Secretary, the Applicant must demonstrate that ESD is being achieved by either:

(a) registering for a minimum 4 star Green Star rating with the Green Building Council Australia and submit evidence of registration to the Certifier; or

(b) seeking approval from the Planning Secretary for an alternative certification process.

Outdoor Lighting

B11. Prior to commencement of lighting installation, evidence must be submitted to the satisfaction of the Certifier that all outdoor lighting within the site has been designed to comply with AS 1158.3.1:2005 Lighting for roads and public spaces – Pedestrian area (Category P) lighting – Performance and design requirements and AS 4282-2019 Control of the obtrusive effects of outdoor lighting.

Demolition

B12. Prior to the commencement of construction and demolition of internal roadways (as required), demolition work plans required by *AS 2601-2001 The demolition of structures* (Standards Australia, 2001) must be accompanied by a written statement from a suitably qualified person that the proposals contained in the work plan comply with the safety requirements of the Standard. The work plans and the statement of compliance must be submitted to the Certifier and Planning Secretary.

Environmental Management Plan Requirements

B13. Management plans required under this consent must be prepared having regard to the relevant guidelines, including but not limited to the *Environmental Management Plan Guideline: Guideline for Infrastructure Projects* (DPIE April 2020).

Note:

- *The Environmental Management Plan Guideline is available on the Planning Portal at: https://www.planningportal.nsw.gov.au/major-projects/assessment/post-approval*
- *The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.*

Construction Environmental Management Plan

B14. Prior to the commencement of construction and demolition of internal roadways, the Applicant must submit a Construction Environmental Management Plan (CEMP) to the Certifier and provide a copy to the Planning Secretary for information. 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) external lighting in compliance with AS 4282-2019 Control of the obtrusive effects of outdoor lighting;
    (v) community consultation and complaints handling as set out in the Community Communication Strategy required by condition B9;
(b) an unexpected finds protocol for contamination and associated communications procedure to ensure that potentially contaminated material is appropriately managed;
(c) an unexpected finds protocol for Aboriginal and non-Aboriginal heritage and associated communications procedure;
(d) Construction Traffic and Pedestrian Management Sub-Plan (see condition B15);
(e) Construction Noise and Vibration Management Sub-Plan (see condition B16);
(f) Construction Waste Management Sub-Plan (see condition B17);
(g) Construction Soil and Water Management Sub-Plan (see condition B18);

B15. The Construction Traffic and Pedestrian Management Sub-Plan (CTPMSP) must be prepared to achieve the objective of ensuring safety and efficiency of the road network and address, but not be limited to, the following:
(a) be prepared by a suitably qualified and experienced person(s);
(b) be prepared in consultation with Council and TfNSW;
(c) detail:
    (i) measures to ensure road safety and network efficiency during construction in consideration of potential impacts on general traffic, cyclists and pedestrians and bus services;
    (ii) measures to ensure the safety of vehicles and pedestrians accessing adjoining properties where shared vehicle and pedestrian access occurs;
    (iii) detail heavy vehicle routes, access and parking arrangements;
    (iv) the swept path of the longest construction vehicle entering and exiting the site in association with the new work, as well as manoeuvrability through the site, in accordance with the latest version of AS 2890.2; and
    (v) arrangements to ensure that construction vehicles enter and leave the site in a forward direction unless in specific exceptional circumstances under the supervision of accredited traffic controller(s).

B16. 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 B16(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 implemented management measures in accordance with the requirements of condition B13.

B17. The Construction Waste Management Sub-Plan (CWMSP) must address, but not be limited to, the procedures for the management of waste including the following:

(a) the recording of quantities, classification (for materials to be removed) and validation (for materials to remain) of each type of waste generated during construction and proposed use;

(b) information regarding the recycling and disposal locations; and

(c) confirmation of the contamination status of the development areas of the site based on the validation results.

B18. The Applicant must prepare a Construction Soil and Water Management Sub-Plan (CSWMSP) and the plan must address, but not be limited to the following:

(a) be prepared by a suitably qualified expert, in consultation with Council;

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

(c) describe all erosion and sediment controls to be implemented during construction, including as a minimum, measures in accordance with the publication Managing Urban Stormwater: Soils & Construction (4th edition, Landcom 2004) commonly referred to as the 'Blue Book';

(d) provide a plan of how all construction works will be managed in a wet-weather events (i.e. storage of equipment, stabilisation of the Site);

(e) detail all off-site flows from the site; and

(f) describe the measures that must be implemented to manage stormwater and flood flows for small and large sized events, including, but not limited to 1 in 5-year ARI.

Construction Parking

B19. Prior to the commencement of construction, the Applicant must submit a Construction Worker Transportation Strategy to the Certifier. The Strategy must detail the provision of sufficient parking facilities or other travel arrangements for construction workers (including specific arrangements for Saturdays when nearby public parking would unavailable) in order to minimise demand for parking in nearby public and residential streets or public parking facilities. The strategy must be prepared in consultation with Council and TfNSW. A copy of the strategy must be provided to the Planning Secretary for information.

Operational Noise – Design of Mechanical Plant and Equipment

B20. Prior to installation of mechanical plant and equipment:

(a) a detailed assessment of mechanical plant and equipment with compliance with the relevant project operational noise criteria as recommended in the New Primary School in Murrumbateman, Fairley Street, Murrumbateman – SSDA Acoustic Assessment dated 25 August 2021 and prepared by PWNA must be undertaken by a suitably qualified person; and

(b) evidence must be submitted to the Certifier that any noise mitigation recommendations identified in the assessment carried out under (a) have been incorporated into the design to ensure the development will not exceed the project noise trigger levels identified in the New Primary School in Murrumbateman, Fairley Street, Murrumbateman – SSDA Acoustic Assessment.

Bush Fire

B21. Prior to the commencement of construction, the Applicant must submit design plans to the Certifier which demonstrate that the proposed internal roads comply with Table 6.8b of Planning for Bush Fire Protection 2019.

Operational Access, Car Parking and Service Vehicle Arrangements

B22. Prior to the commencement of construction of operational parking and access facilities, evidence of compliance of the design of operational parking and access arrangements with the following requirements must be submitted to the Certifier:

(a) a minimum of 40 on-site car parking spaces for use during operation of the development and designed in accordance with the latest versions of AS 2890.1 and AS 2890.6; and

(b) the swept path of the largest service vehicle entering and exiting the Site in association with the new work, as well as manoeuvrability through the site, must be in accordance with the latest version of AS 2890.2.

B23. Prior to commencement of line marking or signposting works for the on site drop-off/pick-up facility, the Applicant must submit plans and specifications to the Certifier. The plans and specifications must be submitted to the Planning Secretary for information and include the proposed line marking and sign posting works to delineate drop-off/pick-up spaces and provide for the efficient and safe operation of the facility.

School Bus Bay

B24. Prior to the commencement of construction of the school bus bay on Fairley Street, the Applicant must submit plans and specifications to the satisfaction of the relevant roads authority for the proposed bus bay generally in accordance with the plans listed under condition A2(d).

Note:

- *Approval must be obtained for roadworks under section 138 of the Roads Act 1993.*
- *All costs associated with the proposed road upgrade works must be borne by the Applicant.*
- *In accordance with Section 4.42 of the Environmental Planning and Assessment Act 1979, an approval under Section of the 138 Roads Act 1993 cannot be refused if it is necessary for carrying out state significant development that is authorised by a development consent and is substantially consistent with the consent.*

Public Domain Works

B25. Prior to the commencement of any footpath or public domain works, the Applicant must consult with Council and demonstrate to the Certifier that the streetscape design and treatment meets the requirements of Council, including addressing pedestrian management. The Applicant must submit documentation of approval for each stage from Council to the Certifier.

Landscaping

B26. Prior to the installation of landscaping, the Applicant must submit a revised Landscape Plan to manage the landscaping works on site to the Certifier. The plan must:

(a) generally in accordance with the plan included in the Response to Submissions;

(b) provide for the planting of 142 trees;

(c) detail the location, species, maturity and height at maturity of plants to be planted on-site;

(d) include species (trees, shrubs and groundcovers) indigenous to the local area;

(e) include the planting of trees with a pot container; and

(f) include the provision of nest boxes suitable to native fauna likely to use the site.

PART C DURING CONSTRUCTION

Site Notice

C1. A site notice(s) must be prominently displayed at the boundaries of the site during construction for the purpose of informing the public of project details and must satisfy the following requirements:

(a) minimum dimensions of the site notice(s) must measure 841 mm x 594 mm (A1) with any text on the site notice(s) to be a minimum of 30-point type size;

(b) the site notice(s) must be durable and weatherproof and must be displayed throughout the works period;

(c) the approved hours of work, the name of the builder, Certifier, structural engineer, site/ project manager, the responsible managing company (if any), its address and 24-hour contact phone number for any inquiries, including construction/ noise complaint must be displayed on the site notice(s); and

(d) the site notice(s) must be mounted at eye level on the perimeter hoardings/fencing and must state that unauthorised entry to the site is not permitted.

Operation of Plant and Equipment

C2. All construction plant and equipment used on site must be maintained in a proper and efficient condition and operated in a proper and efficient manner.

Demolition

C3. Demolition work must comply with the demolition work plans required by *Australian Standard AS 2601-2001 The demolition of structures* (Standards Australia, 2001) and endorsed by a suitably qualified person as required by condition B12.

Construction Hours

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

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

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

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

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

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

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

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

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

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

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

(d) for the delivery, set-up and removal of construction cranes, where notice of the crane-related works is provided to the Planning Secretary and affected residents at least seven days prior to the works; or

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

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

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

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

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

(c) 9am to 12pm, Saturday.

Implementation of Management Plans

C9. The Applicant must carry out the construction of the development in accordance with the most recent version of the CEMP (including Sub-Plans).

Construction Traffic

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

Hoarding Requirements

C11. The following hoarding requirements must be complied with:

(a) no third-party advertising is permitted to be displayed on the subject hoarding/ fencing; and

(b) the construction site manager must be responsible for the removal of all graffiti from any construction hoardings or the like within the construction area within 48 hours of its application.

No Obstruction of Public Way

C12. The public way (outside of any approved construction works zone) must not be obstructed by any materials, vehicles, refuse, skips or the like, under any circumstances.

Construction Noise Limits

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

C14. The Applicant must ensure construction vehicles (including concrete agitator trucks) do not arrive at the site or surrounding residential precincts outside of the construction hours of work outlined under condition C4 except as provided by condition C6.

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

Vibration Criteria

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

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

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

C17. Vibratory compactors must not be used closer than 30 metres from residential buildings unless vibration monitoring confirms compliance with the vibration criteria specified in condition C16.

C18. The limits in conditions C16 and C17 apply unless otherwise outlined in a Construction Noise and Vibration Management Plan, approved as part of the CEMP required by condition B16 of this consent.

Tree Protection

C19. For the duration of the construction works:

(a) street trees must not be trimmed or removed unless it forms a part of this development consent or prior written approval from Council is obtained or is required in an emergency to avoid the loss of life or damage to property;

(b) all street trees immediately adjacent to the approved disturbance area / property boundaries must be protected at all times during construction in accordance with Council's tree protection requirements. Any street tree, which is damaged or removed during construction due to an emergency, must be replaced, to the satisfaction of Council;

(c) all trees on the site that are not approved for removal must be suitably protected during construction as per the recommendations of the Arboricultural Impact Assessment prepared by *Wade Ryan Contracting* dated 4 June 2021; and

(d) if access to the area within any protective barrier is required during the works, it must be carried out under the supervision of a qualified arborist. Alternative tree protection measures must be installed, as required. The removal of tree protection measures, following completion of the works, must be carried out under the supervision of a qualified arborist and must avoid both direct mechanical injury to the structure of the tree and soil compaction within the canopy or the limit of the former protective fencing, whichever is the greater.

Air Quality

C20. The Applicant must take all reasonable steps to minimise dust generated during all works authorised by this consent.

C21. During construction, the Applicant must ensure that:

(a) activities are carried out in a manner that minimises dust including emission of windblown or traffic generated dust;

(b) all trucks entering or leaving the site with loads have their loads covered;

(c) trucks associated with the development do not track dirt onto the public road network;

(d) public roads used by these trucks are kept clean; and

(e) land stabilisation works are carried out progressively on site to minimise exposed surfaces.

Imported Fill

C22. The Applicant must:

(a) ensure that only VENM, ENM, or other material that meets the requirements of a relevant order and exemption issued by the EPA, is brought onto the site;

(b) keep accurate records of the volume and type of fill to be used; and

(c) make these records available to the Certifier upon request.

Disposal of Seepage and Stormwater

C23. Adequate provisions must be made to collect and discharge stormwater drainage during construction to the Certifier. The prior written approval of Council must be obtained to connect or discharge site stormwater to Council's stormwater drainage system or street gutter.

Emergency Management

C24. The Applicant must prepare and implement awareness training for employees and contractors, including locations of the assembly points and evacuation routes, for the duration of construction.

Stormwater Management System

C25. Within three months of the commencement of construction, the Applicant must design an operational stormwater management system for the development and submit it to the satisfaction of the Certifier. The system must:

(a) be designed by a suitably qualified and experienced person(s);

(b) be generally in accordance with the conceptual design in the RtS;

(c) be in accordance with applicable Australian Standards; and

(d) ensure that the system capacity has been designed in accordance with *Australian Rainfall and Runoff* (Engineers Australia, 2016) and *Managing Urban Stormwater: Council Handbook* (EPA, 1997) guidelines;

Aboriginal Cultural Heritage

C26. Construction must be undertaken in accordance with the recommendations of the Aboriginal Cultural Heritage Assessment Report prepared by *Ecological* dated 25 August 2021.

Unexpected Finds Protocol – Aboriginal Heritage

C27. In the event that surface disturbance identifies a new Aboriginal object:

(a) all works must halt in the immediate area to prevent any further impacts to the object(s);

(b) a suitably qualified archaeologist and the registered Aboriginal representatives must be contacted to determine the significance of the objects;

(c) the site is to be registered in the Aboriginal Heritage Information Management System (AHIMS) which is managed by Heritage NSW under Department of Premier and Cabinet and the management outcome for the site included in the information provided to AHIMS;

(d) the Applicant must consult with the Aboriginal community representatives, the archaeologists and Heritage NSW to develop and implement management strategies for all objects/sites; and

(e) works shall only recommence with the written approval of the Planning Secretary.

Unexpected Finds Protocol – Historic Heritage

C28. If any unexpected archaeological relics are uncovered during the work, then:

(a) all works must cease immediately in that area and notice is to be given to Heritage NSW and the Planning Secretary;

(b) depending on the possible significance of the relics, an archaeological assessment and management strategy may be required before further works can continue in that area as determined in consultation with Heritage NSW; and

(c) works may only recommence with the written approval of the Planning Secretary.

Waste Storage and Processing

C29. All waste generated during construction must be secured and maintained within designated waste storage areas at all times and must not leave the site onto neighbouring public or private properties.

C30. All waste generated during construction must be assess, classified and managed in accordance with the Waste Classification Guidelines Part 1: Classifying Waste (EPA, 2014).

C31. The Applicant must ensure that concrete waste and rinse water are not disposed of on the site and are prevented from entering any natural or artificial watercourse.

C32. The Applicant must record the quantities of each waste type generated during construction and the proposed reuse, recycling and disposal locations for the duration of construction.

C33. The Applicant must ensure that the 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 is in accordance with the requirements of the relevant legislation, codes, standards and guidelines.

Outdoor Lighting

C34. The Applicant must ensure that all external lighting is constructed and maintained in in accordance with AS 4282-2019 Control of the obtrusive effects of outdoor lighting.

Independent Environmental Audit

C35. Proposed independent auditors must be agreed to in writing by the Planning Secretary prior to the commencement of an Independent Audit.

C36. Independent Audits of the development must be conducted and carried out in accordance with the Independent Audit Post Approval Requirements.

C37. The Planning Secretary may require the initial and subsequent Independent Audits to be undertaken at different times to those agreed to above, upon giving at least 4 weeks' notice to the Applicant of the date or timing upon which the audit must be commenced.

C38. In accordance with the specific requirements in the Independent Audit Post Approval Requirements, the Applicant must:

(a) review and respond to each Independent Audit Report prepared under condition C36 of this consent, or condition C37 where notice is given;

(b) submit the response to the Planning Secretary; and

(c) make each Independent Audit Report and response to it publicly available within 60 days after submission to the Planning Secretary.

C39. Independent Audit Reports and the applicant/proponent's response to audit findings must be submitted to the Planning Secretary within two months of undertaking the independent audit site inspection as outlined in the Independent Audit Post Approval Requirements unless otherwise agreed by the Planning Secretary.

C40. Notwithstanding the requirements of the Independent Audit Post Approval Requirements, the Planning Secretary may approve a request for ongoing independent operational audits to be ceased, where it has been demonstrated to the Planning Secretary's satisfaction that an audit has demonstrated operational compliance.

Operational Readiness Work

C41. Operational readiness work must not commence on site until the following details have been submitted to the Certifier:

(a) a plan and description of the area(s) of the site to be used for operational readiness work (including pedestrian access) and areas still under construction (including construction access);

(b) the maximum number of staff to be involved in operational readiness work on site at any one time;

(c) arrangements to ensure the safety of school staff on the site, including how:

(i) areas to be used for operational readiness work will be clearly and securely separated from the areas of the site still under construction;

(ii) pedestrian access to and within the site will be managed to ensure no conflict with construction vehicle movements; and

(d) access and parking arrangements to minimise impacts on the surrounding street network having regard to number of staff involved in operational readiness work on site at any one time and parking arrangements for construction workers on site.

C42. Operational readiness work must only be undertaken in accordance with the details submitted under condition C41 and the following requirements:

(a) no more than 15 staff are involved in operational readiness work;

(b) no students or parents are permitted; and

(c) the Applicant has implemented appropriate arrangements to ensure the safety of school staff.

PART D PRIOR TO COMMENCEMENT OF OPERATION

Notification of Occupation

D1. At least one month before commencement of operation, the date of commencement of the operation of the development must be notified to the Planning Secretary in writing. If the operation of the development is to be staged, the Planning Secretary must be notified in writing at least one month before the commencement of each stage, of the date of commencement and the development to be carried out in that stage.

External Walls and Cladding

D2. Prior to commencement of operation, the Applicant must provide the Certifier with documented evidence that the products and systems used in the construction of external walls including finishes and claddings such as synthetic or aluminium composite panels comply with the requirements of the BCA.

D3. The Applicant must provide a copy of the documentation given to the Certifier to the Planning Secretary within seven days after the Certifier accepts it.

Works as Executed Plans

D4. Prior to the commencement of operation, works-as-executed drawings signed by a registered surveyor demonstrating that the stormwater drainage and finished ground levels have been constructed as approved, must be submitted to the Certifier.

Warm Water Systems and Cooling Systems

D5. The installation of warm water systems and water cooling systems (as defined under the *Public Health Act 2010*) must comply with the *Public Health Act 2010*, Public Health Regulation 2012 and Part 1 (or Part 3 if a Performance-based water cooling system) of *AS/NZS 3666.2:2011 Air handling and water systems of buildings – Microbial control – Operation and maintenance* and the NSW Health Code of Practice for the Control of Legionnaires' Disease.

Outdoor Lighting

D6. Prior to the commencement of operation, the Applicant must submit evidence from a suitably qualified practitioner to the Certifier that demonstrates that installed lighting associated with the development achieves the objective of minimising light spillage to any adjoining or adjacent sensitive receivers and:

(a) complies with the latest version of AS 4282-2019 - *Control of the obtrusive effects of outdoor lighting* (Standards Australia, 1997); and

(b) has been mounted, screened and directed in such a manner that it does not create a nuisance to surrounding properties or the public road network.

Mechanical Ventilation

D7. Prior to commencement of operation, the Applicant must provide evidence to the satisfaction of the Certifier that the installation and performance of the mechanical ventilation systems complies with:

(a) AS 1668.2-2012 The use of air-conditioning in buildings – Mechanical ventilation in buildings and other relevant codes; and

(b) any dispensation granted by Fire and Rescue NSW.

Operational Noise – Design of Mechanical Plant and Equipment

D8. Prior to the commencement of operation, the Applicant must submit evidence to the Certifier that the noise mitigation recommendations in the assessment undertaken under condition B20 have been incorporated into the design of mechanical plant and equipment to ensure the development will not exceed the project noise trigger levels identified in the New Primary School in Murrumbateman, Fairley Street, Murrumbateman – SSDA Acoustic Assessment prepared by *PWNA* dated 25 August 2021.

Fire Safety Certification

D9. Prior to commencement of occupation, a Fire Safety Certificate must be obtained for all the Essential Fire or Other Safety Measures forming part of this consent. A copy of the Fire Safety

Certificate must be submitted to the relevant authority and Council. The Fire Safety Certificate must be prominently displayed in the building.

Structural Inspection Certificate

D10. Prior to the commencement of occupation of the relevant parts of any new or refurbished buildings, a Structural Inspection Certificate or a Compliance Certificate must be submitted to the Certifier. A copy of the Certificate with an electronic set of final drawings (contact approval authority for specific electronic format) must be submitted to the approval authority and the Council after:

(a) the site has been periodically inspected and the Certifier is satisfied that the structural works is deemed to comply with the final design drawings; and

(b) the drawings listed on the Inspection Certificate have been checked with those listed on the final Design Certificate/s.

Compliance with Food Code

D11. Prior to the commencement of operation, the Applicant is to obtain a certificate from a suitably qualified tradesperson, certifying that the kitchen, food storage and food preparation areas have been fitted in accordance with the AS 4674 *Design, construction and fit-out of food premises* and provide evidence of receipt of the certificate to the satisfaction of the Certifier.

Post-construction Dilapidation Report – Protection of Public Infrastructure

D12. Prior to the commencement of operation, the Applicant must engage a suitably qualified and experienced expert to prepare a Post-Construction Dilapidation Report. This Report must:

(a) ascertain whether the construction works created any structural damage to public infrastructure by comparing the results of the Post-Construction Dilapidation Report with the Pre-Construction Dilapidation Report required by condition B5 of this consent;

(b) have, if it is decided that there is no structural damage to public infrastructure, the written confirmation from the relevant public authority that there is no adverse structural damage to their infrastructure (including roads);

(c) be submitted to the Certifier;

(d) be forwarded to Council for information; and

(e) be provided to the Planning Secretary when requested.

Repair of Public Infrastructure

D13. Unless the Applicant and the applicable authority agree otherwise, the Applicant must:

(a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by carrying out the construction works; and/or

(b) relocate, or pay the full costs associated with relocating any infrastructure that needs to be relocated as a result of the development; and or

(c) pay compensation for the damage as agreed with the owner of the public infrastructure.

Note: This condition does not apply to any damage to roads caused as a result of general road usage.

Road Damage

D14. Prior to the commencement of operation, the cost of repairing any damage caused to Council or other Public Authority's assets in the vicinity of the Subject Site as a result of construction works associated with the approved development must be met in full by the Applicant.

Post-Construction Survey – Residential Properties

D15. Where a pre-construction survey has been undertaken in accordance with condition B7, prior to the commencement of operation the Applicant must engage a suitably qualified and experienced expert to undertake a post-construction survey and prepare a Post-Construction Survey Report. This Report must:

(a) document the results of the post-construction survey and compare it with the pre-construction survey to ascertain whether the construction works caused any damage to buildings surveyed in accordance with condition B7;

(b) be provided to the owner of the relevant buildings surveyed;

(c) be provider to the Certifier; and

(d) be provided to the Planning Secretary when requested.

D16. Where the Post-Construction Survey Report determines that damage to the identified property occurred as a result of the construction works, the Applicant must repair, or pay the full costs associated with repairing the damaged buildings, within an agreed timeline between the owner of the identified property and the Planning Secretary. Alternatively, the Applicant may pay compensation for the damage as agreed with the property owner.

Protection of Property

D17. Unless the Applicant and the applicable owner agree otherwise, the Applicant must repair, or pay the full costs associated with repairing any property that is damaged by carrying out the development.

School Bus Bay

D18. Prior to the commencement of operation or other timeframe agreed in writing by the Planning Secretary, evidence must be submitted to the Certifier that demonstrates that the works approved under condition B24 have been completed to the satisfaction of the relevant roads authority.

Note:

- *Approval must be obtained for roadworks under section 138 of the Roads Act 1993.*
- *All costs associated with the proposed road upgrade works must be borne by the Applicant.*
- *In accordance with Section 4.42 of the Environmental Planning and Assessment Act 1979, an approval under Section of the 138 Roads Act 1993 cannot be refused if it is necessary for carrying out state significant development that is authorised by a development consent and is substantially consistent with the consent.*

Bicycle Parking and End-of-Trip Facilities

D19. Prior to the commencement of operation, compliance with the following requirements for secure bicycle parking and end-of-trip facilities must be submitted to the Certifier:

(a) the provision of a minimum 36 bicycle parking spaces;

(b) the layout, design and security of bicycle facilities must comply with the minimum requirements of the latest version of AS 2890.3:2015 *Parking facilities - Bicycle parking*, and be located in easy to access, well-lit areas that incorporate passive surveillance;

(c) the provision of end-of-trip facilities for staff; and

(d) appropriate pedestrian and cyclist advisory signs are to be provided.

Note: All works/regulatory signposting associated with the proposed development shall be at no cost to the relevant roads authority.

School Zones

D20. Prior to the commencement of operation, all required School Zone signage, speed management signage and associated pavement markings must be installed, inspected by relevant roads authority and handed over to the relevant roads authority.

Note: Any required approvals for altering public road speed limits, design and signage are required to be obtained from the relevant roads authority.

D21. The Applicant must maintain records of all dates in relation to installing, altering and removing traffic control devices related to speed.

School Transport Plan

D22. Prior to the commencement of operation, a School Transport Plan (STP), must be submitted to the satisfaction of the Planning Secretary. The plan must:

(a) be prepared by a suitably qualified consultant in consultation with Council and TfNSW;

(b) include arrangements to promote the use of active and sustainable transport modes, including:

(i) objectives and modes share targets (i.e. Site and land use specific, measurable and achievable and timeframes for implementation);

(ii) specific tools and actions to help achieve the objectives and mode share targets;

(iii) details regarding the methodology and monitoring/review program to measure the effectiveness of the objectives and mode share targets, including the frequency of monitoring and the requirement for travel surveys to identify travel behaviours of users of the development.

(c) include operational transport access management arrangements, including:

(i) considerations of the operational and supervision requirements and route access for school activities to external locations (where proposed) to ensure the safety of students;

(ii) detailed pedestrian analysis including the identification of safe route options to identify the need for management measures such as staggered school start and finish times to ensure students and staff are able to access and leave the Site in a safe and efficient manner during school start and finish;

(iii) the location of all car parking spaces on the school campus and their allocation (i.e. staff, visitor, accessible, emergency, etc.);

(iv) the location and operational management procedures of the drop-off and pick-up parking, including staff management/traffic controller arrangements;

(v) the location and operational management procedures for the drop-off and pick-up of students by buses and coaches including staff management/traffic controller arrangements;

(vi) delivery and services vehicle and bus access and management arrangements;

(vii) management of approved access arrangements;

(viii) potential traffic impacts on surrounding road networks and mitigation measures to minimise impacts, including measures to mitigate queuing impacts associated with vehicles accessing drop-off and pick-up zones;

(ix) car parking arrangements and management associated with the proposed use of school facilities by community members; and

(d) measures to promote and support the implementation of the plan, including financial and human resource requirements, roles and responsibilities for relevant employees involved in the implementation of the plan; and

(e) a monitoring and review program.

Utilities and Services

D23. Prior to commencement of operation, a compliance certificate under the section 307 of the *Water Management Act 2000* must be obtained from Council and submitted to the Certifier.

Stormwater Operation and Maintenance Plan

D24. Prior to the commencement of operation, a Stormwater Operation and Maintenance Plan (SOMP) is to be submitted to the Certifier. The SOMP must ensure the proposed stormwater quality measures remain effective and contain the following:

(a) maintenance schedule of all stormwater quality treatment devices;

(b) record and reporting details;

(c) relevant contact information; and

(d) Work Health and Safety requirements.

Signage

D25. Prior to the commencement of operation, way-finding signage and signage identifying the location of staff car parking must be installed.

D26. Prior to the commencement of operation, bicycle way-finding signage must be installed within the site to direct cyclists from footpaths to designated bicycle parking areas.

Operational Waste Management Plan

D27. Prior to the commencement of operation, the Applicant must prepare a Waste Management Plan for the development and submit it to the Certifier. The Waste Management Plan must:

(a) detail the type and quantity of waste to be generated during operation of the development;

(b) describe the handling, storage and disposal of all waste streams generated on site, consistent with the Protection of the Environment Operations Act 1997, Protection of the Environment Operations (Waste) Regulation 2014 and the Waste Classification Guideline (Department of Environment, Climate Change and Water, 2009);

(c) detail the materials to be reused or recycled, either on or off site; and

(d) include the Management and Mitigation Measures included within the *New Primary School at Murrumbateman – Operational Waste Management Plan* submitted with the EIS and prepared by EcCell.

Landscaping

D28. Prior to the commencement of operation or other timeframe agreed by the Planning Secretary, landscaping of the site must be completed in accordance with landscape plan(s) prepared under condition B26.

D29. Prior to the commencement of operation, the Applicant must prepare a Landscape Management Plan to manage the revegetation and landscaping on-site and submit it to the Certifier. The plan must:

(a) describe the ongoing monitoring and maintenance measures to manage revegetation and landscaping; and

(b) be consistent with the Applicant's Management and Mitigation Measures in the EIS;

Asset Protection Zones

D30. Prior to the commencement of operation, the entire property must be managed as an inner protection area (IPA) in accordance with the requirements of Appendix 4 of Planning for Bush Fire Protection 2019. When establishing and maintaining an IPA the following requirements apply:

(a) tree canopy cover should be less than 15% at maturity;

(b) trees at maturity should not touch or overhang the building;

(c) lower limbs should be removed up to a height of 2m above the ground;

(d) tree canopies should be separated by 2 to 5m;

(e) preference should be given to smooth barked and evergreen trees;

(f) large discontinuities or gaps in vegetation should be provided to slow down or break the progress of fire towards buildings;

(g) shrubs should not be located under trees;

(h) shrubs should not form more than 10% ground cover;

(i) clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.

(j) grass should be kept mown (as a guide grass should be kept to no more than 100mm in height); and

(k) leaves and vegetation debris should be removed.

Evacuation and Emergency Planning

D31. Prior to the commencement of operation, a Bush Fire Emergency Management and Evacuation Plan must be prepared consistent with *Development Planning – A Guide to Developing a Bush Fire Emergency Management and Evacuation Plan*.

Note: A copy of the Bush Fire Emergency Management and Evacuation Plan should be provided to the Local Emergency Management Committee for its information prior to occupation of the development.

PART E POST OCCUPATION

Out of Hours Event Management Plan

E1. Prior to the commencement of the first out of hours events (School Use) run by the school that involve 100 or more people, the Applicant is to prepare an Out of Hours Event Management Plan (School Use) in consultation with Council and submit it to the Council and Planning Secretary for information. The plan must include the following:

(a) the number of attendees, time and duration;

(b) arrival and departure times and modes of transport;

(c) where relevant, a schedule of all annual events;

(d) measures to encourage non-vehicular travel to the school and promote and support the use of alternate travel modes (i.e. public transport);

(e) details of the use of the school hall, where applicable, restricting use before 8am and after 10pm;

(f) measures to minimise localised traffic and parking impacts; and

(g) include measures to minimise noise impacts on any sensitive residential receivers, including the preparation of acoustic management plan.

E2. The Out of Hours Event Management Plan (School Use) must be implemented by the Applicant for the duration of the identified events or use.

Operation of Plant and Equipment

E3. All plant and equipment used on site must be maintained in a proper and efficient condition operated in a proper and efficient manner.

Warm Water Systems and Cooling Systems

E4. The operation and maintenance of warm water systems and water cooling systems (as defined under the Public Health Act 2010) must comply with the Public Health Act 2010, Public Health Regulation 2012 and Part 2 (or Part 3 if a Performance-based water cooling system) of AS/NZS 3666.2:2011 Air handling and water systems of buildings – Microbial control – Operation and maintenance and the NSW Health Code of Practice for the Control of Legionnaires' Disease.

Community Communication Strategy

E5. The Community Communication Strategy must be implemented for a minimum of 12 months following the completion of construction.

Operational Noise Limits

E6. The Applicant must ensure that noise generated by operation of the development does not exceed the noise limits in the New Primary School in Murrumbateman, Fairley Street, Murrumbateman – SSDA Acoustic Assessment, prepared by PWNA, dated 25 August 2021.

E7. The Applicant must undertake short term noise monitoring in accordance with the *Noise Policy for Industry* where valid data is collected following the commencement of use of each stage of the development. The monitoring program must be carried out by an appropriately qualified person and a monitoring report must be submitted to the Planning Secretary within two months of commencement use of each stage of the development or other timeframe agreed to by the Planning Secretary to verify that operational noise levels do not exceed the recommended noise levels for mechanical plant identified in the New Primary School in Murrumbateman, Fairley Street, Murrumbateman – SSDA Acoustic Assessment and dated 25 August 2021. Should the noise monitoring program identify any exceedance of the recommended noise levels referred to above, the Applicant is required to implement appropriate noise attenuation measures so that operational noise levels do not exceed the recommended noise levels or provide attenuation measures at the affected noise sensitive receivers.

Unobstructed Driveways and Parking Areas

E8. All driveways, footways and parking areas must be unobstructed at all times. Driveways, footways and car spaces must not be used for the manufacture, storage or display of goods,

materials, refuse, skips or any other equipment and must be used solely for vehicular and/or pedestrian access and for the parking of vehicles associated with the use of the premises.

School Transport Plan

E9. The School Transport Plan required by condition D22 of this consent must be updated annually and implemented unless otherwise agreed by the Planning Secretary.

Ecologically Sustainable Development

E10. Unless otherwise agreed by the Planning Secretary, within six months of commencement of operation, Green Star certification must be obtained demonstrating the development achieves a minimum 4 star Green Star Design & As Built rating. If required to be obtained, evidence of the certification must be provided to the Certifier and the Planning Secretary. If an alternative certification process has been agreed to by the Planning Secretary under condition B10, evidence of compliance of implementation must be provided to the Planning Secretary and Certifier.

Outdoor Lighting

E11. Notwithstanding condition D6, should outdoor lighting result in any residual impacts on the amenity of surrounding sensitive receivers, the Applicant must provide mitigation measures in consultation with affected landowners to reduce the impacts to an acceptable level.

Landscaping

E12. The Applicant must maintain the landscaping and vegetation on the site in accordance with the approved Landscape Management Plan required by condition D28 for the duration of occupation of the development.

Asset Protection Zones

E13. The asset protection zones required by condition D30 shall be maintained for the duration of occupation of the development.

APPENDIX 1 ADVISORY NOTES

General

AN1. All licences, permits, approvals and consents as required by law must be obtained and maintained as required for the development. No condition of this consent removes any obligation to obtain, renew or comply with such licences, permits, approvals and consents.

Long Service Levy

AN2. For work costing $25,000 or more, a Long Service Levy must be paid. For further information please contact the Long Service Payments Corporation Helpline on 131 441.

Legal Notices

AN3. Any advice or notice to the consent authority must be served on the Planning Secretary.

Access for People with Disabilities

AN4. The works that are the subject of this application must be designed and constructed to provide access and facilities for people with a disability in accordance with the BCA. Prior to the commencement of construction, the Certifier must ensure that evidence of compliance with this condition from an appropriately qualified person is provided and that the requirements are referenced on any certified plans.

Utilities and Services

AN5. Prior to the construction of any utility works associated with the development, the Applicant must obtain relevant approvals from service providers.

AN6. Prior to the commencement of above ground works written advice must be obtained from the electricity supply authority, an approved telecommunications carrier and an approved gas carrier (where relevant) stating that satisfactory arrangements have been made to ensure provisions of adequate services.

Road Design and Traffic Facilities

AN7. All roads and traffic facilities must be designed to meet the requirements of Council or TfNSW (whichever is applicable). The necessary permits and approvals from the relevant road authority must be obtained prior to the commencement of road or pavement construction works.

Road Occupancy Licence

AN8. A Road Occupancy Licence must be obtained from the relevant road authority for any works that impact on traffic flows during construction activities.

SafeWork Requirements

AN9. To protect the safety of work personnel and the public, the work site must be adequately secured to prevent access by unauthorised personnel, and work must be conducted at all times in accordance with relevant SafeWork requirements.

Hoarding Requirements

AN10. The Applicant must submit a hoarding application to Council for the installation of any hoardings over Council footways or road reserve.

Handling of Asbestos

AN11. The Applicant must consult with SafeWork NSW concerning the handling of any asbestos waste that may be encountered during construction. The requirements of the Protection of the Environment Operations (Waste) Regulation 2014 with particular reference to Part 7 – 'Transportation and management of asbestos waste' must also be complied with.

Speed limit authorisation

AN12. At least eight weeks prior to the commencement of operation, the Applicant must submit the following details to the relevant roads authority and obtain authorisation to install School Zone signs and associated pavement markings, and / or removal / relocation of any existing Speed Limit signs:

(a) a copy of the conditions of consent;

(b) the proposed school commencement/opening date;

(c) two sets of detailed design plans showing the following:
   (i) accurate Site boundaries;
   (ii) details of all road reserves, adjacent to the Site boundaries;
   (iii) all proposed access points from the Site to the public road network and any additional conditions imposed/proposed on their use;
   (iv) all existing and proposed pedestrian crossing facilities on the adjacent road network;
   (v) all existing and proposed traffic control devices and pavement markings on the adjacent road network (including School Zone signs and pavement markings); and
   (vi) all existing and proposed street furniture and street trees.

Fire Safety Certificate

AN13. The owner must submit to Council an Annual Fire Safety Statement, each 12 months after the final Safety Certificate is issued. The certificate must be on, or to the effect of, Council's Fire Safety Statement.

APPENDIX 2 WRITTEN INCIDENT NOTIFICATION AND REPORTING REQUIREMENTS

Written Incident Notification Requirements

1. A written incident notification addressing the requirements set out below must be emailed to the Planning Secretary through the major projects portal within seven days after the Applicant becomes aware of an incident. Notification is required to be given under this condition even if the Applicant fails to give the notification required under condition A28 or, having given such notification, subsequently forms the view that an incident has not occurred.
2. Written notification of an incident must:
   (a) identify the development and application number;
   (b) provide details of the incident (date, time, location, a brief description of what occurred and why it is classified as an incident);
   (c) identify how the incident was detected;
   (d) identify when the applicant became aware of the incident;
   (e) identify any actual or potential non-compliance with conditions of consent;
   (f) describe what immediate steps were taken in relation to the incident;
   (g) identify further action(s) that will be taken in relation to the incident; and
   (h) identify a project contact for further communication regarding the incident.
3. Within 30 days of the date on which the incident occurred or as otherwise agreed to by the Planning Secretary, the Applicant must provide the Planning Secretary and any relevant public authorities (as determined by the Planning Secretary) with a detailed report on the incident addressing all requirements below, and such further reports as may be requested.
4. The Incident Report must include:
   (a) a summary of the incident;
   (b) outcomes of an incident investigation, including identification of the cause of the incident;
   (c) details of the corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence; and
   (d) details of any communication with other stakeholders regarding the incident.

A.11 External Lighting Compliance

CONSULTANT ADVICE

Project:	New Primary School at Murrumbateman			CAN No:	E-001[2.0]
Date:	15 November 2021	Project No:	38745 - 004	Pages:	6

Name		Company	Email
To:	Paul Todhunter	Hansen Yuncken	ptodhunter@hansenyuncken.com.au

External Lighting Compliance

NDY provide this Consultant Advice Notice to address Condition B11 Outdoor Lighting of the Consent given in the Notice of Determination – Approval issued for Development Application No. SSD-11233241, dated 26th October 2021 for the new Primary School at Murrumbateman. The purpose of the CAN is to demonstrate the External Lighting design is compliant to the relevant Australian Standards as detailed in the two sections below. The lighting design has been appended to this Consultant Advice Notice.

AS1158.3.1:2005 LIGHTING FOR ROADS AND PUBLIC SPACES

The external lighting design provided by NDY has been designed to achieve the requirements of specific P categories of AS1158.3.1:2005. The P Categories have been selected based on the requirements set by Schools Infrastructure NSW and the proposed use of the space. The below section demonstrates compliance for the three P category types use for the new Primary School. This section provides the description and requirements for each P category selected and also the calculation results achieved by the lighting design. 3D modelling computer software (AGi32) was used to complete the calculation. Calculation points (in grids or lines) are set out as defined by AS1158.

DRIVEWAYS AND CAR PARKS – CATEGORY P11C

CATEGORY P11C DESCRIPTION

TABLE 2.5

LIGHTING CATEGORIES FOR OUTDOOR CAR PARKS (INCLUDING ROOF-TOP CAR PARKS)

1	2	3	4	5
	Selection criteria[a]			
Type of area	Night time vehicle or pedestrian movements	Night time occupancy rates (NTOR)	Risk of crime[b]	Applicable lighting subcategory[c]
Parking spaces, aisles and circulation roadways	High	>75%	High	P11a
	Medium	≥25%, ≤75%	Medium	P11b
	Low	<25%	Low	P11c

CATEGORY P11C REQUIREMENTS

TABLE 2.9

VALUES OF LIGHT TECHNICAL PARAMETERS AND PERMISSIBLE LUMINAIRE TYPES FOR OUTDOOR CAR PARKS (INCLUDING ROOF-TOP CAR PARKS)

1	2	3	4	5	6
	Light technical parameters[a]				
Lighting subcategory	Average horizontal illuminance[a,b] ($\bar{E}_h$) lux	Point horizontal illuminance[a,b] (E_{Ph}) lux	Illuminance (horizontal) uniformity[c] Cat. P (U_{E2})	Point vertical illuminance[a,b] (E_{Pv}) lux	Permissible luminaire type (see Table 2.5)
P11a	14	3	10	3	Types 3, 4, 5 or 6
P11b	7	1.5	10	1.5	
P11c	3.5	0.7	10	—	
P12	—	≥14 and ≥ $\bar{E}_h$[d]	—	—	

LIGHTING DESIGN CALCULATION RESULTS

Label	CalcType	Units	Avg	Max	Min	Min/Max
Car Park	Illuminance	Lux	24.1	71.0	7.7	N.A.

DRIVEWAYS AND CARPARKS – DISABLED SPACES – CATEGORY P12

CATEGORY P12 DESCRIPTION

TABLE 2.5

LIGHTING CATEGORIES FOR OUTDOOR CAR PARKS (INCLUDING ROOF-TOP CAR PARKS)

1	2	3	4	5
	Selection criteria[a]			
Type of area	Night time vehicle or pedestrian movements	Night time occupancy rates (NTOR)	Risk of crime[b]	Applicable lighting subcategory[c]
Parking spaces, aisles and circulation roadways	High	>75%	High	P11a
	Medium	≥25%, ≤75%	Medium	P11b
	Low	<25%	Low	P11c
Designated parking spaces specifically intended for people with disabilities	N/A	N/A	N/A	P12

CATEGORY P12 REQUIREMENTS

TABLE 2.9

VALUES OF LIGHT TECHNICAL PARAMETERS AND PERMISSIBLE LUMINAIRE TYPES FOR OUTDOOR CAR PARKS (INCLUDING ROOF-TOP CAR PARKS)

1	2	3	4	5	6
	Light technical parameters[a]				
Lighting subcategory	Average horizontal illuminance[a,b] ($\bar{E}_h$) lux	Point horizontal illuminance[a,b] (E_{Ph}) lux	Illuminance (horizontal) uniformity[c] Cat. P (U_{E2})	Point vertical illuminance[a,b] (E_{Pv}) lux	Permissible luminaire type (see Table 2.5)
P11a	14	3	10	3	Types 3, 4, 5 or 6
P11b	7	1.5	10	1.5	
P11c	3.5	0.7	10	—	
P12	—	≥14 and ≥ $\bar{E}_h$[d]	—	—	

LIGHTING DESIGN CALCULATION RESULTS

Label	CalcType	Units	Avg	Max	Min	Min/Max
Accessible Car Park	Illuminance	Lux	45.5	63.8	23.6	N.A.

WALKWAYS CATEGORY P6

CATEGORY P6 DESCRIPTION

TABLE 2.3

LIGHTING CATEGORIES FOR PUBLIC ACTIVITY AREAS (EXCLUDING CAR PARKS)

1	2	3	4	5	6
Type of area or activity		Selection criteria[a,b]			Applicable lighting subcategory
General description	Basic operating characteristics	Night time vehicle movements	Risk of crime[c]	Need to enhance prestige	
Areas primarily for pedestrian use, e.g. city, town, suburban centres, including outdoor shopping precincts, malls, open arcades, town squares, civic centres	Generally pedestrian movement only	N/A	High	High	P6
		Medium	Medium	Medium	P7
		Low	Low	N/A	P8

CATEGORY P6 REQUIREMENTS

TABLE 2.7

VALUES OF LIGHT TECHNICAL PARAMETERS AND PERMISSIBLE LUMINAIRE TYPES FOR PUBLIC ACTIVITY AREAS (EXCLUDING CAR PARKS)

1	2	3	4	5	6
	Light technical parameters				
Lighting subcategory	Average horizontal illuminance [a,b] ($\bar{E}_h$) lux	Point horizontal illuminance [a,b] (E_{ph}) lux	Illuminance (horizontal) uniformity[c] Cat. P (U_{E2})	Point vertical illuminance [a,b] (E_{pv}) lux	Permissible luminaire type (see Table 2.10)
P6	21	7	10	7	
P7	14	4	10	4	Types 2, 3, 4, 5 or 6
P8	7	2	10	2	

LIGHTING DESIGN CALCULATION RESULTS

Label	CalcType	Units	Avg	Max	Min	Min/Max
Bike Store	Illuminance	Lux	65.4	89.0	21.2	N.A.
Car Park	Illuminance	Lux	24.1	71.0	7.7	N.A.
Cul-de-sac	Illuminance	Lux	35.7	53.7	18.5	N.A.
Pathway 1	Illuminance	Lux	28.5	35.9	17.4	N.A.
Pathway 4 - Front Entrances	Illuminance	Lux	60.2	103.3	24.6	N.A.
Pathway 5 - Courtyard Area	Illuminance	Lux	68.7	142.7	21.5	N.A.
Pathway 6 - Behind Block D	Illuminance	Lux	30.7	46.1	9.4	N.A.
Pathway 7 - South Entrance	Illuminance	Lux	37.6	116.7	15.6	N.A.
Vertical - Behind Block D North	Illuminance	Lux	13.9	18.5	8.4	N.A.
Vertical - Behind Block D South	Illuminance	Lux	15.8	22.1	8.4	N.A.
Vertical - East Block A North	Illuminance	Lux	12.9	21.9	7.1	N.A.
Vertical - East Block A South	Illuminance	Lux	13.4	20.1	9.3	N.A.
Vertical - North Block A East	Illuminance	Lux	21.8	41.5	7.8	N.A.
Vertical - North Block A West	Illuminance	Lux	24.0	49.3	9.4	N.A.
Vertical - Southern Path North	Illuminance	Lux	12.6	17.2	7.7	N.A.
Vertical - Southern Path South	Illuminance	Lux	23.9	65.4	8.6	N.A.

AS4282:2019 CONTROL OF THE OBTRUSIVE EFFECTS OF OUTDOOR LIGHTING

AS/NZS 4282:2019 contains recommendations regarding control of obtrusive lighting to neighbouring areas. The standard considers three factors;

- Illuminance at neighbouring residential property boundaries
- Luminous intensity of luminaires (brightness of luminaires when viewed from neighbouring properties)
- Upward Light Ratio (ULR)

The standard takes into account factors such as the level of ambient lighting existing in the area and pre-curfew and curfew hours. NDY have applied the Zone A3 when considering the obtrusive lighting requirements for the new Public School at Murrumbateman. The selection requirements and design requirements for Zone A3 are outlined in the tables below.

ZONE A3 DESCRIPTION

TABLE 3.1

ENVIRONMENTAL ZONES

Zones	Description	Examples
A0	Intrinsically dark	UNESCO Starlight Reserve. IDA Dark Sky Parks. Major optical observatories No road lighting -unless specifically required by the road controlling authority
A1	Dark	Relatively uninhabited rural areas No road lighting - unless specifically required by the road controlling authority
A2	Low district brightness	Sparsely inhabited rural and semi-rural areas
A3	Medium district brightness	Suburban areas in towns and cities
A4	High district brightness	Town and city centres and other commercial areas Residential areas abutting commercial areas
TV	High district brightness	Vicinity of major sports stadium during TV broadcasts
V	Residences near traffic routes	Refer AS/NZS1158.1.1
R1	Residences near local roads with significant setback	Refer AS/NZS 1158.3.1
R2	Residences near local roads	Refer AS/NZS 1158.3.1
R3	Residences near a roundabout or local area traffic management device	Refer AS/NZS 1158.3.1
RX	Residences near a pedestrian crossing	Refer AS/NZS 1158.4

NOTE: Recreational areas are not considered commercial.

ZONE A3 REQUIREMENTS

TABLE 3.2

MAXIMUM VALUES OF LIGHT TECHNICAL PARAMETERS

Zones	Vertical illuminance levels (E_v) lx		Threshold increment (TI)		Sky glow
	Non-curfew	Curfew	%	Default adaptation level (L_{ad})	Upward light ratio
A0	See Note 1	0	N/A	N/A	0
A1	2	0.1	N/A	N/A	0
A2	5	1	20%	0.2	0.01
A3	10	2	20%	1	0.02
A4	25	5	20%	5	0.03
TV	See Table 3.4	N/A	20%	10	0.08
V	N/A	4	Note 2	Note 2	Note 2
R1	N/A	1	20%	0.1	Note 3
R2	N/A	2	20%	0.1	Note 3
R3	N/A	4	20%	0.1	Note 3
RX	N/A	4	20%	5	Note 4

TABLE 3.3

MAXIMUM LUMINOUS INTENSITIES PER LUMINAIRE

Zone	Luminous intensity (*I*), cd		
	Non-curfew L1	Non-curfew L2	Curfew
A0	See Note	See Note	0
A1	2 500	5 000	500
A2	7 500	12 500	1 000
A3	12 500	25 000	2 500
A4	25 000	50 000	2 500
TV	100 000	150 000	0

LIGHTING DESIGN CALCULATION RESULTS

3D modelling computer software (AGi32) was used to assess compliance with AS/NZS 4282-2019. AGi32 can calculate Obtrusive Light according to methods set forth by AS/NZS 4282-2019. Calculation points (in grids or lines) are set out as defined by the standard. The compliance reports created for the new Primamry School at Murrumbateman for Pre-Curfew and Curfew are provided below to demonstrate that compliance with AS4282:2019 is achieved by the external lighting design.

Obtrusive Light - Compliance Report

AS/NZS 4282:2019, A3 - Medium District Brightness, Non-Curfew L1
Filename: Murrumbateman School
11/14/2021 3:01:07 PM

Illuminance

Maximum Allowable Value: 10 Lux

Calculations Tested (14):

Calculation Label	Test Results	Max. Illum.
Residential Obtrusive South_III_Seg1	PASS	0.0
Residential Obtrusive South_III_Seg2	PASS	0.0
Residential Obtrusive West_III_Seg1	PASS	0.0
Residential Obtrusive Light_III_Seg1	PASS	0.0
Residential Obtrusive Light_III_Seg2	PASS	0.0
Residential Obtrusive Light_III_Seg3	PASS	0.0
Residential Obtrusive Light_III_Seg4	PASS	0.5
Residential Obtrusive Light_III_Seg5	PASS	0.0
Residential Obtrusive Light_III_Seg6	PASS	0.1
Residential Obtrusive Light_III_Seg7	PASS	0.0
Residential Obtrusive Light_III_Seg8	PASS	0.0
Residential Obtrusive Light_III_Seg9	PASS	0.0
Residential Obtrusive Light_III_Seg10	PASS	0.0
Residential Obtrusive Light_III_Seg11	PASS	0.0

Luminous Intensity (Cd) At Vertical Planes

Maximum Allowable Value: 12500 Cd

Calculations Tested (14):

Calculation Label	Test Results
Residential Obtrusive South_Cd_Seg1	PASS
Residential Obtrusive South_Cd_Seg2	PASS
Residential Obtrusive West_Cd_Seg1	PASS
Residential Obtrusive Light_Cd_Seg1	PASS
Residential Obtrusive Light_Cd_Seg2	PASS
Residential Obtrusive Light_Cd_Seg3	PASS
Residential Obtrusive Light_Cd_Seg4	PASS
Residential Obtrusive Light_Cd_Seg5	PASS
Residential Obtrusive Light_Cd_Seg6	PASS
Residential Obtrusive Light_Cd_Seg7	PASS
Residential Obtrusive Light_Cd_Seg8	PASS
Residential Obtrusive Light_Cd_Seg9	PASS
Residential Obtrusive Light_Cd_Seg10	PASS
Residential Obtrusive Light_Cd_Seg11	PASS

Threshold Increment (TI)

Maximum Allowable Value: 20 %

Calculations Tested (3):

Calculation Label	Adaptation Luminance	Test Results
Roadway Up ObtrusiveLight_TI_1	10	PASS
Roadway Up 2 ObtrusiveLight_TI_2	10	PASS
Roadway Down ObtrusiveLight_TI_3	10	PASS

Upward Waste Light Ratio (UWLR)
Maximum Allowable Value: 2.0 %

Calculated UWLR: 0.0 %
Test Results: **PASS**

Obtrusive Light - Compliance Report
AS/NZS 4282:2019, A3 - Medium District Brightness, Curfew
Filename: Murrumbateman School
11/14/2021 3:00:35 PM

Illuminance
Maximum Allowable Value: 2 Lux

Calculations Tested (14):

Calculation Label	Test Results	Max. Illum.
Residential Obtrusive South_Ill_Seg1	PASS	0.0
Residential Obtrusive South_Ill_Seg2	PASS	0.0
Residential Obtrusive West_Ill_Seg1	PASS	0.0
Residential Obtrusive Light_Ill_Seg1	PASS	0.0
Residential Obtrusive Light_Ill_Seg2	PASS	0.0
Residential Obtrusive Light_Ill_Seg3	PASS	0.0
Residential Obtrusive Light_Ill_Seg4	PASS	0.5
Residential Obtrusive Light_Ill_Seg5	PASS	0.0
Residential Obtrusive Light_Ill_Seg6	PASS	0.1
Residential Obtrusive Light_Ill_Seg7	PASS	0.0
Residential Obtrusive Light_Ill_Seg8	PASS	0.0
Residential Obtrusive Light_Ill_Seg9	PASS	0.0
Residential Obtrusive Light_Ill_Seg10	PASS	0.0
Residential Obtrusive Light_Ill_Seg11	PASS	0.0

Luminous Intensity (Cd) At Vertical Planes
Maximum Allowable Value: 2500 Cd

Calculations Tested (14):

Calculation Label	Test Results
Residential Obtrusive South_Cd_Seg1	PASS
Residential Obtrusive South_Cd_Seg2	PASS
Residential Obtrusive West_Cd_Seg1	PASS
Residential Obtrusive Light_Cd_Seg1	PASS
Residential Obtrusive Light_Cd_Seg2	PASS
Residential Obtrusive Light_Cd_Seg3	PASS
Residential Obtrusive Light_Cd_Seg4	PASS
Residential Obtrusive Light_Cd_Seg5	PASS
Residential Obtrusive Light_Cd_Seg6	PASS
Residential Obtrusive Light_Cd_Seg7	PASS
Residential Obtrusive Light_Cd_Seg8	PASS
Residential Obtrusive Light_Cd_Seg9	PASS
Residential Obtrusive Light_Cd_Seg10	PASS
Residential Obtrusive Light_Cd_Seg11	PASS

Upward Waste Light Ratio (UWLR)
Maximum Allowable Value: 2.0 %

Calculated UWLR: 0.0 %
Test Results: **PASS**

NORMAN DISNEY & YOUNG

Tom Meggitt | Senior Project Engineer
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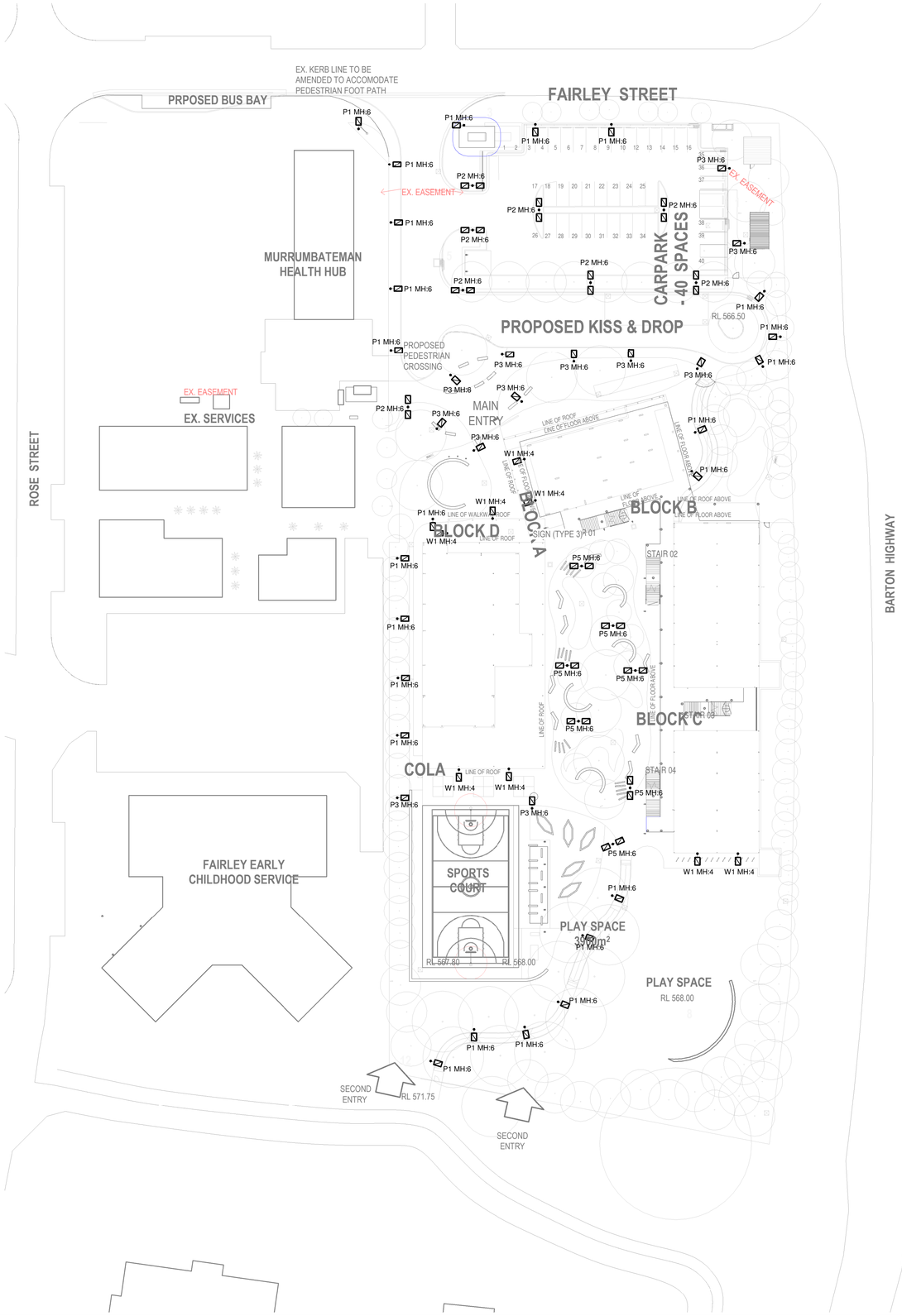

No.	DESCRIPTION

NOTES

- REFER TO DRAWING No. MURR-ELE-DD-00_005 FOR LEGEND AND GENERAL NOTES
- ALL AREAS ACHIEVE THE RECOMMENDED LEVELS OF AS1680.2.1 FOR LIGHTING ILLUMINATION AND GLARE
- LUMINAIRES ARE TO BE INSTALLED AS NOMINATED TO MAINTAIN COMPLIANCE TO AS1158. CONTRACTOR TO PROVIDE ISOLUX PLOT FOR ANY ALTERATIONS TO THIS LIGHTING DESIGN TO DEMONSTRATE COMPLIANCE TO AS1158. AS1158 P-CATEGORY VALUES ARE NOMINATED WITHIN THE DESIGN CRITERIA SECTION OF THE ELECTRICAL SPECIFICATION DOCUMENT
- LUMINAIRES ARE TO BE INSTALLED AS NOMINATED TO MAINTAIN COMPLIANCE TO AS4282. CONTRACTOR TO PROVIDE ISOLUX PLOT CALCULATION FOR ANY ALTERATIONS TO THIS LIGHTING DESIGN TO DEMONSTRATE COMPLIANCE TO AS4282
- LIGHTING CONTROL METHODOLOGY IS TO BE AS NOMINATED WITHIN THE ELECTRICAL SERVICES SPECIFICATION DOCUMENT, ELECTRICAL SYSTEMS SUMMARY
- REFER TO ELECTRICAL SERVICES SPECIFICATION FOR DETAILS ON COMMISSIONING OF LUMINAIRES AND LIGHTING CONTROL SYSTEMS
- COORDINATE LUMINAIRE LOCATIONS WITH THE LANDSCAPE AND ARCHITECTURAL PACKAGES

ISSUED FOR TENDER

Rev	Description	Date	Rev	Description	Date	Rev	Description	Date
P01	PRELIMINARY 50%	25.06.21						
P02	50% ISSUE	08.07.21						
P03	75% ISSUE	19.08.21						
P04	75% DESIGN DEVELOPMENT	31.08.21						
DD01	100% DESIGN DEVELOPMENT	17.09.21						
DD02	100% DESIGN DEVELOPMENT	24.09.21						
C01	CONTRACT DOCUMENTATION	19.10.21						

NDY QA SYSTEM
Reason For Issue
CONTRACT DOCUMENTATION
Authorisation
By **: 19 OCT 2021
Verification Of Latest Amendment
By **: 19 OCT 2021

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NDY Management Pty Ltd
ABN 29 003 234 571

Project: MONARO CLUSTER 2
MURRUMBATEMAN

Title: ELECTRICAL SERVICES
LIGHTING - EXTERNAL

Scale	Project Commencement	Drawn	Design	Project No.
1 : 500 @ A1	JUNE 2021	XS	KF	S38745.004 E

Revit Version 2021
DRAWING IN COLOUR

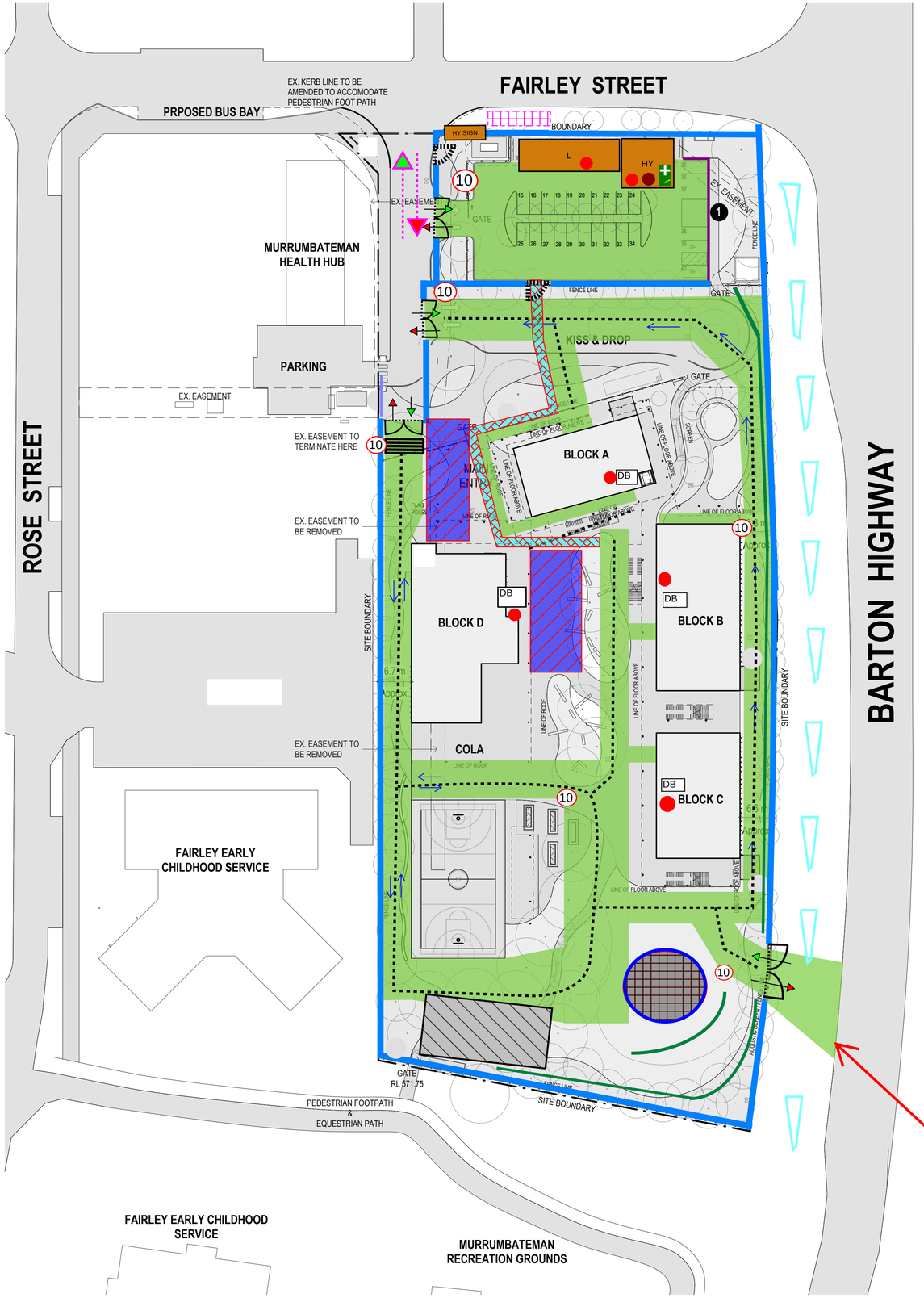
Drawing No. MURR-ELE-DD-00_102
Revision C01

A1 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 When reproduced at correct scale this line measures 150mm

A.12 Site Layout Plan

SITE PLANNING

1. Waste Pad
2. Main Switchboard Room
3. Substation
4. Existing Substation
5. Fire Boosters
6. Plant with Screen
7. Bicycle Parking (36 parking spots)
8. Playing Space
9. Main School Sign
10. Electronic School Sign
11. Shade Structure
12. Secondary Entrance
13. S.E.L.U & Secondary Entrance
14. Fire Booster Pump Room



Legend of Symbols

- External Perimeter Site Boundary Fencing
- Vehicle Gate
- Pedestrian Gate
- HY Statutory Project Site Signage Board
- Vehicle Access into Project Site
- Vehicle Egress out of Project Site
- Site Personnel Entry / Exit / Travel Routes
- Emergency Services Vehicle main Access to / Egress from Project Site
- On-Site Vehicle Parking
- Site personnel travel routes
- Temporary Electrical Distribution Board
- Fire Fighting Equipment
- Emergency Response push button (Nurse Call)
- Spill Kit
- Delivery Laydown Zone & General Storage
- Main Site Bins / resource recovery
- Site Emergency Evacuation Muster Point
- Site Offices Hansen Yuncken
- Site Toilets (m=male f=female)
- Site Lunchrooms
- First Aid Room with Defrib
- Internal Site Vehicle Main Path / Road
- Vehicle Speed Limit Signage
- All weather Access Path
- Crane / Hoisting / Concrete Boom Pump Set-up Location
- Vehicle Shaker Grid
- Crowd barrier fencing
- Fully Grassed Existing Swale Drain

PRELIMINARY

17/05/2021 6:30:12 PM

AMENDMENTS

REV	BY	DATE	DESCRIPTION
A	AB	19/05/21	Site Layout Plan
B	JG	09/12/21	Draft Issue for inclusion in PMP

HANSENYUNCKEN

NSW GOVERNMENT Education

NORTH

5000 10000 15000 20000 25000 50000

SCALE 1 : 500 @ A1

MAY 19 2021

Murrumbateman Site Layout Plan