FORD CIVIL

REMEDIATION
INFRASTRUCTURE
ROADWORKS
BULK EARTHWORKS
ENVIRONMENTAL
LANDSCAPING

Project Environmental Management Plan (EMP)

Project	Westmead Children's Hospital Stage 2 Enabling Works
Site Address	Corner of Redbank Rd and Labyrinth Way, Westmead
Client	Health Administration Corporation
Contract no.	H121427
Date	4.05.2022

ABN	24 002 542 814
Address	9 Hattersley Street, Arncliffe NSW 2205
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Document issue register

Revision #	Issue date	Update summary	Prepared/ Revised by	Reviewed By	Approved by
A	02.02.2022	Project Document	Danielle Simpson	Lawrence Saliba	Danny Khal
B	28.02.2022	Project updated to reflect DPE commentary	Danielle Simpson	Lawrence Saliba	Danny Khal
C	03.03.2022	Updated to reflect DPE commentary for MSCP	Danielle Simpson	Lawrence Saliba	Danny Khal
D	23.03.2022	Updated to reference HVNL CoR Policy	Danielle Simpson	Lawrence Saliba	Danny Khal
E	27.04.2022	Updated to reference Unexpected Finds Protocol	Danielle Simpson	Lawrence Saliba	Danny Khal
F	4.05.2022	Updated to reflect DPE commentary for MSCP received on 2.05.2022	Danielle Simpson	Lawrence Saliba	Danny Khal

Distribution

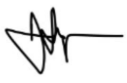
Controlled Copy No.	Issue Holder	Revision	Issue Date
1	1	F	4.05.2022

Authority

Ford Civil's Chief Operating Officer has authorised 'Danny Khal' as a Project Manager and allocated overall project delivery responsibility for the project to him.

This Project Environmental Management Plan has been prepared for use to manage applicable statutory and regulatory requirements as well as contractual and organisational requirements for the project.

The issue and revision of this Management plan is made under the authority of the Project Manager. This document and its effectiveness will be reviewed and evaluated during project monthly review meetings.

Function	Name	Position	Signature	Date
Prepared by	Danielle Simpson	Project HSEQ Representative		4.05.2022
Reviewed by	Lawrence Saliba	HSEQ Manager		4.05.2022
Approved by	Danny Khal	Project Manager		4.05.2022

Contents

1 Introduction

1.1 About Ford Civil

Ford Civil offers a full range of civil construction services from site remediation to road works, demolition and commercial landscaping. Our emphasis is on safety the environment and quality, and values open partnerships and clear communication with our clients. The Ford Civil team strives to exceed client expectations and augment our reputation for excellence by delivering even the most complex and challenging projects on schedule and to budget.

Ford Civil is a financially sound company, with long-term stability, coupled with our insurance policies, licenses and fully implemented safety, environmental and quality management systems.

Ford Civil Head office is located at

9 Hattersley Street,

Arncliffe NSW 2205

Main telephone number is 02 9597 4122

1.2 About Ford Civil Management Systems

Ford Civil has certified management systems. The scope of the management systems includes Project Management, Supervision & Construction of Civil Engineering Works, including Structural Works, Road Construction, Bridge Construction, Earthworks, Demolition, Marine Works, Environmental and Remediation Works and Landscaping. Certification was first achieved in 2008.

Ford Civil currently holds the following certifications:

- ISO 14001:2015 Environmental Management System
- ISO 9001:2015 Quality Management System
- ISO 45001:2018 Occupational Health and Safety Management System

The Environmental Policy supports the environmental management system. All employees will be made aware of this policy and are required to actively work towards achieving its objectives in their specific areas of responsibilities.

The Environmental management system is periodically reviewed at the corporate and project levels. Modifications and improvements resulting from reviews are integrated into the management system and communicated to promote consistent, best practice standards and continual improvement.

Ford Civil management system includes other project plans including but not limited to:

- Quality Management Plan
- WHS Management Plan
- Emergency Management Plan

1.2.1 Certifying Body

Company:	QMS Certification Services
Auditor	As nominated by QMS Certification Services
Website:	https://www.qms.com.au/
Phone:	1800 065 800
Address:	Level 2, 161 King St Newcastle, NSW 2300

1.3 Purpose and Scope of the Project Environmental Management Plan (EMP)

Ford Civil has developed this Environmental Management Plan for implementation during the construction/ delivery of this project. The main purpose of the EMP is to describe Ford Civil's environmental management system and associated procedures for this project that will guide, manage, and control the environmental aspects of the design and construction aspects of delivery of this project and ensure that all project activities are carried out in a manner that minimises environmental impacts, conform to the relevant regulations, codes and specifications.

The EMP sets the overall context for Ford Civil works. It describes Ford Civil's system for environmental management, and includes policy, objectives, legislation, responsibilities, auditing and document control.

The management system for this project has been developed based on company policies, procedures and in consultation with senior management and employees.

The purpose of this plan is to outline how Ford Civil will:

- deliver this project;
- describe how construction will be managed;
- comply with legislation;
- comply with client requirements;
- comply with requirements of the Ford Civil Directors;
- Meet the requirements of the accredited Ford Civil Safety, Quality and Environmental Management Systems.

This plan has been prepared in accordance with:

- AS/NZS ISO 14001:2016 Environmental Management Systems
- Contract specification
- Environmental Management Plan Guideline: Guideline for Infrastructure Projects (DPIE April 2020)
- Relevant environmental legislation, regulations, industrial standards and guidelines

This plan will be accessible to site personnel at all times and will be used to induct all personnel who will be working on site.

The EMP and associated processes are to be used as a reference guide for all Ford Civil site personnel and will also be applicable to Ford Civil subcontractors during the term of the project.

The EMP provides the framework to manage the environmental issues that may arise throughout the life of this project. The EMP;

- Includes all safeguards required of Ford Civil in regards to Client's Environment Strategy;
- Defines the environmental policy for the project and Ford Civil and summarises the legislative and regulatory obligations applicable to the project;
- Provides a framework for Ford Civil to monitor, audit, report on, review and improve;
- Includes procedures for investigating and resolving non-conformances, and initiating corrective and preventative measures.

This plan will be reviewed every 3 months (review may not lead to revision - this review will be carried out by HSEQ Manager) or when it is required to ensure that it is current and reflects the current project activities and risks. This document will be revised to reflect any adjustments due to the following:

- Changes to standards;
- Changes to Project Risk Register;
- Management System changes;

- Conditions on site differ significantly;
- Work processes differ significantly;
- following a significant incident;
- an internal or external audit finding requiring that the plan is updated.

Based on the duration of the project and client requirements an internal inspection will be carried every month in alignment with the start date on site. In addition, an internal audit may be conducted as per Ford Civil internal audit schedule. The inspection/audit outcomes will be presented to the site staff, Project Manager and Senior Management. The client representative may participate in internal audits or inspections if so desire.

This document is a live document and is developed through the life of the project to ensure all stakeholders and compliance regulations are met. This plan may be updated by site personnel with hand written notes. These hand marked up changes are required to be communicated via a toolbox.

This plan will be made available to all stakeholders (employees, subcontractors, labour hire etc.) upon request and a hard copy will be held on site in the project office.

1.4 Development of Project Environmental Management Plan (EMP)

The purpose of this Plan is to ensure that Ford Civil carry out all project activities in a manner that minimises environmental impacts, conform to the relevant regulations, codes and specifications.

This EMP describes how the corporate environmental policy, objectives and targets are implemented to ensure that our corporate, customer and legislative requirements are recognised and that consistent and uniform control of the requirements is adequately maintained.

The key stages in the project environmental management process include:

- Identification of Ford Civil objectives and targets;
- Undertake risk assessments;
- Client review / approval of EMP;
- Ford Civil to Client consultation;
- Site implementation;
- Monitoring, reporting, reviewing and improving.

This EMP includes provision for:

- Identification of significant environmental aspects and the handling of them;
- the prompt detection of discrepancies and for the timely and effective corrective action;
- Identifying environmental non-conformances and follow up of corrective action implementation to ensure correct standards are applied throughout the project.

The structure of the organisation and management for this project is identified and makes clear the reporting relationships, the responsibility of each position and the authority exercised by that position.

This EMP includes the provision of evidence that conformity to the Client brief and environmental requirements has been achieved through the generation of this documentation following implementation of the planned inspection and testing process. This EMP also covers the identification of non-conformance including the corrective actions and controls to achieve compliance with specified requirements.

This EMP requires that all environmental records be completed by personnel with the experience and judgment necessary to make objective decisions regarding the compliance of the work.

To provide confidence in the accuracy and reliability of this EMP's Records, these will be reviewed during the project delivery period to ensure that they accurately reflect the environmental status of the project.

This EMP is to be applied to all facets of the works on the project carried out by Ford Civil.

A Project Environmental Management Plan is to be developed before commencement of work. This document lays out how the project environmental requirements will be executed, monitored, and controlled.

It's the Project Manager's main responsibility to execute the Project Environmental Management Plan successfully. This document to be approved and signed off by the Project Manager.

2 Project integration plan

2.1 Project details

Project details	
Project	CHW Stage 2 Enabling Works (Project) – Combined Civils
Contract No	H121427
Location	Corner of Redbank Road and Labyrinth Way, Westmead
Start Date	6.12.2021
Completion Date	27.08.2022
Scope of Works	Refer to Clause 1.8
Client details	
☒ Principal	
☐ Principal Contractor	
Client Project Manager	Mary Sakr
Contact number	0420 886 877
Client Address	PricewaterhouseCoopers One International Towers Sydney Watermans Quay, Barangaroo NSW 2000
Contractor details	
Business Name	Ford Civil Contracting Pty Ltd
ABN	24 002 542 814
Physical Address	9 Hattersley Street, Arncliffe NSW 2205
Postal Address	P O Box 26, Arncliffe, NSW 2205
Project Manager	Danny Khal
Contact number	0409 212 374
Civil Supervisor	Zac Hudson 0448 423 747 Daniel Mifsud 0408 696 863 Alain Brock 0468 422 784 Steve Franks 0452 577 519
Safety Rep/First Aider	Adam Khan
Contact number	0424 217 524
Rehab Co-ordinator	Lawrence Saliba
Contact number	0408 653 267

2.1.1 Principal contactor

Ford Civil Contracting Pty Ltd is the Principal Contractor for this project.

2.1.2 Project Description / Scope of work

Ford Civil Contracting Pty Limited has been awarded the Contract as sub-contractor for the works. The work consists of two sites along Redbank in North Eastern Corner of Westmead children's hospital.

Multi Story Carpark:

- Design finalisation
- Demo of existing lodge building
- Salvage playground equipment
- Clear site (Trees & Pavements)
- Earthworks (Approx. 3500m3 C/Fill) up to 'BOC''
- Retaining wall & ramp upstand walls
- Wall piles and capping beam footings
- Stormwater drainage incl GPTs and filtration units
- Service trenching for electrical/ comms + conduit install
- Marker layer and temp capping layer to all areas
- No piling platform required for building platform
- Redbank Rd realignment
    - Temporary widening
    - Stormwater drainage
    - Pavement
    - Asphalting
    - Line marking
    - K&G
    - Reinstating existing light poles
- HV trenching

Paediatric Services Building development:

- Design finalisation
- Demo pavement and clear trees
- Piling for retaining wall
- Borrow pit excavation (approx. 9500m3) – VENM disposal
- Earthworks cut/fill (approx. 8000m3)
- Retaining wall and associated footings
- Stormwater drainage incl GPTs & filtration units
- Services trenching and conduits within building platform
- Hydraulic from building to park and across entry to north building
- Piling platform and marker layer
- Temp capping layer & marker layer to all external areas
- Bike cage construction

2.1.3 Project reference documents

- → CHW Stage 2 Enabling Works – Combined Civils Project - Scope of Works V2
- → MSCP at CHW Stage 2 Redevelopment – Remedial Action Plan – 56200/131434 (Rev C) (9/02/2021)
- → PSB at CHW Stage 2 Redevelopment – Remedial Action Plan – 56200/133598 (Rev 0) (29/07/2021)
- → CHW-ARP-CV-RP-MP-91-XX013 MSCP Flood Impact Assessment
- → CHW-ARP-CV-RP-MP-91-XX012 PSB Flood Impact Assessment
- → JK Geotechnics – PSB & MSCP Geotechnical Investigation – 33303Brpt2 (20/01/2021)
- → JK Geotechnics – PSB Geotechnical Investigation – 3303Brpt1 (20/01/2021)

2.1.4 Site amenities and emergency equipment

- → Site sheds
- → Lunch rooms
- → Ablution blocks
- → Decontamination units (where required)
- → Spill kits
- → Fire extinguishers

2.1.5 Plant and equipment on site

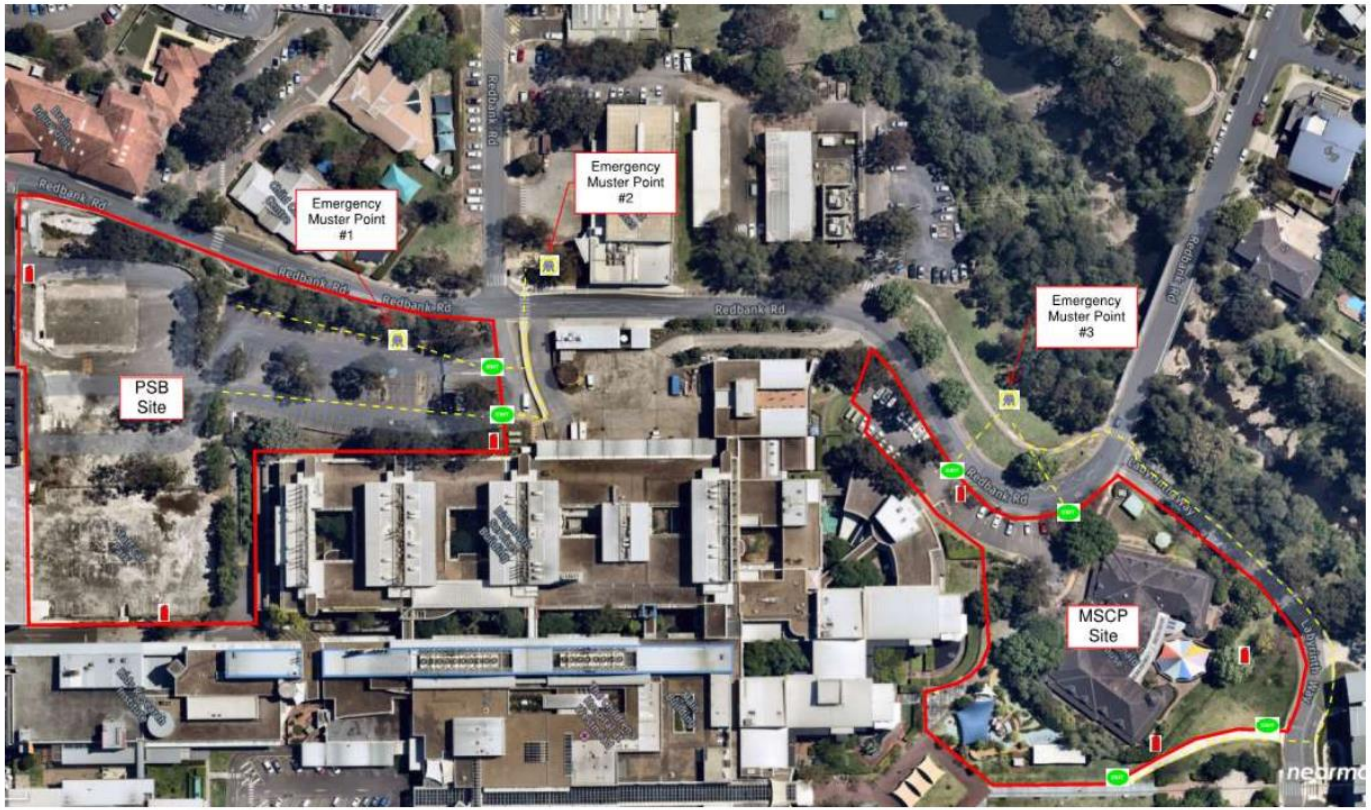
- → Trucks – tippers, rigids, semi-trailers, concrete agitator
- → Excavators
- → Fork lifts
- → Piling rig
- → Mobile & franna cranes
- → Rollers
- → Asphalt pavers
- → Concrete pumps

2.1.6 Contractors on site

- → ARUP (Design Consultants)
- → Titan Demolitions (Demolition)
- → Douglas Partners (Geotech Consultants)
- → Concreters (TBC)
- → Hydraulics (TBC)
- → Piling (TBC)
- → Asphalt (TBC)
- → Hygienists (TBC)

2.1.7 Site emergency evacuation map

Evacuation Diagram



Ambulance fire and police 000 or 112 from mobiles

Site supervisor:

Name: Zac Hudson

Number: 0448 423 747

Project Manager:

Name: Danny Khal

Number: 0409 212 374

LEGEND

- Assembly Point
- Emergency Exit Points (EXIT)
- Fire Extinguisher
- Hose Reel
- Brigade Service

IN CASE OF FIRE

R	Remove people from the immediate danger area. Do not obstruct Exit Routes.
A	Alert Staff & visitors in the vicinity of the fire. Dial 000 & ask for the Fire Brigade.
C	Confine smoke & fire. Close doors behind you & shut windows where possible.
E	Extinguish/contain the fire if properly trained. Use the proper extinguisher or hose reel.

KEEP EMERGENCY EXIT ROUTES CLEAR AT ALL TIMES!

2.1.8 Emergency contact details

Service		Phone Number
Project team		
Client Project Manager	Ahmed Jaradat	0405 113 054
Project Manager (24 hr contact)	Danny Khal	0409 212 374
Electrical Supervisor	TBC	
Civil Supervisor	Zac Hudson Daniel Mifsud Grant Rutherford	0448 423 747 0408 696 863 0403 265 461
Safety Rep	Lawrence Saliba	0408 653 267
First Aider(S)	Zac Hudson Daniel Mifsud Grant Rutherford	0448 423 747 0408 696 863 0403 265 461
Emergency Services		
Emergency	*Fire/Ambulance/Police*	000
Storms / Floods	*S.E.S.*	132 500
Environmental Emergency	*Environmental Protection Agency*	131 555
Water	*Sydney Water Emergency Service*	132 090
Telecommunications	*Telstra Emergency Service*	132 203
Electricity	*Endeavour Energy*	131 003
Gas Authority	*Jemena*	131 909
Explosives	*Dept of Mines & Energy*	
	After Hours	
Poisons	*Poisons Information Centre*	131 126
Work Health and Safety	*SafeWork NSW*	
	All Enquiries	13 10 50
	After Hours	13 10 50
Pollution	*Environmental Protection Agency*	13 15 55
Animal emergency	*RSPCA Animal Ambulance*	
	Domestic Animals	
	Native Animals	1300 094 737
Local services		
Local Council	Parramatta Council	1300 617 058 9806 5050
Local Police Station	Wentworthville Police Station	9688 8499
Local Hospital	Westmead Hospital	8890 5555
Local Medical Centre	Westmead Medical Centre	9863 4470

Danny Khal the FCC Project Manager is the 24hr contact. His contact details are documented on each gate entrance.

2.2 Interested parties

Relevant stakeholders and interested parties that will be involved with the Project and it's outcomes are listed below:

- Health Infrastructure (HI)
- Sydney Children's Hospital Network (SCHN)
- Western Sydney Local Health District (WSLHD)
- City of Parramatta Council (CoPC)
- Workers
- Neighbours

2.2.1 Community Consultation

As the Project sites are within the Westmead Hospital Precinct, this plan has been prepared in consultation with HI, SCHN and WSLHD. FCC will continue to liaise with these stakeholders through weekly meetings and Disruption Notices. The templates used for these disruption notices have been included in Section 15.6.

Following these meetings and prior to key events, precinct wide staff and community updates will also be distributed by the Redevelopment Team (HI/SCHN) in the way of fact sheets and notices. Monthly construction updates will also be distributed via the project website: https://westmeadkidsredevelopment.health.nsw.gov.au/

Additional consultation pre-construction was also undertaken with CoPC during the planning phase. For any works that may impact CoPC assets, FCC will also liaise directly with council.

2.2.2 Complaints Procedure

A complaint procedure will also be implemented where internal stakeholder complaints are tracked weekly and reported back to the principal during weekly contractor and interface meetings.

These complaints, whether it be from the community members or from hospital stakeholders, will be tracked in FCC's Community Contacts and Complaints Register.

Clear signage, including a 24-hour contact, will be displayed on all site compounds should a stakeholder wish to make a complaint.

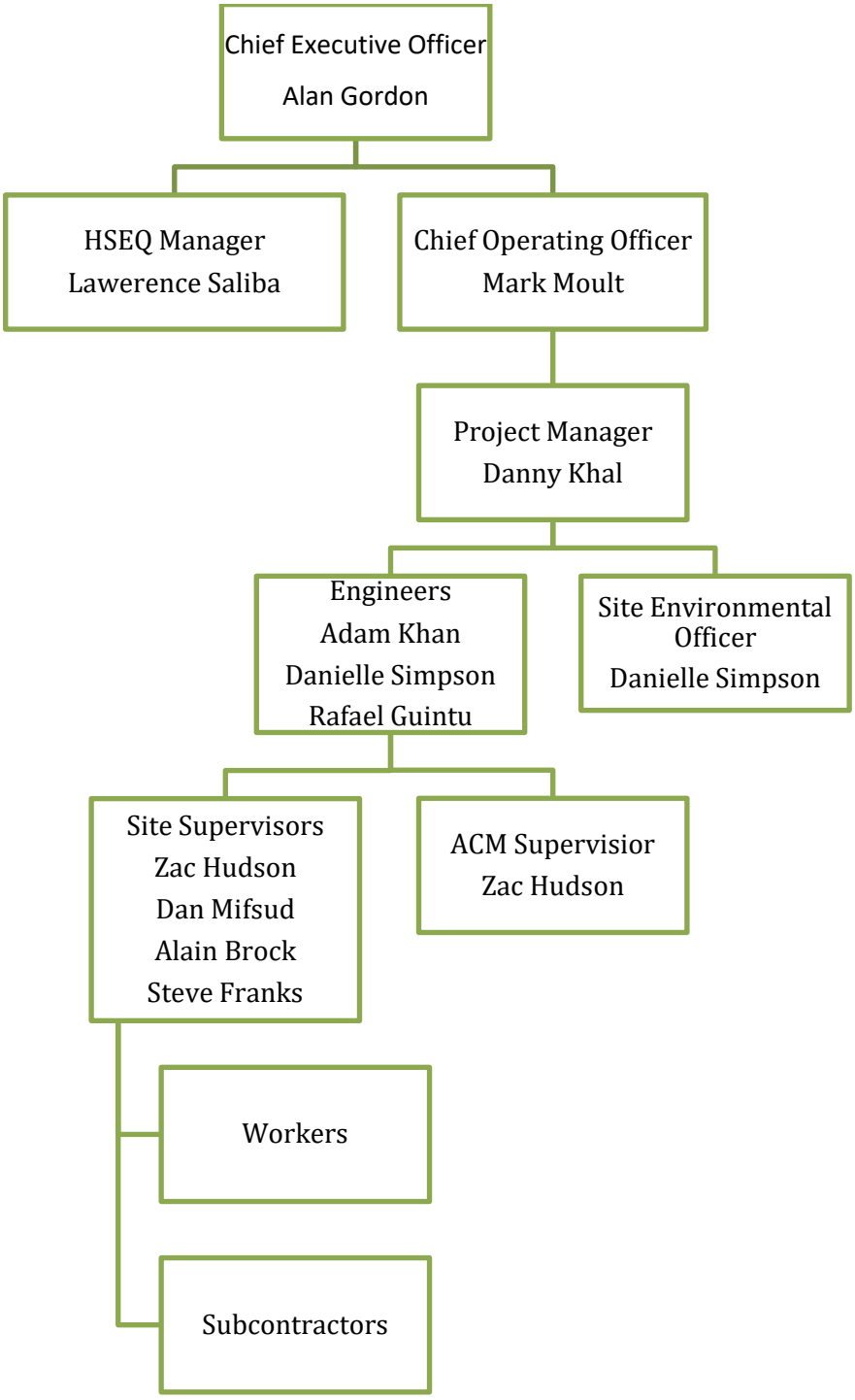
Any additional contact/input from the community will also be tracked in FCC's Community Contacts and Complaint Register.

Relevant documents:

→ FCC-FOR-198-Community Contacts, Complaints Register

Further to the above, a complaints management process has also been developed by HI and SCHN for the Stage 2 Redevelopment Project. This is outlined in Section 15.7.

2.3 Project organisation structure



2.4 Roles, responsibilities and authorities

2.4.1 Chief Executive Officer

The **Chief Executive Officer** will:

a) allocate adequate time and resources (human, financial, and technical) for the Environmental program to be established at all sites;

b) review significant incidents and near misses and their investigations;

c) review environmental performance of senior management;

d) advise project management to achieve the highest standard of environmental performance on the project;

e) initiate changes from recommendations from the HSEQ Manager;

f) review project environmental performance;

g) conduct senior management site inspections and consult with workforce on HSEQ issues.

2.4.2 Chief Operating Officer

The **Chief Operating Officer** will:

a) review significant incidents and near misses and ensure closeout of investigation and implement any improvements or corrective actions. Where required participate in investigations;

b) review environmental performance of middle management;

c) advise to site management and the site environmental officer to achieve the highest standard of environmental performance on the site;

d) initiate changes from recommendations from the HSEQ Manager;

e) review site environmental performance;

f) assess the suitability of site staff / resource availability to carry out the works in environmentally responsible manner;

g) provide information resources on all environmental matters and obtain information from other sources as needed;

h) conduct senior management site inspections and consult with workforce on HSEQ issues.

2.4.3 HSEQ Manager

The **HSEQ Manager** is responsible for the implementation of environmental requirements through the company resources and the implementation of company policy and processes to ensure that the environmental requirements are met and will:

a) Prepare and review the Ford Civil project EMP to provide guidance as to whether or not it fulfils the following obligations;

   i. follows the formats / intentions of the Ford Civil systems;

   ii. follows the intent of AS/NZS ISO 14001:2016 Environmental Management Systems;

   iii. incorporates Client requirements;

b) Regularly review the EMP implementation status to ensure all environmental obligations are met;

c) advise the Project Manager and project team on changes in statutory requirements;

d) Prepare documentation to demonstrate compliance and report on compliance;

e) Conduct system environmental audits in accordance with the project audit schedule;

f) Provides assistance as required to the project team to fulfil the requirements of the EMP and the expectations of Client;

g) identify any skills/training needs and arrange appropriate training and update skill/ competency registers as required;

h) provide information resources on all environmental matters and obtain information from other sources as need;

i) compile environmental stats for senior management based on the information supplied from site;

j) identify environmental aspects and assess the environmental impacts associated with the work, and document the risk control measure to be taken;

k) in conjunction with the project manager, prepare a systematic audit program to monitor the effectiveness of the EMP;

l) carry out site environmental audits and inspections;

m) Respond to environmental incidents;

n) investigate significant incidents, and advise project team on implementing corrective actions;

o) maintain records of accidents/incidents including significant near misses;

p) develop the site induction handout covering all aspects of site environmental issues;

q) responsible for the reporting to relevant external bodies of any incident that requires notification (e.g. NSW EPA). This information is to be coordinated with the Project Manager,

2.4.4 Project Manager

The Project Manager is responsible for the implementation of company policy and processes to ensure that the environmental requirements of the work place are met and will:

a) lead and manage the project in accordance with environmental requirements;

b) ensure all appropriate actions are taken to implement the Environmental policy, processes and legal requirements;

c) allocate adequate time and resources (human, financial, and technical) for the environmental management system to be established and maintained at all sites;

d) ensure the development and implementation of emergency procedures;

e) identify environmental aspects and assess the environmental impacts associated with the work, and document the risk control measure to be taken, in a project risk register;

f) ensure all significant environmental aspects/impacts are eliminated or reduced as far as practicable according to the hierarchy of control;

g) demonstrate commitment to environmental protection through formal participation in Risk Assessment and Control Planning, workplace inspections etc. and informally through work site visits and discussions with staff;

h) review any environmental related reports, significant incidents /near misses and monitor corrective actions;

i) participate in the environmental incident investigations;

j) advise site management and the site environmental officer to achieve the highest standard of environmental compliance on the site;

k) Initiate changes from recommendations from the HSEQ Manager;

l) monitor and supervise the environmental performance within their area of responsibility;

m) participate where required in the resolution of environmental issues;

n) communicate regularly on relevant environmental matters both internally and to the client immediately in terms of significant incident including government notifications and monthly for all other statistics to the client representative;

o) manage environmental communication and consultation provisions in accordance with the regulatory and other requirements;

p) carry out ongoing review of SHEWMS versus works being carried out on site and document in the task observation form;

q) ensure all employees/contractors are inducted and receive regular training as required to perform jobs in environmentally responsible manner;

r) responsible for reporting to Senior Management & relevant external parties including client representative of any incident or accident both in verbal and written communications;

s) ensure all employees/contractors are informed about environmental policies, management system requirements and project plans during induction and they receive regular training as required to perform jobs in environmentally responsible manner;

t) ensure employees and the relevant environmental representative are consulted in relation to identification of aspects, impacts, and the assessment and control of risks associated with any significant aspects;

u) stop works where noncompliance is found;

v) implement corrective actions where sub contactors are lacking both in terms of compliance on site and in the required documentation;

w) provide all subcontractors engaged on the project a copy of the relevant sections of the EMP or access to the whole document;

x) manage notification to adjoining sites, properties of upcoming works / emergencies as required;

y) coordinate resources for the project EMP to be implemented, monitored, maintained to ensure all environmental obligations are met;

z) ensure compliance with the Client incident reporting systems.

2.4.5 Site Supervisor

The **Site Supervisor** is responsible for the implementation on site of company policy and processes to ensure that the environmental requirements of the work place are met and will:

a) directs and implements on site environmental management measures

b) monitor and supervise the environmental performance within their area of responsibility by ensuring environmental protection controls are implemented by all site personnel as required;

c) ensure all appropriate actions are taken to implement the environmental policy, processes and legal requirements;

d) lead by example and promote sound environmental practices at every opportunity;

e) participate where required in the resolution of environmental issues;

f) review any environmental related reports, and take appropriate action;

g) ensure that environmentally responsible work practices, procedures, site rules are implemented and adhered to;

h) conduct daily prestart meetings;

i) conduct toolbox meetings no less than fortnightly or when significant changes of works occur;

j) trial and implement emergency response procedures;

k) identify environmental aspects and impacts and assess risk associated with the work, and document the risk control measure to be taken;

l) report to Project Management of any incident or near miss that requires notification;

m) ensure all significant environmental aspects and related impacts are eliminated or reduced as far as practicable according to the hierarchy of control;

n) ensure employees and the relevant environmental representative are consulted in relation to the identification of aspects and impacts, and the assessment and control of risks associated with any significant aspects;

o) carry out workplace monitoring and provide assistance and advice;

p) ensure that employees receive training in the applicable SHEWMS prior to doing any work

q) ensure all works being undertaken is in accordance with the SHEWMS and site environmental rules applicable to the project;

r) ensure that the employees have training and competency to perform the work tasks that they have been asked to do

s) implement corrective actions where sub contactors are lacking both in terms of compliance on site and in the required documentation;

t) be first point of contact for environmental related matters

u) ensure that all goods and services purchased/engaged for the project are assessed for suitability in relation to the company's environmental policies and procedures;

v) assist in the identification of problem areas, including workplace monitoring and provision of assistance and advice;

w) assist in the monitoring of sub-contractors' obligations to meet their environmental commitments.

x) maintain environmental documentation and records in accordance with Ford Civil system requirements;

y) stop works where noncompliance is found;

2.4.6 Project Engineer / Environmental Representative

The **Project Engineer** is responsible for the implementation on site of company policy and processes to ensure that the environmental requirements of the work place are met and will:

a. directs and implements on site environmental management measures in accordance with this EMP and the relevant Safety Health & Environmental Work Method Statements (SHEWMS);

b. ensure that environmentally responsible work practices and environmental controls as required are implemented and adhered to by site personnel;

c. ensure all personnel working at site are inducted and signed onto the relevant SHEWMS for their activity;

d. ensure that all goods and services purchased/engaged for the project are assessed for suitability in relation to the company's environmental policies and processes;

e. approve Ford Civil and subcontractors' SHEWMS prior to commencing works on site;

f. ensure all SHEWMS are forward to the client's Project Manager 2 weeks in advance of the works.

g. assist in the identification of problem areas, including environmental monitoring and provision of assistance and advice;

h. assist in the monitoring of subcontractors' obligations to meet their environmental commitments;

i. identify environmental aspects and impacts and assess the risk associated with the work, and document the risk control measure to be taken*;*

j. assist in identifying training and competency requirements and organise for training, including refresher training, in consultation with HSEQ Manager;

k. issue environmental documentation to all sub-contractors and service providers engaged on the site;

l. manage all subcontractors and their employees to comply with the relevant environmental requirements;

m. carry out ongoing review of SHEWMS versus works being carried out on site and document in the task observation form;

n. maintain environmental documentation and records in accordance with Ford Civil system requirements;

o. update and monitor the hazardous substance register as required;

p. keep all persons informed of the site environmental rules and other environmental issues relating to the project.

2.4.7 Workers

The site-based employees/contractors are responsible for implementing environmental controls and will:

a. adhere to all environmental policies/processes in accordance with instructions;

b. take reasonable care of the environment that may be affected by their actions;

c. will participate in consultation and comply with the environmental management system and their Safety, Health and Environmental Work Methods Statement (SHEWMS) or Standard Operating Procedures (SOP);

d. ensure they have current licenses, registration and competency certificates;

e. ensure they are able to competently and safely perform any work they undertake and are aware of the environmental impacts associated with their work;

f. report any environmental aspects/impacts or potential situations that may rise due to works being conducted, to the Site Supervisor;

g. report all environmental incidents to the Site Supervisor;

h. identify environmental aspects and impacts and assess risk associated with the work, and document the risk control measures to be taken providing suggestions, on how to improve environmental issues;

i. seek assistance if unsure of environmental requirements;

j. comply with site rules;

k. comply with emergency and evacuation procedures.

3 Senior Management Commitment

3.1 Leadership and commitment

Ford Civil's top management team demonstrate their leadership and commitment with respect to the HSEQ Management System by:

- taking overall responsibility and accountability for the prevention of significant environmental aspects and impacts;
- fully integrating Environmental Management System in to Ford Civil HSEQ Management System;
- taking accountability for the effectiveness of the HSEQ Management System;
- ensuring that the quality, environmental and WHS policies and related objectives are established and are compatible with the strategic direction of the organisation;
- ensuring the integration of the quality, environmental and WHS management system requirements into the organisation's business processes;
- ensuring that the resources needed to establish, implement, maintain and improve the HSEQ Management System are available;
- communicating the importance of effective HSEQ Management System and of conforming to the HSEQ Management System requirements;
- ensuring that the HSEQ Management System achieves its intended outcome;
- directing and supporting persons to contribute to the effectiveness of the HSEQ Management System;
- ensuring and promoting continual improvement;
- supporting other relevant management roles to demonstrate their leadership as it applies to their areas of responsibility;

- developing, leading and promoting a culture in the organisation that supports the intended outcomes of the HSEQ Management System;
- protecting workers from reprisals when reporting incidents, hazards, risks and opportunities.

3.2 Environmental Policy statement

Ford Civil has established, implemented and maintained an Environmental Policy that is appropriate to the purpose and context of the Ford Civil and supports its strategic direction.

This policy provides our commitment to take care of environment through prevention of incidents that could significantly impact the environment. Refer **Attachment 1** – Environmental Policy Statement.

3.3 Company objectives and targets

Ford Civil corporate environmental key performance objectives are to:

- Eliminate all breaches of environmental legislation and regulatory requirements;
- Reduce pollution and waste generation;
- Avoid unnecessary environmental impacts;
- Ensuing company policies are understood and implemented. Copies of company policies can be requested at any time by employees;

The key project environmental targets of Ford Civil are:

- Zero significant environmental incidents on the project;
- Prevent repeat of environmental incidents;
- Investigate actual and potential incidents;
- 100% close out of unsafe environmental conditions within specified timeframes;
- 100% compliance with scheduled inspections by nominated persons.

The HSEQ Manager will prepare monthly Corporate HSEQ Performance Report (FCC-FOR-200) by collating all project HSEQ reports and submit it to senior management for their review. Senior management, in consultation with the project manager initiate corrective actions as required.

Relevant documents:

→ FCC-FOR-200- Corporate HSEQ Performance Report

3.4 Project objectives and targets

Ford Civil has established project Environmental objectives and targets considering the business and project risk management outcomes. The environmental objectives set for this project are consistent with Ford Civil corporate objectives.

The key environmental objectives of the project are to:

- Provide the client with confidence of Ford Civil delivery of the prescribed environmental outcomes during construction of the project;
- Comply with all environmental obligations of the Contract and any other applicable legislation and non-legislative requirements;

- Allocate responsibility and timing of the environmental actions;
- Develop management and audit strategies to ensure ISO14001 – Environmental Management Systems and ISO 19011 – Guidelines for Auditing Management Systems are met and maintained;
- Develop processes for implementing any corrective action required, including review and modification of the EMP;
- Ensure that the construction work procedures minimise potential impacts on the environment and community;
- Develop, implement and monitor measures that minimise pollution and optimise resource use.

The key environmental targets for this project are:

Target	Key Performance Indicators
Zero significant environmental incidents on the project No identified non compliances to Ford Civil or Client	Works are conducted within scope of Ford Civil, Client's conditions of approval and legislative and other requirements. All other necessary approvals gained prior to works commencing, recorded and filed.
All Ford Civil site personnel are aware of project specific environmental issues and their required management.	All Ford Civil personnel are inducted into site specific environmental management processes and records kept of Ford Civil personnel inducted.
Client directions and suggestions are considered and implemented	System deficiency notices issued by Client are actioned and closed within the specified timeframes.
Prevent repeat of any potential incidents	100% compliance with scheduled inspections by nominated persons 100% close out of unsafe environmental conditions within specified timeframes Investigate actual and potential incidents and close out 100% of unsafe environmental conditions within specified timeframes
Engage in consultation with Client representative	Undertake regular inspections by Ford Civil and correspond with Client representative.

The overall strategies for achieving these environmental objectives and targets are incorporated into the Ford Civil environmental procedures, safety, health and environmental work method statements (SHEWMS), pre-start meetings and on-site toolbox sessions on the project.

To meet these objectives, Ford Civil requires the full co-operation of everyone: Management, Site Supervision and all others employed both directly and indirectly and to talk about environmental impacts and utilise the controls in place.

Progress of project objectives is reviewed monthly during the Project Performance Review Meeting. Summary of the results also will be monitored during the annual HSEQ Management System review process.

Relevant documents:

- → FCC-FOR-001 – HSEQ Development Plan, tab #5 Corporate HSEQ Management System Objectives
- → FCC-FOR-201- HSEQ Statistics Report

3.5 Management of resources

Ford Civil top management team is committed to provide the resources needed for the implementation and continual improvement of the project in line with the corporate HSEQ Management System.

Project resource planning and determining the requirements will be carried out during the project risk assessment process.

Status of project resources is reviewed monthly during the Project Performance Review Meeting.

4 Training Arrangements

Ford Civil has determined the necessary competence of its workers that affects or can affect the project environmental performance. Training and induction process is in place to ensure that workers are competent on the basis of appropriate education, training or experience. Ford Civil will take actions such as the provision of training to, the mentoring of, or the re-assignment of currently employed persons, or the hiring or contracting of competent persons, to acquire and maintain the necessary competence throughout the organisation.

All new employees of Ford Civil will undergo appropriate company induction on the commencement of their duties. The site-specific induction process which includes environmental induction must be undertaken by all new and existing Ford Civil personnel, subcontractors and visitors including client representatives, prior to works commencing on site. In addition, all workers on site will be inducted in to EMP and specific SHEWMS which incorporate environmental risks and mitigation measure.

Regular environmental toolbox and managers meetings will be held on site to held to maintain and improve environmental issues' awareness and to address any concerns or potential issues.

A training matrix and individual personnel files are established, maintained and reviewed monthly during the Project Performance Review Meeting to make sure that any specified HSEQ Management System training, competency, qualification and licensing requirements are identified and documented for the workers on the project.

Trainees / apprentices can perform high risk work that could cause environmental harm if they are being trained and supervised by a person who has the appropriate training/certificate in accordance with a documented training plan and comply with other requirements of the environmental legislation including keeping appropriate records of the training.

Communication and Interface:

The site supervisor will communicate the environmental issue to workforce through daily pre-start meetings and toolbox meetings. These meetings will highlight / discuss specific community or environmental issues which are relevant to site personnel and will be recorded with topics discussed, date, etc. The subcontractors will be included in all environmental / community toolbox meetings / prestart meetings

In addition, SHEWMS which will be communicated to workforce will detail the environmental aspects/ impacts and the controls to be followed at site.

The project manager will conduct project meetings with the site team covering environmental management as an agenda item.

Relevant documents:

- → FCC-PRO-005-Competence and Awareness
- → FCC-FOR-058-Competency Register (Project Specific)
- → FCC-FOR-052-Project Induction Presentation
- → FCC-FOR-054-Project Induction Information

5 Environmental Aspects and Impacts

Hazard identification, risk assessment and control (HIRAC) process has been established that is ongoing and proactive. Ford Civil will identify and record the potential environmental aspects and impacts, assess the level of risk associated with each of the potential impact and define the controls necessary to manage the impacts.

Process of managing the project risks including environmental aspects and impacts are outlined in the Risk Management Procedure (FCC-PRO-003). The risk assessment process as prescribed in this procedure was used to determine the potential level of risk for the project environmental hazards.

Project activities that have the potential to cause environmental harm are outlined in the Project HSEQ Risk Register (FCC-FOR-023). The identification of the significant environmental aspects and impacts that could eventuate during construction on this project is central to the selection of appropriate environmental safeguards. Refer Attachment 3 Project HSEQ Risk Register for risk matrix and initial environmental risk assessment.

The initial identification process involves review of Client documentation and other reference materials as required. Key environmental elements of the project that may result in an environmental impact for Ford Civil have been identified with one or more of the following criteria;

- Construction activities that have the potential to cause the discharge or release of pollutants to water, air or land;
- Construction activities that impact on flora, fauna or heritage;
- Construction activities that have the potential to create change to the environment;
- Construction activities that generate waste;
- Vehicle and Plant decontamination.

The risk management process involves an assessment of all specific project activities in or near environmentally sensitive areas and results in the development of a list of risks and a corresponding risk mitigation strategy and risk rating. Each risk is categorised, based on the following:

- Relative scale of the potential impact;
- Type of potential impact;

- Likelihood of occurrence.

The Ford Civil project team along with its subcontractors will review and itemise the risk assessments and strategies of works / storage etc. to minimise potential of incidents.

Operational controls are established for identified aspects and impacts in accordance with the hierarchy of controls and applicable legislation, codes of practice and Australian standards. These controls are detailed in this plan and in Safety, Health and Environmental Work Method Statements (SHEWMS)

The risk management process including risk register will be reviewed at regular intervals or at certain milestones such as starting of new process or subcontractor, throughout the life of the project.

SHEWMS will be prepared to address the hazards and risks of a particular construction method, task or discrete worksite. SHEWMS will include information about the environmental controls to be implemented to address the environmental impacts and risks.

Ford Civil will not engage with the community or any members of the media in relations to works being undertaken on the project unless authorised by the client.

Relevant documents:

→ FCC-PRO-003-Risk Management Procedure

→ FCC-FOR-023-Project HSEQ Risk Register

→ FCC-FOR-024-Project Risk Workshop Meeting Minutes

6 Environmental Emergency and Incident Management

Ford Civil has established a process to identify all of the foreseeable emergencies at the business and project level that may occur, and the method of recording them.

The type and level of incident that would be regarded as critical by the company, and the process to make sure that any defined critical incidents are managed, is documented in the Emergency Management Procedure (FCC-PRO-035).

Ford Civil's project specific emergency procedures are set out in the Project Emergency Response Plan (FCC-PRO-045/047). All workers at the business and project level and any visitors will be informed of the site-specific emergency response procedures /emergency response arrangements during induction process.

All staff and subcontractors must follow Client's emergency response procedures where required. All emergency incidents should be reported to the Client Representative. All environmental complaints (noise, dust, traffic etc.) will be documented and addressed. They will be reported to the client as required.

Ford Civil ensures:

- relevant information communicated and provided to all workers on their duties and responsibilities;
- relevant information communicated to subcontractors, visitors, emergency response services, government authorities and, as appropriate, the local community;
- the needs, capabilities and involvement of all relevant interested parties are considered in the development of the planned response;
- emergency response plans are tested through planned emergency response drills.

Relevant documents:

→ FCC-PRO-035-Emergency Management Procedure

→ FCC-PRO-034-Incident Management Procedure

→ FCC-FOR-023-Project HSEQ Risk Register

→ FCC-FOR-024-Project Risk Workshop Meeting Minutes

→ FCC-FOR-045/047-Project Emergency Response Plan

→ FCC-FOR-191-Incident Report

→ FCC-FOR-192-Incident Register

→ FCC-FOR-194-Incident Investigation Report

7 Subcontractor and Interface Contractor Management

All Ford Civil subcontractors are required to operate within the requirements of this EMP, Client's environmental management system, and associated approval documents. All Ford Civil subcontractors will be inducted into Client's environmental requirements and Ford Civil SHEWMS prior to commencing work on site and will be required to adhere to them whilst working on site.

Depending on the complexity of the Ford Civil subcontractors' work or based on a risk assessment, the Ford Civil Project Manager will establish whether a subcontractor is required to develop a project specific EMP or SHEWMS to confirm that their processes and procedures conform to Ford Civil's approved EMP, SHEWMS and procedures. Any subcontractor EMP or SHEWMS submitted as requested by the Project Manager will be approved by the Project Manager prior to the subcontractor commencing works on site.

The work of subcontractors will be monitored by the Ford Civil site supervisors through the site inspection process and compliance to the EMP will be determined.

Ford Civil will report to Client as required on the environmental issues relating to Subcontractors by the following:

- Subcontractors' SHEWMS for works being undertaken will be reviewed / approved by Ford Civil and or Client Environmental Manager or representative,
- Subcontractors will be advised by induction / toolbox meeting on the requirement to report to Ford Civil on environmental incidents which in turn will be reported to Client,
- Ford Civil Project Management will advise Client of Subcontractor environmental incidents by:
    - Telephone call to Client management with 20 minutes of the incident
    - Ford Civil initial incident report issued to the Client with 24 hours containing the sub-contractor's incident report
    - Ford Civil incident report close out as soon as practicable

Relevant documents:

→ FCC-PRO-022-Procurement Procedure

8 Legal requirement

Ford Civil has established a process for identifying and recording environmental legislation, state environmental planning policies (SEPPs), Guidelines and Australian standards applicable to the business, and then to adjust the company register to reflect the project-based health and safety requirements relevant to the scope of works for the project.

Applicability of these legal requirements and what needs to be communicated are considered within the Register of Legal and Other Requirements (FCC-FOR-021).

Ford Civil will ensure all current environmental legislation, codes of practice and Australian standards relevant to the project are readily available on site and workers are informed of the method of access.

All changes relevant to the business and project are reviewed and processes updated as required. The impact of any identified change and the prompt to review the relevant procedures that may be affected will be considered.

The company's legal requirements will be reviewed as follows:

- As a consequence of any amendments to the business/project activities;
- As a consequence of any relevant changes to Local, State or Federal Law;
- As a member of EPA, Workcover, business websites and industry forums who all inform the company of regulatory requirements;
- As part of the annual management review process.

Compliance with legal requirements will be evaluated at least once a year during the management review process. Following methods are identified as part of the ongoing evaluation of compliance process:

- Conformity of the processes, products and services at the business and project level;
- Notifications, complaints and warnings from authorities;
- Result of the audits and inspections;
- Outcomes of the management review process.

8.1 Legislative Requirements

The environmental legislation applicable to this project is listed in project legal register (FCC-FOR-021) and is detailed below

Relevant legislation	Brief summary of the legislation requirements
Contaminated Land Management Act, 1997 and amendments in 2003 (NSW EPA)	Establishes a process for investigating, where appropriated remediating land, where contamination presents a significant risk of harm to the environment.
Environmentally Hazardous Chemicals Act, 1985 (NSW EPA)	Regulates the disposal of wastes issued with a 'chemical control order' and designates chemical wastes. Designated chemical wastes that have been identified as potential contaminants of concern, for example via synthetic organic contaminants (SOC's), asbestos, PCB's and presides wastes. For disposing of asbestos and classified wastes, refer to the *Protection of the Environment Operations Act 1997.*
Heritage Act, 2002	Protects all items of environmental heritage in NSW older than 50 years regardless of cultural heritage significance.

Relevant legislation	Brief summary of the legislation requirements
National Parks and Wildlife Act, 1974	Provides protection for most fauna species and protected flora. Provides protection for Indigenous heritage in NSW. It is an offence: to harm any animal that is part of a threatened species, population or ecological community; to pick any plant that is part of threatened species, population or ecological community. It is also an offence, if a person knows that an area of land is the habitat of a threatened species, population or ecological community, to do something or fail to do something that causes damage to the habitat.
Noxious Weeds Act. 1993 (Department of Primary Industry (DPI))	Provides for the identification, classification and control of noxious weeds in NSW. Applies to the management and disposal of noxious weeds if found and removed during the works.
Protection of the Environment Operations (POEO) Act 1997 (NSW EPA)	Provides for the control of polluting activities in NSW to prevent pollution of the environment. Provides a duty to notify NSW EPA of any environmental harm from site activities.
Roads Act 1993 (RMS)	Consent/approval required for the following: • Erection of a structure in, on or over a public road • Carrying out of work in, on or over a public road • Digging up or disturbance of the road surface • Altering of the standard operation of traffic on a road (e.g. through speed zone restrictions, closures, or temporary parking changes, detours).
Soil Conservation Act, 1938 (NSW Department of Environment, Climate change and water)	Controls activities causing or likely to cause soil erosion or land degradation. Projects activities must prevent soil erosion or land degradation.
Threatened Species Conservation Act, 1995	This Act protects certain species, population's ecological communities when they are at a particular level of endangerment, e.g. the Green and Golden Bell Frog.
(Commonwealth) *Environmental Protection and Biodiversity Conservation Act, 1999 (EPBC Act)* (Department of the Environment)	The Act is triggered by developments that will have a significant impact on Matters of National Environmental Significance, including endangered ecological communities, threatened species and migratory species. The EPBC Act requires approvals to be sort by a commonwealth agency for any activity that may have a significant impact on the environment.
Water Management Act 2000 (NSW Office of Water)	Under the Act, a licence would be required if water was to be extracted from a creek/bore or if any waterways were to realigned during construction.
Native Vegetation Act 2003	The Act protects state-protected land and native vegetation as identified in the Act.
Waste Avoidance an Resource Recovery Act 2001 (WARR Act)	This Act repeals and replaces the *Waste Minimisation and Management Act 1995* and amalgamates Resource NSW, which replaces the existing Waste Planning and Management Boars and the State Waste Advisory Council. Resources NSW has subsequently been amalgamated with NSW EPA. The Act introduces a scheme to promote extended producer responsibility in place of industry waste reduction plans.
Pesticide Act 1999 (NSW EPA)	This act aims to reduce the risks associate with the use of pesticides to human health, the environment, property, industry and trade while safeguarding proper pesticide use.
Aboriginal and Torres Strait Islander Heritage Protection Act 1984	Provides general protection for Indigenous cultural property, and operates concurrently with State Legislation.

Relevant legislation	Brief summary of the legislation requirements
(DEWHA)	
National Environment Protection (Assessment of Site Contamination) Measure (NEPM) 1999	Promotes due process for site contamination assessment.
Protection of the Environment Operations (Noise Control) Regulation, 2000	Provides provisions on matters relating to noise emissions, maintenance of control equipment, use of certain articles and inspection and testing procedures.
NSW Fisheries Management act 1994 (DPI)	This Act aims to conserve threatened species, populations and ecological communities of fish and marine vegetation.
Airport Act 1996	This Act is part of the planning framework; airports are required to prepare a Master Plan that incorporates an Environment Strategy. The Master Plan is a 20 year strategic vision for the airport site which is renewed every five years. The Master Plan includes future land uses, types of permitted development, and noise and environmental impacts.
HEPA, 2020, *PFAS National Environmental Management Plan*	This plan provides guidance about per- and poly-fluoroalkyl substances referred to as PFOS, PFOA, and perfluorohexane sulfonate (PFHxS), and the obligations around classification, reuse, treatment and remediation and landfill disposal requirements.
Airports (Environment Protection) Regulations 1997	The Commonwealth has an integrated regime to protect the environment at leased federal airports. Airport operators are required to implement their Airport Environment Strategy. While the airport operator has the main responsibility of protecting the environment, everyone operating or working at an airport needs to be aware of their environmental obligations.
EPA Waste Classification Guidelines (for waste disposal)	Classifying wastes into groups that pose similar risks to the environment and human health facilitates their management and appropriate disposal. Wastes in NSW can be classified for disposal or transport into one of the following categories: • Special waste (includes clinical waste, asbestos waste and waste tire's) • Liquid waste • Hazardous waste • Restricted solid waste • General solid waste (putrescible) • General solid waste (non-putrescible)

8.2 Approvals, Licences, Permits

The following environmental approvals/ licences/ permits are applicable to this project:

- Asbestos Removal Licence
- Asbestos Removal Permit

8.3 Compliance Standards

The following compliance standards are applicable to this project:

Acts, Regulations, Legislation

- Protection of the Environment Operations Act (NSW 1997)
- Protection of the Environment Operations (Clean Air) Regulation (NSW 2010)
- Protection of the Environment Operations (General) Regulation (NSW 2009)
- Protection of the Environment Operations (Noise Control) Regulation (NSW 2008)
- Protection of the Environment Operations (Waste) Regulation (NSW 2008)
- Contaminated Land Management Act (NSW Department of Environment and Climate Change (DECC) (NSW 1997)
- Environmentally hazardous chemicals Act (NSW 1985)
- Local Government Act (NSW 1993)
- Soil Conservation Act, (DWE) (NSW 1938)
- Water Management Act (DWE) (NSW 2000)
- Waste Avoidance and Resource Recovery Act (WARR Act) (NSW 2001)
- National Environment Protection (Assessment of Site Contamination) Measure (NEPM) (Commonwealth 1994)
- NSW - Waste classification guidelines - Part 1: Classifying waste (NSW 2014)
- NSW - Waste classification guidelines - Part 2: Immobilisation of waste (NSW 2014)

Australian Standards

- AS 2436 Guide to noise Control on Construction, Maintenance and Demolition sites (1981)
- AS 1055 Acoustics – Description and Measurement of Environmental Noise (1997)
- AS 1940 the Storage and Handling of Flammable and Combustible Liquids
- AS 2107 Acoustics – Recommended Design Sound Levels and Reverberation Times for Building Interiors (2000)

Codes of Practices

- Code of Practice - How to safely remove asbestos 2019
- Code of Practice – Managing risks of hazardous chemicals in the workplace 2019
- NOHSC:1003(1995) Exposure Standards for Atmospheric Contaminants in the Occupational Environment
- NOHSC:1005(1994) National Code of Practice for the Control of Workplace Hazardous Substances
- NOHSC:1007(2000) National Code of Practice for Noise Management and Protection of Hearing – 3rd Edition
- NOHSC:1010(1994) National Standard for Plant
- NOHSC:1013(1995) National Standard for Occupational Noise
- NOHSC:2007(1994) National Code of Practice for the labelling of Workplace Substances

Relevant documents:

→ FCC-PRO-006-Legal and Other Requirements Procedure

→ FCC-FOR-021-Register of Legal and Other Requirements

9 Operational Controls

9.1 Erosion and sedimentation control

Prior to commencement of any construction works, including any earthmoving or vegetation removal works, erosion and sediment control measures are to be installed to prevent pollution of water ways.

All operations of soil and water management works are to be inspected, repaired and maintained to be initiated as required.

Soil and water management works include all measures to control erosion and sediment such as sediment filters, drains, ponds, basins, stormwater run-off and run-off controls, site stabilisation works, temporary water crossings and vehicular access controls.

The following control measures will be considered to minimise erosion:

- Land clearance should be kept to a minimum;
- Clearing areas of highly erodible soils and steep slopes which are prone to water and wind erosion should be avoided wherever possible;
- The interval between clearing and re-vegetation should be kept to an absolute minimum. Re-vegetate progressively as each section of works is completed;
- Keep vehicles to well-marked and graded access roads;
- Divert clean storm water by small levees away from those parts of site where the soil is exposed;
- Storm water drainage is to exit the site via a sedimentation control installation such as silt fencing or sedimentation basins/tanks/ponds. When sedimentation traps are up to 1/3 full of silt, the silt should be removed;
- Timber, logs and rubbish should be removed from site so soil removal and re spreading should not be interfered with;
- All excavated material should be temporarily stockpiled on the high side of the trench for periods less than 1 month;
- Where practicable, all trenches should be backfilled at the end of the working day;
- Areas should be rehabilitated progressively to reduce the potential for sediments to flow into waterways;
- Machine activity to be kept away from drainage lines unless absolutely necessary and then machine activity is to be kept to an absolute minimum;
- All works being undertaken will be carried out within the confines of the approved Site boundaries (EPL where defined by client);
- Construction plant and machinery is to remain within the construction site for the duration of the contract thus limiting the transfer of mud from the site and also the transportation of weeds;
- All drainage channels carrying storm water runoff are to be stabilised;
- Earth berms constructed in front of silt fences to reduce velocity of water striking fences

Erosion and sedimentation control devices used during construction will be provided by Ford Civil as and where required. Sediment and erosion control measures will be adequately maintained during the works and will be specifically inspected and repaired/maintained. Ford Civil will undertake the following actions on the Project in order to minimise erosion and sedimentation:

- Coordinate and oversee all erosion and sediment control aspects whilst employed on the Project;
- Address relevant erosion and sedimentation control matters at Toolbox Talk Meetings;
- Conduct regular environmental inspections using the Environmental Inspection Checklist to assess and monitor environmental control measures during the course of the Project;
- Locate and stabilise stockpiles of soil material in low hazard areas clear of watercourses (if any);
- Progressively and continually implement erosion and sediment controls to reflect changes within the construction process.

Due to the vast area covered by the project, a general description of the sediment controls to be adopted, have been provided in this section. Prior to commencing works in an area, site-specific erosion and sediment control plans for each area would be developed for approval by the Client, applying the controls outlined in accordance with the reference documents. These plans are included as Section 15.5 Attachment 5.

Best Practice/Reference

- EPA Publication 275 Construction Techniques for Sediment Pollution Control.
- EPA Publication 480 Environment Guidelines for Major Construction Sites.
- Department of Land & Water Conservation NSW “Urban Erosion & Sediment Control Field Guide” May 1996 (The BLUE book.)

9.2 Working near waterways

The following control measures will be considered to protect the water front from damage due to works being undertaken.

- Any works within 40m of a waterway to be undertaken as per the requirements under the 3A permit issued by the Department of Energy and Climate;
- Under the Strahler System, the first 10m of existing vegetated riparian zone and the creek itself will remain untouched during the works;
- Spill response kits to be onsite during works;
- Silt curtains to be installed prior to commencing sea wall works;
- Isolate spoil stockpiles, plant, and equipment from waterways;
- No storage of fuels or hazardous chemicals near waterways. Fuels stored within site compound to be bunded.

Best Practice/References

- National Parks & Wildlife Act. 1974
- Department of Primary Industries – Office of Water, Guidelines for riparian corridors on waterfront land
- POEO Act 1997

9.3 Water quality management

The following construction processes may have a detrimental effect on water quality:

- Wastewater from construction activities entering the stormwater channels;
- Spillage of diesel, petrol, oils, chemicals etc. on site.

Water quality management strategy

Various controls that will be implemented around the construction site in order to maintain water quality are as follows:

- Proper receptacles provided for waste oils and emergency clean up materials at hand. Fuel storage areas imperviously bunded to 110% of the largest drum's storage volume;
- All fuel and oil storage areas are bunded;
- Plant and equipment inspected daily through Daily Plant Inspections to ensure there are no leakages of fuel, oil and hydraulic fluid;
- Re-fuelling will not occur in the vicinity of waterways (unless absolutely necessary e.g. piling equipment);
- When concrete is delivered to the site, cleaning out of concrete truck agitators will be conducted at designed areas. These areas will be cleaned up on completion of the works, and the concrete will be incorporated in the fill or disposed of at an inert waste landfill site.

9.4 Dewatering of Work Sites

The following control measures will be considered to ensure that dewatering operations do not result in turbid water entering natural waterways.

- Treat turbid water to remove sediment prior to being pumped into storm water system or natural waterway.
- De-water by pumping water, wherever practicable on to vegetated areas of sufficient width to remove suspended soil or to sediment control devices.
- Monitor of water pH levels of controlled water discharges from site to ensure no change to the natural pH levels.

Best Practice/References:

- Landcom "Managing Urban Stormwater: Soils and Construction" 2004 (The BLUE book.)
- Australia New Zealand Environmental Conservation Council "Guidelines for Groundwater protection in Australia.
- Australia New Zealand Environmental Conservation Council "Australian Water Quality for Fresh & Marine Waters" Nov 1992
- Analysis of Water Quality indicators such as suspended solids, pH & Oil/grease by NATA accredited laboratory.
- Turbidity & Ph. Field testing using site gauges.

9.5 Erosion & Dust Control

The following control measures will be considered to minimise / avoid the health risks or loss of amenity due to emissions of dust to the environment and the loss of soil from the environment.

- Ensure that the area of cleared land is minimised during the drier months of the year when dust generation is at its greatest;
- Trees to be cleared are to cut to ground level to allow root system to hold soil matrix until ready for clearing/grubbing;
- Implement dust suppression measures such as promptly watering exposed areas when visible dust is observed or when winds are anticipated;
- Use geo textile fabrics to cover stock piles and un-vegetated areas where practicable. Do not use plastic to cover stockpiles;
- Locate stockpiles where they are protected from the wind;
- Minimise the number of stockpiles, the areas and the time stockpiles are exposed;
- Smooth surfaces should be deep ripped and left rough and cloddy to reduce wind velocity at the soil surface;
- Dust monitoring is to be installed and monitored, work practices to be changed if peaks exceed limits.

Best Practice/References:

- Dust measurement is to be by visual observation of the site by Ford Civil. In addition to externally installed dust collection gauges installed on site by specialty contractors as required.
- EPA Publication 480 Environmental Guidelines for Major Construction Sites.

9.6 Air quality management

The following processes are potential influences on the air quality of the area.

- Dust emissions from earthworks and demolition operations;
- Excessive smoke emissions from plant;
- Dust emissions from stockpiles.

Air quality management strategy

While there is a potential for localised deterioration in air quality during construction due to dust generated from exposed areas, the construction work is expected to have negligible long-term impact on air quality.

Various controls that will be implemented around the construction site in order to maintain air quality are as follows:

- Water carts/hoses to be used to suppress dust;
- Excessive mud to be removed from vehicles before entering public roads;
- The removal of mud spilt by construction equipment from public roads;
- Speed of construction plant and vehicles to be kept to a minimum to avoid the generation of dust;
- All plant and equipment to be maintained in good working order to limit the emission of smoke and dust;

- Tailgates of all trucks leaving the site to be secured prior to leaving the site to prevent any loss of materials;
- Trucks transporting materials will be covered when material is likely to cause a pollution problem;
- Open fires are not permitted;
- Work will cease or be re-programmed if dust control measures are not adequate;
- Exhaust systems to be maintained;
- Avoidance of dust emissions during any concrete drilling, cutting or demolition.

Regular environmental inspections using the Site HSE Inspection Checklist (FCC-FOR-164) will be conducted to monitor the air quality during this Project.

9.7 Air Quality (Plant Emissions)

The following control measures are to ensure there is no health risk or loss of amenity due to emissions of exhaust gases to the environment:

- Vehicles and machinery to be maintained regularly and serviced to the manufacturer's specifications;
- All vehicles, plant & machinery to be fitted with appropriate emission control equipment. Minimum requirement is USEPA Tier II or EU Stage II compliance;
- Use correct fuel for plant & machinery as directed by manufactures specifications.

Best Practice/References

If plant or machinery is emitting visible smoke continuously for longer than 10 seconds, during normal operation, then it will be serviced or replaced.

9.8 Noise management

The following control measures will be considered to ensure that nuisance from noise and vibration does not occur are:

- Maintaining working hours as per Conditions of Approval;
- Not undertaking works on any Sunday or Public Holiday;
- Identifying and using the least noisy construction methods, vehicles, plant and equipment available for the works being undertaken;
- Avoiding the simultaneous operation of more than one item of noisy plant or equipment close together;
- Ensuring that all plant, when not in use is switched off to minimise noise;
- Fitting and maintaining appropriate mufflers on earthmoving and other vehicles on site;
- Providing screening to adjoining areas as necessary to control the spread site generated noise;
- Assessing all plant and equipment to ensure suitability or the activity.

The DA preferred work hours for this Project are as follows:

- 7:00 am – 6:00 pm Monday to Friday
- 8:00 am – 1:00 pm Saturday

As per the SSDA conditions, construction works below 5dB above background levels are permitted to continue on Saturdays from 1pm until 5pm. These works exclude any high impact noise activities including, but not limited to, piling, saw cutting and rock breaking activities. High impact noise activities include anything which exceeds + 5 dBa above background noise. Works that can continue are anything below this threshold including fencing, sediment controls, steel fixing etc.

Where high impact noise activities are required, these may only be carried out between the following hours:

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

With the exception of the following emergency construction work (unplanned works), work outside these hours and weekends will only be permitted with the prior written approval from the client / principal.

The emergency construction work that may be undertaken urgently out of normal work hours to avoid:

- Loss of life,
- Damage to property, or
- Environmental harm

Ford Civil will advise Client in the event of:

- becoming aware of the need to undertake emergency construction works, and the need for those activities, and
- within 24 hours of becoming aware of the need to undertake emergency construction work, submit a detail report to the client about:
    - The circumstances leading to the emergency,
    - The nature and scope of any construction work undertaken to alleviate the emergency, and
    - The practicable measures adopted by Ford Civil to prevent any similar incident.

To ensure efficient noise attenuation performance is achieved, practicable and reasonable noise and vibration mitigation and management measures are used during construction works, including the following:

- identifying and using least noisy construction methods, vehicles, plant and equipment available for the type of work being undertaken;
- maintaining plant and equipment properly;
- strategically positioning the plant and equipment that generates high noise levels, impulsive noise, intermittent noise, low-frequency noise or tonal noise as to minimise noise and vibration impacts on surrounding noise sensitive receivers including employees;
- avoiding the simultaneous operation of more than one item of noisy plant or equipment close together and near noise sensitive receivers;
- planning the work site and work processes and taking all such practicable measures necessary to minimise movements that would activate audible reversing and movement alarms, especially during out of hours work;
- undertaking any loading or unloading operations away from noise sensitive receivers;
- selecting and locating access points and roads to the premises as far away as practicable from noise sensitive receivers;

- scheduling respite periods if the work to be undertaken would be likely to generate noise and vibration emissions from the premises and would be conducted over extended periods in the same locality;
- switching off any equipment not in use for extended periods during construction work;
- using structures and topography to shield noise sensitive receivers from noise impacts.

Where noise level exceedances cannot be avoided, consideration should be given to implementing time restrictions and/or providing periods of repose for residents where reasonable and feasible.

If required, noise monitoring must be undertaken in accordance with AS2659 and the compliance monitoring guidelines outlined in the Construction Noise and Vibration Management Sub-Plan.

Best Practice/References

- No damage to buildings/structures.
- Zero complaints from residents, council or EPA.
- Approved EPL / boundaries for the works
- POEO Act 1997
- Environmental Planning and Assessment Act 1979

9.9 Vibration management

Vibration is generated during some construction activities and has the potential to impact on human perception, buildings/structures and sensitive devices such as medical instruments or photographic equipment. The seriousness of the impact of the vibration is dependent on factors such as the type of soil, the condition of the buildings/structures, the construction activity being undertaken, the type of equipment being used, and the equipment or facilities located in nearby buildings.

Ford Civil will inspect and photograph any structure at risk from vibration impacts prior to works commencing. This inspection will be conducted with the consent of the building owner as a basis for assessing any damage that may arise from construction works.

Ford Civil will implement a range of control measures based on site-specific risk factors. These measures may include using smaller plant, reducing the magnitude of the vibration, restricting the use of vibration in compaction equipment, restricting the speed of heavy equipment, and using alternative methods, such as a hydraulic hammer instead of explosives.

A final inspection will be conducted of any building/structure considered to be at risk from vibration to ensure that no damage has occurred.

9.10 Waste management

Ford Civil should not permit or allow any waste generated outside the site to be received at the site. All waste generated at the premises will be assessed, classified and managed in accordance with the NSW EPA Waste Classification Guidelines Part 1: Classifying Waste, 2014.

Our Preferred Options

The following control measures will be considered to minimise generation of solid wastes from construction activities and to appropriately dispose the generated waste:

- Avoid the generation of waste material wherever possible;
- All solid waste should be placed in appropriately designated storage areas during construction;
- As part of progressive rehabilitation of areas any solid waste or spoil material should be removed from site and disposed of appropriately;
- Work and surrounding areas should be maintained in a tidy condition;
- There should be no vegetation burning. All waste vegetation should be chipped or mulched on-site and re-used or appropriately disposed of;
- Weeds are to be disposed of offsite in appropriate disposal facilities;
- Wastes should be collected for recycling and or disposal at Local Government designated sites;
- Maintain a high quality of housekeeping and ensure that materials are not left where they can be washed or blown away to become litter;
- Sending waste concrete from demolition to a concrete recycler instead of landfill;
- Using overburden to construct temporary noise barriers;
- Collecting lubricating oil from the construction plant and equipment and sending it to a recycler.

Waste from maintenance of machinery

Ford Civil will generally maintain earthmoving machinery, vehicles and trucks at a location off site. All waste generated during the maintenance of machinery will be disposed of by a licenced contractor.

Wastes from construction materials

Ford Civil may produce waste from products and their containers and packaging. Some types of waste generated during construction activities include:

- Paints used to paint survey markers or other features
- Two-stroke fuels for small engine-powered plant such as chain saws and generators

Wastes from effluent collection systems

Toilets, showers and sinks will produce wastes. Ford Civil will collect and dispose of wastewater from toilets (including chemical toilets), sinks and showers in accordance with the effluent management requirements of the Local Council and the EPA. Ford Civil will install septic holding systems at construction site offices as required and arrange for licenced contractors to pump them out regularly.

Wastes from other processes

Other wastes that Ford Civil will produce include paper, cardboard, photocopier toner, printer cartridges, plastics, packaging and batteries. Where possible, materials will be recycled (e.g. paper, cardboards, plastic etc.).

Spoil Management

Prior to carting any spoil off site, the material will be assessed by a qualified person and a waste classification report will be provided. This report will then be provided to a licenced facility prior to loading out and disposing of any material.

The following in-situ waste classifications have been received/are expected to be encountered on the project. Noting that these volumes are only approximate and may change throughout the course of the Project pending the suitability of the material.

Material Classification	Quantity to be disposed	Quantity to be re-used
VENM	9,435 m^3	-
General Solid Waste (Non-Putrescible)	-	200 m^3
General Solid Waste with Special (Asbestos) Waste	0 m^3	15,500 m^3

The re-use and capping of the contaminated fill is to be in accordance with the Remediation Action Plan (RAP) prepared by JBS&G. *Refer to MSCP Report 56200/131434 (Rev 0) dated 16 June 2021 and PSB Report 56200/133,598 (Rev 0) dated 29 July 2021*.

Acid Sulfate Soil Management

The site has been assessed and no indicators of ASS or potential ASS (PASS) were observed in any of the sample locations. Regardless, the site will be managed for any acid sulfate soil (ASS) and potential acid sulfate soil (PASS), in accordance with the 1998 Acid Sulfate Soils Manual.

Waste minimisation and recycling

Ford Civil will strive to produce minimal waste during construction works. Where possible, materials will be reused on site or on other projects or will be removed from site by a licenced contractor for recycling. All non-recyclable/non-reusable waste will be removed from site by a licenced contractor for disposal at a licenced waste facility.

Liquid and chemical wastes

Ford Civil will store and dispose of liquid and chemical wastes as required by the current waste legislation and the Environmental Guidelines.

Waste relocation

If waste is transported from site, the waste should be:

- Transported by a company authorised to transport the relevant waste classification; and
- To a place that can lawfully accept that waste;
- Recorded in a waste disposal register, including details of type, quantity and destination;
- The body of any vehicle or trailer, used to transport waste or excavation spoil from the site, is covered before leaving the site to prevent any spill or escape of any dust, waste, or spoil from the vehicle or trailer; and
- Mud, splatter, dust and other material likely to fall from or be cast off the wheels, underside or body of any vehicle, trailer or motorised plant leaving the site, is removed before the vehicle, trailer or motorised plant leaves site.

All concrete rinse water is collected and managed onsite in accordance with Environmental Best Management Practice Guideline for Concrete Contractors, 2004 or disposed of to a facility licenced to receive and treat concrete rinse water.

Concrete washouts will be planned, designed and managed as detailed within images below.

Best Practice/Reference

Once targets for waste minimisation have been set maintain data and convert this to cost savings where possible.

- Soil conservation Act, 1938

Relevant documents:

→ FCC-FOR-185-Material Tracking Register

9.11 Storage of Fuels & Chemicals on Site

The following control measures will be considered to ensure that chemical and fuel storage is safe, and that any materials that escape do not cause environmental damage such as groundwater or soil contamination.

- Minimise chemical and fuels stored on the site. (Materials in general will be restricted to marker paints, cutting oils, etc. & fuels to be restricted to approximately 4 x 5 litre containers of petrol for tampers, generator use.)
- The Ford Civil site vehicles will be refuelled off site at the local service station;
- All Ford Civil site vehicles to carry spill kits suitable for small spills / leaks;
- Store minimal fuels and other hazardous materials in appropriately bunded structures (spill trays.) away from creeks and drainage lines;
- Bunds should be impervious (PVC containers capable of holding product to 110% of capacity) to prevent spilled product from escaping;
- Any spillage should be cleaned up immediately;
- Maintain a list of chemicals and other potentially hazardous material and material safety data sheets;
- Restrict the area in which hazardous materials can be stored (Produce lockable flammable / hazardous – materials storage cupboard within the Ford Civil compound.) during construction works;
- No planned plant maintenance to be carried out on site. All planned maintenance work is to be carried in the Ford Civil site compound;
- Emergency / breakdown works on plant can only occur once client/authority is notified;
- The contingency plan for this project (minimal fuels / products) will be to have a spill kit bag / fire extinguisher available for all works where potential for leaks / spills / fire could occur. All leaks / spills are to be cleaned up as they occur;
- Notification of incidents will be directed to Environment Manager / Representative;
- A lockable store will be provided for all potentially hazardous products.

Best Practice/Reference

- Australian Standard 1940- The Storage and Handling of Flammable and Combustible Liquids.
- Implement a contingency plan to handle spills, so that environmental damage is avoided.

9.12 Spill prevention and containment

All due care will be taken in the transfer of material from transport vehicles to the storage compound to minimise the potential for leakage or spills.

The storage of fuel, oil and chemicals on site are to be minimised to reduce the chance of spillage.

Impervious bunds of sufficient capacity, able to contain at least 110% of the volume of the largest container of stored chemical, fuel or oil must be constructed around all chemical, fuel and lubricant storage areas.

Fuelling of plant and equipment

- Fuelling of all plant and equipment is to take place as far as possible and practicable from existing stormwater drainage lines (temporary or otherwise) and sediment basins. Extreme care is to be taken should this situation be unavoidable.
- The Operator must be in attendance at all times during the fuelling process. Fuelling activities are to never be left unattended.
- Absorbent materials (spill kit) are to be available at all times during any fuelling activity. Absorbent material shall be used to absorb any minor drips or spills that may occur.
- Storage of fuel containers is to be in a designated and bunded storage area.

9.13 Herbicides and other chemicals

If herbicides or other chemicals are to be used during the Project, the HSEQ team and Project Manager will document a plan for their safe use. Controls will be implemented and documented.

9.14 Contaminated ground

Any contaminated spoil identified during construction works is to be taken to an approved contaminated waste depot appropriate to the type of contamination.

A record of waste disposal is to be obtained to record proper safe disposal of the material where possible.

9.15 Maintenance of Roadways (Dirty Roads)

The following control measures will be considered to ensure that roads are kept clean of soil:

- Prevention of soil being deposited on roads is preferable to cleaning them afterwards;
- Utilise rubble grids / wheel wash for any item leaving site which is unsealed;
- Utilise geofabric on the entry/ exit point for vehicles to drive on;
- Cover all loads of soil being transported for off-site disposal;
- If required, install litter traps, lined with filter cloth in all side entry pits;
- Roads are to be swept or washed down;
- Vehicle and Plant decontamination.

9.16 Traffic management

The following control measures will be considered to manage traffic to and from site, with in site boundaries:

- Ensure public safety – no parking of vehicles on public or crown land;
- Ensure adequate access to work sites – defined pedestrian access paths;
- Ensure that road damage due to construction traffic is monitored and addressed in a way that is satisfactory to the relevant authority;
- Ensure that disruptions to traffic flows on public streets are managed to the satisfaction of the relevant road authority;
- Ensure that disruption to public transport services are managed to the satisfaction of the relevant transport provider;

- Ensure that affected local residences, businesses and commuters are advised of any disruption to traffic flows and public transport services;
- Reduce the exposure of the community to construction heavy vehicle traffic and its associated noise and vibration – by planning work;
- The site location plan (Attachment 4) will define haul, vehicular and pedestrian movements across the site.

The above traffic management measures are further addressed in the Construction Traffic and Pedestrian Management Sub Plan which has been included as Appendix A of this CEMP.

FCC's Heavy Vehicle National Licence (HVNL) Chain of Responsibility Policy is also included as part of the sub plan and will be distributed to all transport suppliers and subcontractors to ensure the impacts of the Project on the local hospital network are minimised.

Best Practice/Reference

- Road Occupancy Manual
- TfNSW Delegation to Councils Regulation to Traffic
- TfNSW's Traffic Control at Work Sites Technical Manual, Issue 6.0

9.17 Management of Stockpiles

The following control measures will be considered to manage soil stockpiles so that dust and sediment in run-off is minimised:

- Minimise the number of stockpiles, and the area and the time stockpiles are exposed;
- Locate stockpiles away from drainage lines at least 10m, away from natural waterways and where they should be less susceptible to wind erosion;
- Ensure that stockpiles have slopes no greater than 2:1 (horizontal: vertical);
- Stabilise stockpiles that should remain bare for more than 7 days by covering with anchored fabric or by seeding;
- Establish sediment controls around unstabilised stockpiles;
- Suppress dust generation from stockpiles as circumstance demand;
- Provide screening to adjoining areas as necessary to control the spread of site generated dust;
- Stockpiles should not be located under the drip line of trees or near protected trees;
- Test material in areas of excavation for waste classification prior to commencing excavation works to enable prompt off-site disposal and minimise creation of stockpiles. Frequency of testing will be dependent on volume of material to be disposed;
- Prior to commencing, stockpile areas to be nominated for each stage of the works, subject to waste classification.

Best Practice/Reference

- EPA Publication 275 Environmental Guidelines for Major Construction Sites.

9.18 Flora and fauna management

During construction work activities care will be taken to minimise disturbance to native flora and fauna. Environmentally sensitive areas will be fenced off to prevent access to the area by employees and mobile plant.

Vegetation Protection (Protected tree zones)

Any vegetation requiring protection (trees etc.) will be barricaded at their dripline and marked to prevent damage to the vegetation for the duration of the construction works.

The following control measures will be considered to protect indigenous flora / vegetation and habitat in the construction work area and to reinstate vegetation and habitat as the works progress.

- Weed contamination in construction work areas;
- Soil compaction especially under tree canopy;
- Protection of indigenous flora / vegetation;
- Protection of Topsoil.

The following control measures will be implemented as required before and during the construction works of this project:

- To control weed contamination of site, trucks and other construction plant should not move from areas where there is significant weed contamination to areas where there is minimal weed contamination;
- Prior to commencing work on site, all construction equipment and trucks shall be free of weed contamination;
- Works to be programmed to minimise the potential for weed contamination. Trucks should start work in minimal weed contaminated areas and move to areas where there is a higher degree of weed contamination;
- All construction vehicles to be prevented from travelling too close to trees or under a tree canopy/drip line;
- Vehicular traffic should be prevented from travelling close to trees by placing some star pickets and webbing around the tree;
- Construction materials should not be stored within these areas;
- Appropriate treatment & disposal of removed vegetation. Implementation of a rehabilitation program of land that has been disturbed by construction activities;
- Program to include landscaping using a diversity of local and indigenous plant/grass species;
- Topsoil should be stockpiled and returned to the site from which it was removed with the original contours;
- If soil compaction has occurred the soil should be loosened to ensure that plant growth is not inhibited and that infiltration of water to the soil layer can occur;
- In pasture or recreation areas, grasses should be sown appropriate to the use of the site in consultation with the local council and landowners;
- Material for rehabilitation should be from areas which are not infested with weeds or other exotic flora;
- The sources should be checked for weeds prior to transportation to site;
- The works are programmed to ensure that weed-infested soil, vegetation and chipped mulch does not get transported to other parts of site during the course of the works;
- Define work and exclusion areas i.e., fencing.

Weed management

Care will be taken to avoid the spread of weeds around project sites. Where required, weeds will be removed manually from the site and be disposed of appropriately (licenced waste facility) or will be poisoned. Wheel wash facilities will be provided while working in environmentally sensitive areas.

Protection of Fauna

The following control measures are to protect native vertebrate fauna from being trapped:

- All open trenches should be inspected prior to commencement of work each day for trapped vertebrate fauna such as frogs, reptiles, birds or mammals;
- If it is found that there are trapped vertebrate fauna in open trenches then an appropriate shelter for animals should be contacted to remove it from the trench;
- Wherever possible ensure that all trenches are backfilled each night;
- All shafts should be covered at the end of each working day to prevent vertebrate fauna from entering.

Best Practice/Reference

- Seek expert advice from Department of Natural Resources and Environment and the RSPCA.
- 'Bush Regeneration', Buchanan 1989

9.19 Fire precautions

- No fires are to be lit on site;
- Smoking must only occur in designated smoking areas with appropriate controls, noting that no smoking is permitted on hospital grounds;
- A fire extinguisher/fire hose must be available nearby when conducting hot works and a hot works permit must be in place.

9.20 Heritage & Archaeology

Construction activities in significant heritage/archaeological areas can lead to loss or destruction of valuable artefacts and relics, and the disturbance of historical sites. Ford Civil will work co-operatively with the Client and/or specialist consultant to survey project sites for areas of significant importance if required.

The following control measures will be considered to prevent damage or loss to heritage places and objects which would result in loss of cultural, historic and educational value to the community. Ford Civil will:

- advise relevant representatives of the Construction Program in advance so that they can be on site during construction if necessary;
- fence heritage or archaeological sites that are known at the onset of project;
- place signs to indicate area is a “NO GO” area;
- ensure that the appropriate permits/authorisations (if any) have been received prior to undertaking work in areas that may contain heritage items.

Should any relic, artefact or material suspect of being of Indigenous or European origin be encountered, construction work that might affect the item must cease immediately. The relic, artefact or material is to be protected from damage or disturbance, and the Office of Environment and Heritage (NSW) will be notified of the find, for guidance.

In the event of any find Department of Environment, Climate change and water must be notified immediately.

Best Practice/References

- Not to lose, destroy or deface any sites of historical or archaeological significance.
- NSW Heritage Act. 1997
- National Parks & Wildlife Act. 1974
- Department of Environment, Climate change and water

PROCEDURE IN THE EVENT OF AN UNEXPECTED FIND

Should an unexpected find of potential contamination be encountered during the works, the following procedure (Steps 1 to 10) should be followed with reference to the Incident Response Flow Chart.

It must additionally be ensured that implemented procedures are in accordance with another adopted site documentation, such as the Environmental Management Plan, Health and Safety Management Plan and Project Unexpected Finds Protocol.

1. Identified finding by worker
2. Cease work as soon as safe to do so and move clear of the finding.
3. Do not tamper or attempt to remove the finding.
4. Contact Management immediately.
5. Site Management to delineate an exclusion or quarantine zone around the area using fencing and or appropriate barriers and signage.
6. If not already done, Site Manager is to notify the Project Manager and or Construction Manager.
7. Cover area with tarps if practicable to preserve finding.

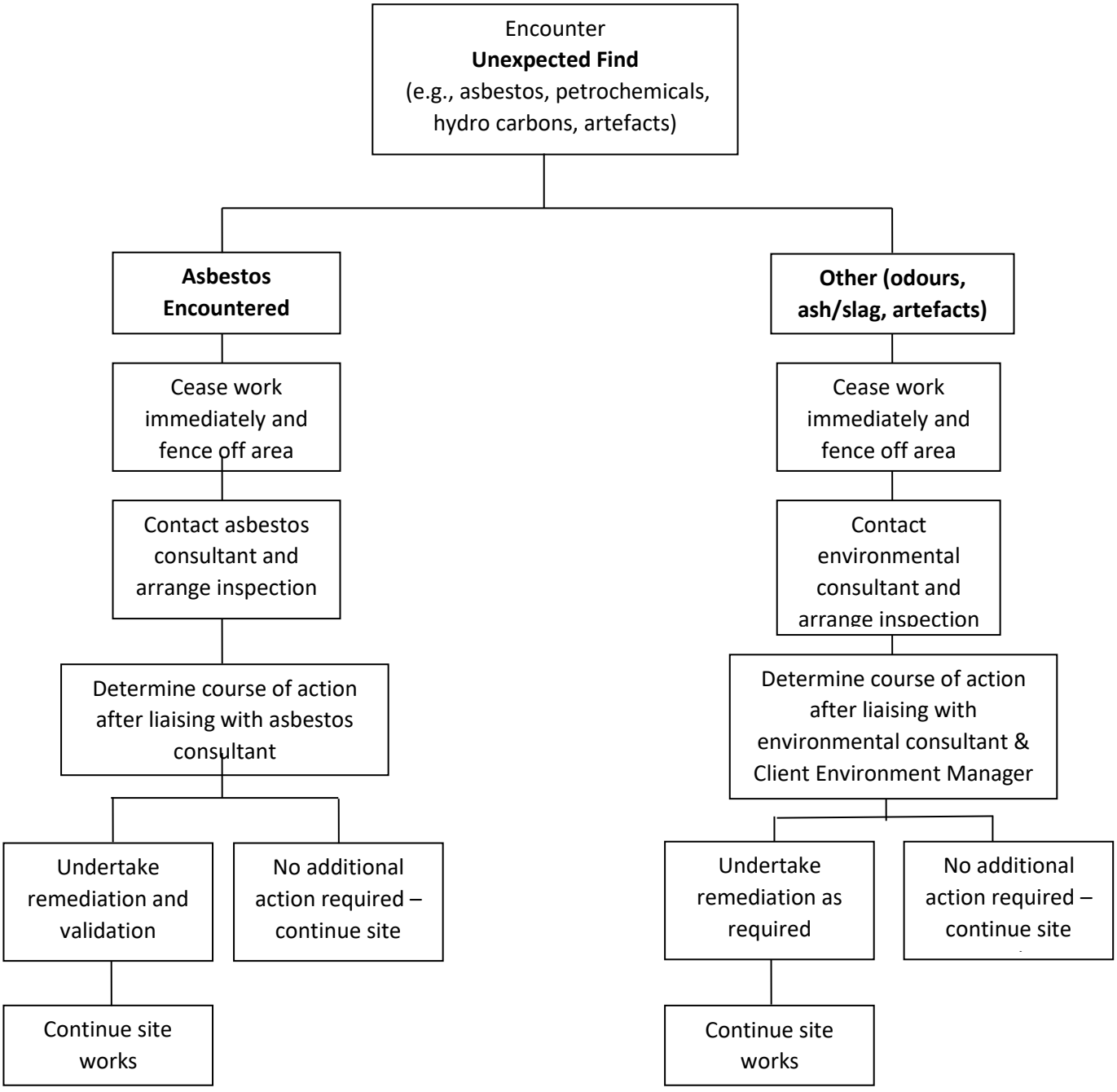
8. A suitable person (Site Manager) will initially assess the potential risk to health or the environment by the finding and asses if evacuation or emergency services need to be contacted.
9. Project Manager will arrange inspection by an external Environmental / Heritage Consultant to assess the finding and provide advice as follows:
    - Preliminary assessment of the find and need for immediate management controls.
    - What further assessment and/or remediation works are required and how such works are to be undertaken in accordance with contaminated site regulations and guidelines.
    - Preparation of a remedial action plan for large scale contamination or specification for smaller or minor volumes of material
    - Remediation works required
    - Validation works required following remediation works
10. Works will not to recommence in the affected area until appropriate advice has been obtained from the consultant or suitably qualified person with approval to recommence.

9.21 Unexpected finds

The following control measures will be considered to protect persons from being exposed unidentified/unexpected material or substance/service which may be uncovered during the excavation process. This may include but not limited to asbestos both bonded and friable, odorous or stained hydrocarbon impacted soils and demolition wasted etc. Should an Unexpected Find be encountered, the below process should be followed. This is further referenced in the Project Unexpected Finds Protocol.

- Any unidentified/unexpected material or substance found will cause the task to be immediately stopped.
- Where unidentified services are located which are not found on service checks cause the task to be immediately stopped.
- The area is to then to be taped off and immediately HSEQ team to be informed.
- No works can recommence until:
    - The material is identified;
    - Client approves works to re-commence;
    - Disposal process is clarified and approved;
    - Tip locations for the material are approved.
- All additional work in relation to unidentified/unexpected material or substances are to be documented clearly in the site supervisor’s diary and or any variations sheets signed by the client

Unexpected finds flow chart



Best Practice/References

- Safe Work Australia CoP for the How to Safety Remove Asbestos October 2018
- POEO Act 1997

9.22 Odour control

The following control measures will be considered to protect persons from being exposed unidentified/unexpected material or substance/service which may be uncovered during the excavation process.

- Implementing odour control strategies such as odour suppressants and covering stockpiles with geo textile or plastic sheeting and monitoring effectiveness of the controls.
- Odours materials will be sprayed with odour suppressant at the source during excavation or removal from a stockpile.
- Implementing dust control strategies such as dust suppression, keeping works areas damp to reduce the odour during the works.

9.23 Ground water contamination

Groundwater contamination can occur when three main components exist: a potential source of contamination; an aquifer as the receptor; and a pathway for transfer between the two.

One of the primary pathways for groundwater contamination is infiltration of contaminants from the land surface, through the unsaturated zone, and to the unconfined aquifer below. Shallow unconfined aquifers (including karstic, conduit and fractured rock aquifers) are particularly vulnerable to contamination, especially where the associated land use includes hazardous activities with uncontrolled contamination sources. The porosity and permeability of the unsaturated zone contributes significantly to the travel time of contaminants between the source and the groundwater. A highly porous or permeable unsaturated zone, such as karst limestone, can result in the relatively quick transfer of contaminants from the surface to groundwater. However, 'reaction' of contaminants with the soil and rock of the unsaturated zone can slow or even stop contamination reaching groundwater. The unsaturated zone can be an important consideration in groundwater quality management.

Human-induced contamination is most often referred to as either point source or diffuse source. Point sources refer to localised contamination, often centred on one or more identifiable locations.

Many industrial chemicals are in use in Australia. Leaks, spills and other releases of these chemicals pose a risk to groundwater quality.

Changing groundwater levels have the potential to cause water quality changes as a result of processes such as seawater intrusion and mobilisation of acidity and metals in sulfidic soil or rock. In some cases, these can have detrimental impacts. Such changes in groundwater levels and consequent changes in groundwater quality may result from anthropogenic processes such as groundwater pumping and climate change as well as from natural climate variability. Falling groundwater levels have resulted in the drying of some wetlands. This can oxidise acid sulfate soils, which creates acidic conditions that mobilise metals and sometimes release arsenic. Falling groundwater levels due to pumping can also result in seawater intrusion into a fresh aquifer or leakage of higher- salinity groundwater into a fresher aquifer. On the other hand, rising groundwater levels or changes in groundwater flow directions can cause flow of contaminated or poor-quality groundwater into streams and wetlands. They can also bring salts in the groundwater to the surface and cause dryland and stream salinity.

- As such ground water is to be separated during dewatering to ensure the water is not contaminated through works or by accident.

9.24 Light pollution

Clinically speaking, there are three main types of light pollution. These include glare, light trespass and skyglow (in addition to over-illumination and clutter).

Glare from unshielded lighting is a public-health hazard—especially the older you become. Glare light scattering in the eye can cause loss of contrast and can be temporarily blinding which can cause reduced visibility and subsequently lead to unsafe driving conditions.

Light trespass occurs when unwanted light enters one's property, for example, by shining unwanted light into a bedroom window of a person trying to sleep. As there are no night works on the Project, the risk of light trespass into nearby patient rooms is minimal.

Skyglow refers to the glow effect that can be seen in over populated areas. Skyglow is the combination of all the reflected light and upward-directed (unshielded) light escaping up into the sky (and for the most part, unused).

While shielding light can significantly reduce all three of these types of light pollution it is not always practical. For example, street lighting is required around the hospital precinct to illuminate pedestrian pathways and roads for the safety of all users.

All lighting installed as part of the Project, be it temporary or permanent, will be installed to comply with AS 4282-2019. Noting that the only lighting included in FCC's Scope of Works is the relocation of the solar lighting on Redbank Rd. As this is replacing like for like there will be negligible impact on all three types of light pollution outlined above.

10 Environmental Monitoring, Auditing and inspections

The environmental monitoring will be undertaken in compliance to Ford Civil EMP in addition to the audit requirements of Client and their nominated representatives to achieve zero harm to the environment. Project forms will be developed throughout the life of the project, for registering the observance and tracking of dust, noise, substances, incident management, and waste tracking logs.

Ford Civil's internal Audit program ensures that all aspects of its activities comply with the principles and requirements of its HSEQ Management System. Internal Audits are planned to be conducted and reported in accordance with Client requirements and Ford Civil's internal audit schedule. In general, audits will be conducted at half yearly intervals to assess the status of EMP implementation on larger projects. Within any particular area of the company, decisions on activities/procedures to be audited are based on the risk assessment within that area and previous audit results.

HSEQ Inspections of all work areas are to be carried out by the HSEQ team at a rate of least one inspection per month. All unsafe work practices, equipment, work areas etc. are to be documented, including corrective actions. The inspections will be completed using the 'Site HSE Inspection Checklists' (FCC-FOR-164).

Workplace inspections:

- will be conducted in consultation and involvement with workers;
- will be conducted by Project team, HSEQ team;
- will be conducted to verify and check SHEWMS control measures are being implemented in accordance with SHEWMS used on the site at the time of the inspection and are effective in controlling risks and hazards;

- will be conducted by Ford Civil and subcontractors together. Subcontractors would participate in inspections on more than just their own immediate work area;
- frequency will be determined by the HSE inspection schedule or in accordance with client or principal contractor requirements (whichever is the greater frequency). In general inspections will be conducted at the following frequency:
    - the Ford Civil site supervisory staff, as part of their daily duties will conduct daily inspections of the site under their control, (including Ford Civil subcontractor activities) and note the issues in daily site diaries.
    - weekly Site Inspections – The Ford Civil site nominated environmental representative will conduct formal weekly HSE inspections of the site by using Site HSE Inspection Checklist (FCC-FOR-164). This checklist would prevent a "tick and flick "approach. This checklist may be modified to cover site-specific activities for compliance with the EMP. Site supervisory staff will manage corrective actions arising from inspections within their areas of control. The completed checklists will be retained on site for audit purposes by Ford Civil.
    - daily prestart meetings will incorporate an environmental section.
- frequency may need to be increased according to the risks identified onsite.

Relevant documents:

→ FCC-PRO-036-Audit Procedure

→ FCC-FOR-167-Audit Schedule and Register

→ FCC-FOR-164-Site HSE Inspection Checklist

11 Nonconformances and Corrective Actions

The non-conformances and corrective actions arising from audits / inspections and incidents will be resolved as per Audit Procedure (FCC-PRO-036) and Incident Management Procedure (FCC-PRO-034) respectively. During the audit/inspection, the auditor/inspector will review the status of previously identified corrective actions to ensure that the corrective actions are implemented effectively and if required raise an Incident Report (FCC-FOR-191).

Any nonconformances/corrective actions arising from the audits or inspections of client or statutory authorities will be captured in Ford Civil management system, same as Ford Civil audits/inspections.

The Ford Civil Project Manager or nominated representative will regularly review the Audit Register (FCC-FOR-167) and Incident Register (FCC-FOR-192) to check that actions are being completed on time. In addition to the above, where an issue is judged to be of a more serious nature, and has been identified repeatedly or constitutes an exceedance of regulatory obligations, the work on the identified operation or site will cease until remedial action is taken to eliminate the issue.

The nonconformances / corrective actions identified as a result of audits and inspections may necessitate the need to review in management review meetings.

Relevant documents:

→ FCC-PRO-034-Incident Management Procedure

→ FCC-PRO-033-Control of Nonconformities and Corrective Actions Procedure

→ FCC-PRO-037-HSEQ Management System Review Procedure

→ FCC-FOR-167-Audit Register

→ FCC-FOR-191-Incident Report

→ FCC-FOR-192-Incident Register

12 Project performance measurement

A process has been established for monitoring, measurement, analysis and performance evaluation the Ford Civil's Environmental management system. The progress towards achievement of the project level environmental objectives and KPIs is the main way to monitor and measure the environmental performance.

The project performance reports will be prepared by the Project Manager on a monthly basis and the outcomes are included into the business reporting processes.

Relevant documents:

→ FCC-PRO-031 - Monitoring, measuring and Reporting procedure

→ FCC-FOR-200 – Corporate HSEQ Performance Report

→ FCC-FOR-201-HSEQ Statistics Report

→ FCC-FOR-203-Project Progress Report

13 Project documented information management

The documented information management process has been established to ensure that project documents are maintained to meet financial, contractual and legislative requirements and that all documents are reviewed and approved by authorised personnel, prior to release.

The project manager is authorised to approve project specific documentation. Project folders have been established to maintain project documentation / records.

All printed copies of documents held on project sites are considered uncontrolled and valid only on the day of printing. Project team is responsible for all site document control and will inform the HSEQ team of any changes to site documentation.

The Ford Civil is responsible to adequately protect all documented information from loss of confidentiality, improper use or loss of integrity.

All documented information (including the documented information of external origin) is identified and controlled to address the business, project and legal requirements.

Relevant documents:

→ FCC-FOR-004-Document and Data Management Procedure

14 Glossary / Abbreviation

EMP	(Project) Environmental Management Plan
*E*PA	Environmental Protection Authority
EPL	Environmental Protection Licence
FCC	Ford Civil Contracting Pty Ltd.
HIRAC	Hazard Identification, Risk Assessment and Control
HSEQ	Health & Safety, Environmental and Quality
HSEQ Management System	Integrated Management System (Quality, Health & Safety, Environmental Management System)
NC	Non-Conformity
NCR	Non-conformance Report
Premises	Boundary of works prescribed under the contract
SDS	Safety Data Sheet
SEPP	State Environmental Planning Policies
SHEWMS	Safety, Health and Environmental Method Statement
TMP	Traffic Management Plan

15 List of Attachments

1 Environmental Policy
2 Project Induction
3 HSEQ Risk Register (Environmental)
4 Site Locality / Layout
5 Erosion & Sediment Control Plans
6 Disruption Notice Templates (SCHN & WSLHD)
7 HI/SCHN Complaints Management Procedure

15.1 Attachment 1: Environmental Policy

FORD CIVIL
REMEDIATION
INFRASTRUCTURE
ROADWORKS
BULK EARTHWORKS
ENVIRONMENTAL
LANDSCAPING

FCC-POL-003
Rev.1
10/01/2022

Environmental Policy

Ford Civil recognises that environmental conservation is one of the important issues of our community. We recognise the importance of maintaining a high standard of environmental care in conducting our activities. From design and supply, installation, construction, commissioning and maintenance.

Ford Civil will:

- → Ensure ongoing compliance with all relevant statutory and other obligations, standards, specifications and codes of practice as well as the requirements of ISO 14001 standard
- → Set objectives and targets and ensure that the resources needed to maintain and continually improve the environmental management system are available
- → Direct and support persons to contribute to the effectiveness of the environmental management system, as well as other relevant management roles to demonstrate their leadership as it applies to their areas of responsibility
- → Manage our diverse activities in preventing or minimising pollution and impacts on visual amenity, air, water, land, flora, fauna and cultural and heritage values
- → Strive to improve resource consumption efficiency and minimising waste generation in our services, also implement recycling of materials.
- → Enhance organisation's capability by competent, empowered and engaged employees at all levels through the company
- → Consult and communicate with employees and subcontractors and other relevant interested parties in matters relating to the quality, health, safety and environment
- → Identify, report, investigate and resolve all non-conformances and incidents and take appropriate action and place new controls to prevent recurrence

To comply with our policy, our staff will receive adequate induction and training to enable them to follow our systems and procedures.

This policy will apply to all employees and contractors and is reviewed periodically to ensure it remains relevant to the operations and activities of Ford Civil.

Alan Gordon

Chief Executive Officer

EXPERIENCE YOU CAN TRUST

P 02 9597 4122
F 02 9597 4966

fordcivil.com.au
info@fordcivil.com.au

ABN: 24 002 542 814
PO BOX 26 Arncliffe NSW, 2205

15.2 Attachment 2: Induction Document

Project Induction information

Project Name:	CHW Stage 2 Enabling Works	**Project No.:**	WENAB2

Personal Contact Details	***PLEASE PRINT CLEARLY***		
FULL NAME			
POSITION EMPLOYED AS			
COMPANY NAME		DATE OF BIRTH	
HOME ADDRESS			
	SUBURB	POST CODE	
MAILING ADDRESS			
	SUBURB	POST CODE	
MOBILE NUMBER			
HOME NUMBER			
IN EVENT OF AN EMERGENCY	CONTACT NAME: (not wife /son/daughter - actual name)		
	RELATIONSHIP:		
	CONTACT NUMBERS: (M)		
	(Other)		
DATE COMMENCED:			
Do you identify with being Torres Strait Islander or Aboriginal ☐ Yes ☐ No			

TRAINING (attach copies of certificates to this form)			
WHS General Construction Induction No:		State of Issue:	
		Date of Issue:	
ID proof number			
Competency	**Expiry Date**	**Competency**	**Expiry Date**
Confined Space		Apply First Aid	
High Risk Work Licence *(circle competency: LF, DG, RB, RI, RA, SB, SI, SA, Crane: ___, Hoist: ___)*		Rail Industry Safety Induction	
		Driver Licence – Class:____ Number: _____	
Traffic Control (SafeWork NSW Ticket)		Other	
Competency	**Issue Date**	**Competency**	**Issue Date**
Manual Handling		Operator *(circle: LE, LB, LL, LS)*	
Electrical Test & Tag		OHS Committee training (HSR)	
Other			

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Project Induction information

Please answer the following questions and tick the appropriate box. Be sure to answer each question fully (*If yes, please explain as appropriate)*	YES	NO
GENERAL HEALTH & FITNESS FOR WORK *(tick as appropriate);*		
Do you suffer from any health (physical or psychological) condition or disability that, either currently or in the foreseeable future, is likely to be exacerbated by the proposed job requirements or affect your physical / psychological ability to undertake the tasks required of the proposed job?	**YES**	**NO**
Details:		
Diabetes?		
Blood Pressure? (HIGH / LOW) Treated with medication (YES / NO)		
Asthma or Other respiratory illness? *If Other please state:*		
Allergies? *If YES please state to what:*		
Epilepsy?		
Do you or have you ever suffered from dizziness / light headedness / fainting spells?		
Claustrophobia? *(Have a fear of small or enclosed spaces)*		
Have you **EVER** received or are you currently receiving a Workers Compensation Claim payment?		
If yes, please provide basic details such as; Date of Injury, Type of Injury sustained, severity of injury, current medical status of injury, details of any ongoing rehabilitative or medical treatment, insurance company		
If **YES** to **ANY** of the above have you advised your employing company?		

WORK RIGHTS IN AUSTRALIA					
Are you a citizen or permanent resident of Australia? *Please circle as appropriate*				YES	NO
If No; State the TYPE (include VISA category e.g. 417, 419, 457 etc) and expiry date of Visa, Attach a copy of your passport and visa to this form	Tourist	Working	Sponsorship	Other	Expires

DECLARATION

I, (the Inductee / Trainee) hereby acknowledge that I have been taken through the project/ site Induction and have fully understood all the information that was presented to me. I have had my questions regarding Quality, Environmental or Work Health and Safety policies, procedures and practices as described in the induction materials answered. I have been provided access to copies of current company policies and or procedures. I have reviewed a Safety, health and Environmental Work Method Statement and understand its contents.

INDUCTEE'S SIGNATURE	DATE OF INDUCTION

I (the Inductor / Trainer) declare this candidate has fully completed the Induction and is considered fully competent in the English Language, sufficient for safe work and instruction to be carried out as demonstrated during the Induction.

TRAINER'S NAME (PRINT)	TRAINER'S SIGNATURE	DATE OF INDUCTION

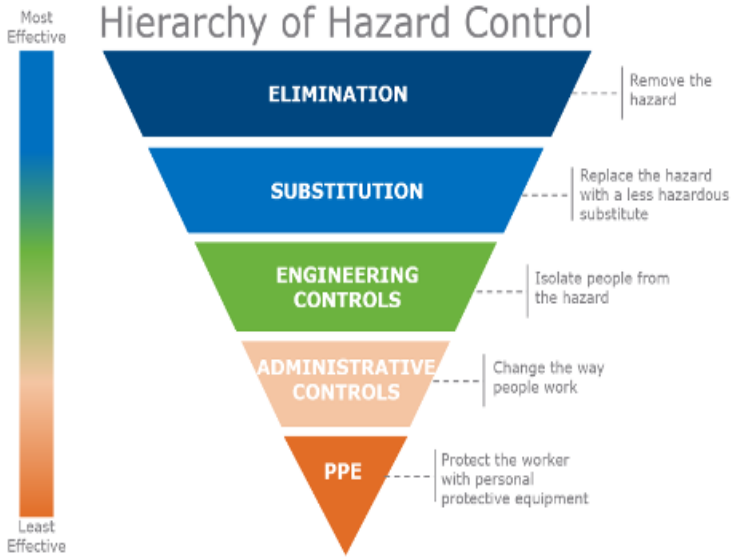
15.3 Attachment 3: Risk Register (Environmental)

15.3.1 Risk Matrix

Consequence (Impact) Table				
Impact Band	**Health & Safety**	**Environment & Heritage**	**Plant Damage**	**Business Reputation & Financial**
Substantial- (5)	Fatal Incident	Permanent widespread ecological damage	Machine unrepairable	International/national negative media coverage. Serious impact on the business. Loss of business from key sector. >$1m lost
Major – (4)	Permanent Injury: Damage, which permanently alters a person's future (e.g. quadriplegia, paraplegia, amputation of a limb)	Heavy ecological damage, costly restoration	Major damage - > 5 days to return to service	Sustained national negative media coverage. Major impact on the business. Loss of long-term key client. $50k-$1m lost
Moderate – (3)	Lost Time Injury: Damage, which temporarily alters a person's future	Major but recoverable ecological damage	Serious damage - < 5 days to return to service	Regional/short negative media coverage. Some impact on the business. Loss of client/project. $50k-$250k lost.
Minor – (2)	Medical Treatment: Damage, which temporarily inconveniences a person	Limited but medium term damage	Minor damage - repaired within the same day	Local negative media coverage. Minor impact on the business. Site or Project problem. $10k – $50k lost.
Negligible – (1)	First Aid Treatment: Actual injury which requires no treatment or simple first aid	Short term damage	Negligible damage - no machine downtime	Brief local negative or no media coverage. Community complaints and dissatisfaction. <$10k lost.

Probability (Likelihood) Table			
Probability Band	**Description**		
Almost Certain – (E)	The threat can be expected to occur 75% - 99%	Common / Frequent Occurrence	**More than 1 event per month**
Likely – (D)	The threat will quite commonly occur 50% - 75%	Is known to occur or "It has happened regularly"	**More than 1 event per year**
Possible – (C)	The threat may occasionally occur 25% - 50%	Could occur or "I've heard of it happening"	**1 event per 1 – 10 years**
Unlikely – (B)	The threat could infrequently occur 10% - 25%	Not likely to occur very often	**1 event per 10 – 100 years**
Rare – (A)	The threat may occur in exceptional circumstances 0% - 10%	Conceivable but only in exceptional circumstances	**Less than 1 event per 100 years**

Consequence (Impact) Table						
Risk Assessment Matrix		**Negligible (1)**	**Minor (2)**	**Moderate (3)**	**Major (4)**	**Substantial (5)**
Probability (Likelihood)	**Almost Certain (E)**	Low (5)	Medium (10)	Very High (18)	Extreme (23)	Extreme (25)
	Likely (D)	Low (4)	Medium (9)	Very High (17)	Very High (20)	Extreme (24)
	Possible (C)	Low (3)	Medium (8)	High (13)	Very High (19)	Very High (22)
	Unlikely (B)	Low (2)	Low (7)	High (12)	High (15)	Very High (21)
	Rare (A)	Low (1)	Low (6)	Medium (11)	High (14)	High (16)



Note:

Any task that after controls in place is the High scale (12-16) the project manager must be consulted. If a resultant score is in Very High scale (17-22) "Works should not proceed without further consultation and sign off" by Chief Operating Officer or above. If a resultant score is in Extreme scale (23-25), "Works must not proceed until the risk is reduced".

15.3.2 Environmental Risk Register

Item No.	ASPECT / ACTIVITY DESCRIPTION	Env. Initial Risk	Env. Score	Type of impact or Hazard	PREVENTATIVE ACTIONS Detailed controls are listed in the appropriate SHEWMS for the activity	Env. Post Risk	Env. Score	Action By:	Action When
Abbreviations: P.M. – Project Manager, Sup. – Supervisor									
1	**Site Establishment**								
	a) Site sheds, containers and compound set up.	B3	12	Dust generation Waste generation Fuel & chemical spills	■ Access roads to have dust suppression established – water carts, covering of exposed ground with granular material, etc. ■ Sediment controls to be installed, where required, to prevent material leaving the site. ■ Waste bins to be provided for disposal of waste and emptied regularly. ■ Bunded storage areas to be provided for fuels, chemicals and spill kits available within the compound. ■ Chemicals & fuels to be stored in accordance with SDS.	B2	7	Sup Sup. Sup. Sup. Sup.	Ongoing Ongoing Ongoing Ongoing Ongoing
	b) Roads and footpaths	C2	8	Material from site being tracked out	■ Roads and footpaths to be kept clean and free from obstructions at all times. ■ Rumble grids used as applicable. ■ Use of sweeper trucks in the event of any material being tracked from site onto aprons, airside roads, roads or footpaths.	B2	7	Sup. Sup.	Ongoing Ongoing
	c) Vehicle movements to and from site	C2	8	Traffic congestion	■ Access routes as per approved TMPs. ■ Vehicle movement and traffic management plans to conform to RMS "Traffic controls at work sites" manual and ensure only certified traffic controllers are used on roadways. ■ Loads on vehicles and plant to be within authority legal weight limits. ■ Vehicles and plant to travel only on approved roadways, loads secured and covered. ■ Compliance with Heavy Vehicle National Legislation (HVNL).	B2	7	Sup. Traffic Control Driver	Ongoing Ongoing Ongoing
2	**Services Investigation**								
	a) Services location & pot holing.	C2	8	Disruption to client operations/ leaseholders due to damage to existing services	■ Notification to service authorities and attendance by patrolmen for works around major services. ■ Utilisation of non-destructive digging equipment. ■ Create exclusion zones during works to prevent incidental damage. ■ Notification to lease/stakeholders of works sequence & programme.	B2	7	Sup. Sup. Sup. P.M.	Pre-start Ongoing Ongoing Pre-start

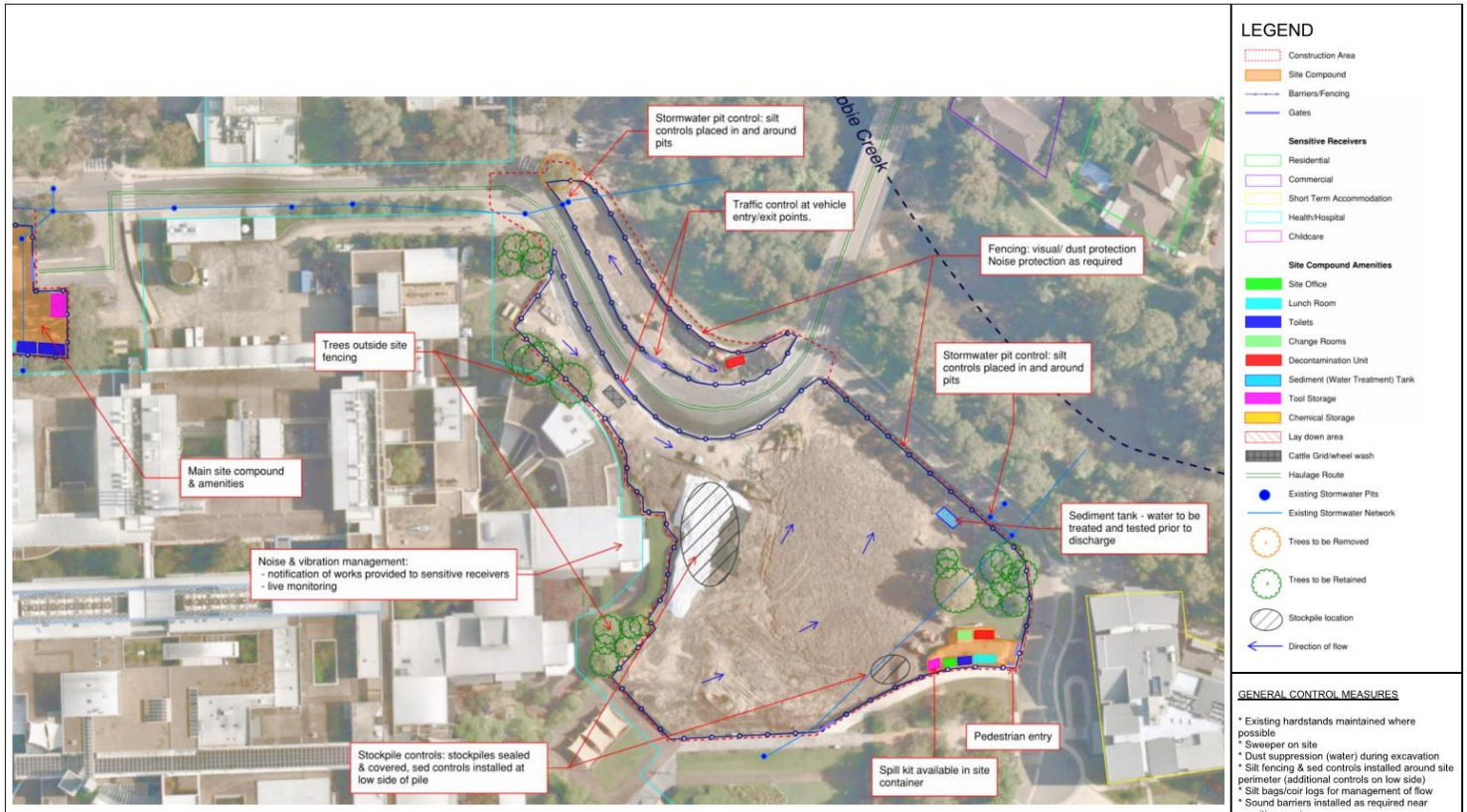
Item No.	ASPECT / ACTIVITY DESCRIPTION	Env. Initial Risk	Env. Score	Type of impact or Hazard	PREVENTATIVE ACTIONS Detailed controls are listed in the appropriate SHEWMS for the activity	Env. Post Risk	Env. Score	Action By:	Action When
		C4	19	Damage to flora/heritage items	▪ Develop methodologies for works around significant heritage items i.e. fig trees ▪ Utilisation of non-destructive digging equipment. ▪ Create exclusion zones during works to prevent incidental damage.	B2	7	P.M. Sup. Sup.	Pre-start Ongoing Ongoing
3	**Installation of in-ground services & concrete footings**								
	a) Excavation	D3	17	Visual pollution Noise and Vibration Air Quality	▪ Sedimentation controls to be in place and checked daily. ▪ All stockpiles are to be stabilised or removed as soon as possible ▪ Work to conform to the Code of Practice for Excavation and other statutory documents ▪ All truck movements are to occur as per the traffic management plan. ▪ Dewatering practices and waste disposal to conform to site Dewatering Management Plan.	B2	7	Sup. Sup. Sup. Sup. Sup.	Weekly Ongoing Ongoing Ongoing Ongoing
	b) Dewatering	D2	9	Groundwater	▪ Dewatering only to be conducted in accordance with a plan approved by Client as required. ▪ Sediment controls to be in place ▪ No water is to leave the work zone and returned to the ground as soon as possible	B2	7	Sup. Sup. Sup.	Ongoing Ongoing As req.
		C4	19	Damage to flora/heritage items	▪ Develop methodologies for works around significant heritage items i.e. fig trees ▪ Create exclusion zones during works to prevent incidental damage. ▪ Use alternate footing design or duct route. ▪ No trees to be trimmed or removed without referencing the arborist assessment and approval from Client as necessary	B2	7	P.M. Sup. Sup.	Pre-start Ongoing Ongoing
4	**Mobile Plant and Equipment**								
	Plant and equipment	D2	9	Noise and Vibration Air Quality	▪ The maintenance and use of major plant must be in accordance with the manufacturer's specifications and the plant must be suitable for purpose, safe and fit for use. ▪ Respite periods for noisy works to be observed around sensitive receivers. ▪ Use silenced equipment where available.	B2	7	Owner Sup.	Ongoing Ongoing

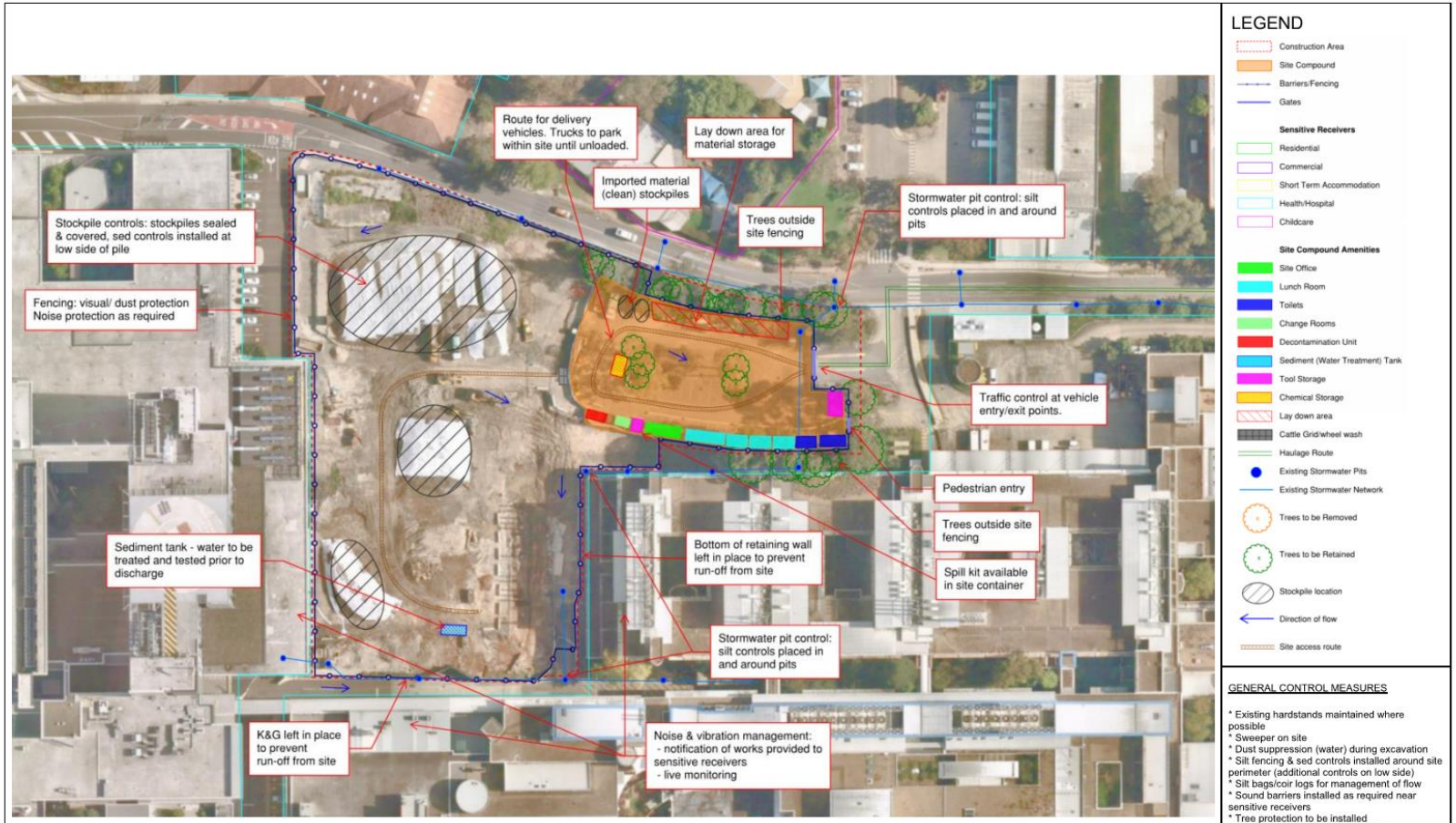
Item No.	ASPECT / ACTIVITY DESCRIPTION	Env. Initial Risk	Env. Score	Type of impact or Hazard	PREVENTATIVE ACTIONS Detailed controls are listed in the appropriate SHEWMS for the activity	Env. Post Risk	Env. Score	Action By:	Action When
5	**Hazardous Substances**								
	Chemical Substances and Hazardous Materials	D2	9	Chemicals	■ A detailed SHEWMS for the storage, handling. Only approved materials to be used on sites after the Safety Data Sheet and Safety Health & Environmental Work Method Statements have been supplied. ■ Particular attention should be paid to the clean-up and disposal procedures of chemicals to be used and the Personal Protective Equipment required. ■ Transport only according to the Hazardous Material Standards, Regulations and Codes. ■ Where plant is being refuelled on site, the environment must be protected as outlined in the Site Environmental Management Plan. A spill kit must be in place and a spill procedure must be developed and all chemicals and fuels to be kept on site bunded to prevent leaching or spills.	B2	7	Sup. Sup. Sup. Sup.	Start of job Ongoing Ongoing Ongoing
		B3	12	Asbestos impacted soils or bonded pieces found in work areas	■ Use of Unexpected finds procedure. ■ Only trained personnel are to work in the area of known asbestos contamination. ■ Signage to be installed warning of asbestos. ■ All material to be removed from site is to go to approved and licensed asbestos receiver centres, all loads are to be itemised and copies of dockets are to remain on site. ■ Work cover is to be notified if Asbestos is found on site. ■ If material is to be buried on site, hygienist report must nominate area.	B2	7	Sup. Sup. Sup. Sup. Sup.	Ongoing Ongoing Ongoing Ongoing Ongoing
				Transport of materials	■ All transport of materials to and from site must be undertaken by licenced contractors to licenced premises (tip s and alike) ■ Compliance with HVNL			Sup.	Ongoing
6	**Fire and Explosion**								
	Fire and Explosion from work activities	D2	9	Fire / Explosion	■ Firefighting equipment to be provided and positioned as per the requirements of the safety plan. ■ Emergency procedures as per site induction. ■ Fuels, paints etc. to be stored and disposed of according to the Environment Management Plan. ■ Rubbish to be removed from site on a daily basis.	A2	6	Sup. Sup. Sup. All Staff	Ongoing Ongoing Ongoing As req.
7	**Excavation**								

Item No.	ASPECT / ACTIVITY DESCRIPTION	Env. Initial Risk	Env. Score	Type of impact or Hazard	PREVENTATIVE ACTIONS Detailed controls are listed in the appropriate SHEWMS for the activity	Env. Post Risk	Env. Score	Action By:	Action When
	Excavation / moving plant and equipment	D2	9	Visual pollution Noise and Vibration Air Quality	▪ Sedimentation controls to be in place and checked weekly ▪ All stockpiles are to be firstly placed on an impervious plastic layer and immediately covered. When time for removal arrives, covering is to be removed and load out undertaken in accordance with safe practice. ▪ Work to conform to the Code of Practice for Excavation and other statutory documents ▪ All truck movements are to occur as per the traffic management plan.	B2	7	Sup. Sup. Sup. Sup. Sup.	Weekly Ongoing Ongoing Ongoing Ongoing
8	**Waste**								
	Wastes generated by activities	D2	9	Air, Water, Land	▪ Environmental controls for air quality, runoff and dust suppression are as per Operational Controls prescribed in EMP ▪ Refuelling, spills, and excess waste materials which may lead to pollution to be identified and controlled and disposed of as per Environment Management Plan. ▪ Regular clean-up of works area. ▪ Waste bins to be provided for disposal of waste and emptied regularly. ▪ Waste classification of excavated soils conducted by an accredited environmental consultant and approved by Client as required, prior to disposal.	B2	7	Sup. Sup. Sup. Sup. Sup	Ongoing Ongoing Ongoing Pre-start Ongoing
9	**Concrete**								
	Concrete Wash out	D3	17	Waste generation Water / land contamination	▪ Concrete trucks / pumps to be washed out at nominated point. ▪ Wash out water is to sit in wash out area to evaporate with environmental controls in place. ▪ Concrete is to be allowed to go hard before disposal off site, this material is to be sent to be recycled. ▪ No not use reinforcement thrown into the concrete as a lifting point. The collection receival ▪ Collection point is to be emptied on a regular bases to ensure that material does not escape the containment area.	B2	7	Sup. Sup. Sup. / P.M. Sup. Sup.	Ongoing Ongoing As req. On going As req.

15.4 Attachment 4 – Site Locality / Layout

15.5 Attachment 5 – Erosion & Sediment Control Plans





Project: CHW Stage 2 Enabling Work – Combined Civils ENVIRONMENTAL CONTROL MAP (ECM) – Paediatric Services Building (PSB)	Address: Redbank Rd	CLIENT: Health Infrastructure		Emergency Site Contacts	
	Date: 03/05/2022	Environment, Safety and Quality Managers		Site Supervisor: Zac Hudson	Mob: 0448 423 747
	Revision # 3	HSE: Lawrence Saliba	Mob: 0408 653 267	Project Manager: Danny Khal (24 hr contact)	Mob: 0409 212 374
	Drawn By: Danielle Simpson	Quality: Ninos Shlemon	Mob: 0402 937 373	Chief Operating Officer: Mark Moult	Mob: 0416 133 939
	Approved By: Danny Khal	Engineer: Danielle Simpson	Mob: 0411 302 181		

Form No: FCC-FOR-180, Rev 0

Page 1 of 1

15.6 Attachment 6 – Disruption Notice Templates (SCHN & WSLHD)

Disruption Notice – XX			
Important *Where the works involves a Hospital Department being disrupted in any way, notwithstanding the situation where there is an emergency, a minimum of **10 days'** notice is required so that appropriate arrangements may be made. Other shut-downs or disruptions, not causing inconvenience to the users, may be able to be accommodated sooner. Lacks of sufficient forward notice may result in the Contractor having to carry out works outside of hours if it is urgent and may result in delays to works.*			
Disruption notice number #DN-FCC0XX		**Name of Project** – Westmead Children's Hospital Stage 2 Enabling Works	
Contractor – Ford Civil Contracting (FCC)			
Project Manager and Project Engineers		**Project Contact**	
FCC – Danny Khal 0409 212 374 **FCC – Danielle Simpson** 0411 302 181 **FCC – Adam Khan** 0424 217 524		**PWC – Ahmed Jaradat** 0405 113 054 **PWC – Tom Morgan** 0481 276 177	
Issue date #	***Proposed* Start Date**	**Duration of works**	***Proposed* End Date**
Summary of work: **Impacts to access & pedestrian movements**			

DN-FCC0XX Rev. No.: 1

1

DN-FCC0XX Rev. No.: 1

2

The Sydney children's Hospitals Network

Where are the works occurring (specify) ref to maps/floor plans				
Location		**Infrastructure**	**Number(s)**	**Additional request/requirement ie access to keys, BMC assistance etc.**
Building(s)		**Plant room (add number(s)) #**		
Block(s		**Comms room #**		
Level(s)		**Mechanical board**		
Ward(s)		**Distribution board or Substation**		
Room(s)		**Lifts**		
Carpark(s)		**Service Tunnel**		
Loading Dock		**Smoke detectors isolation**		
Other				

The Sydney children's Hospitals Network

	Details of Works Undertaken	
	Select one of more of the below criteria (highlight and specify)	**Details**
	Work is being undertaken on, or in close proximity to High Voltage or Essential Electrical Infrastructure.	
	Work is being undertaken on or, in close proximity to electrical/power infrastructure (non-essential supply) low voltage.	
	Work involves medical gas/ other gas infrastructure.	
	Critical HVAC/Air Handling or other Mechanical Systems or Infrastructure.	
x	Work involves hydraulic/ water supply or drainage systems.	
x	Works are taking place in high visibility of the public and or in-patient areas.	
x	Works will impact or affect emergency access or egress routes.	
x	Works may generate dust and/or require preparation of an infection control plan (as per AHFG).	
x	Works will cause noise and/ or vibration that may cause disruption to surrounding users.	
	Works take place after hours [1900-0700] or on weekends.	

Methodology/ Staging				
	Action/ Task	Dates	Times	Notes
1				
2				
3				
4				
5				
6				

Key issues, Risks and Mitigation						
Risk No.	Risk Title	Mitigating Actions	Likelihood	Impact	End Date	Owner
1		•	Possible	Low		
2		•	Likely	Low		
3		•	Likely	Low		
4		•	Likely	Low		
5		•	Likely	Low		
6		•	Likely	Low		

CHW Representatives	Name	Signature	Date
Disruption Coordinator	Larnie Phipps		
Fire Safety Manager	Joe Tizzone		
Projects Engineer	Scott Massey		
Mechanical Engineer	Tuki Hanxhiu		
Electrical Engineer	Ash Bruce		
Chief Engineer	Adam Macbeth		
Corporate Services Manager	Marny Thomas		
Director Finance and Corporate Services	Sayeed Zia		
Director Redevelopment	Tim Hoffmann		
Executive Director Clinical Operations	Joanne Ging		
Chief Executive	Cathryn Cox		

SCHN DN coordinator can confirm which CHW representatives are to be included

Health
Western Sydney
Local Health District

Disruption Notice – XX			
Important *Where the works involve a Hospital Department being disrupted in any way, notwithstanding the situation where there is an emergency, a minimum of **10 days'** notice is required so that appropriate arrangements may be made. Other shut-downs or disruptions, not causing inconvenience to the users, may be able to be accommodated sooner. Lack of sufficient forward notice may result in the Contractor having to carry out works outside of hours if it is urgent and may result in delays to works.*			
Disruption notice number #DN-FCC0XX		**Name of Project** – Westmead Children's Hospital Stage 2 Enabling Works	
Contractor – Ford Civil Contracting (FCC)			
Project Manager and Project Engineers		**Project Contact**	
FCC – Danny Khal 0409 212 374 **FCC – Danielle Simpson** 0411 302 181 **FCC – Adam Khan** 0424 217 524		**PWC – Ahmed Jaradat** 0405 113 054 **PWC – Tom Morgan** 0481 276 177	
Issue date #	***Proposed* Start Date**	**Duration of works**	***Proposed* End Date**
	DATE		DATE
Summary of work **Impacts to access & pedestrian movements**			

Health
Western Sydney
Local Health District

Where are the works occurring (specify) ref to maps/floor plans				
Location		**Infrastructure**	**Number(s)**	**Additional request/requirement i.e. access to keys, BMC assistance etc.**
Building(s)		**Plant room (add number(s)) #**		
Block(s		**Comms room #**		
Level(s)		**Mechanical board**		
Ward(s)		**Distribution board or Substation**		
Room(s)		**Lifts**		
Carpark(s)		**Service Tunnel**		
Loading Dock		**Smoke detectors isolation**		
Other				

Details of Works Undertaken		
	Select one of more of the below criteria (highlight and specify)	**Details**
	Work is being undertaken on, or in close proximity to, High Voltage or Essential Electrical Infrastructure.	
	Work is being undertaken on or, in close proximity to, electrical/power infrastructure (non-essential supply) low voltage.	
	Work involves medical gas/other gas infrastructure.	
	Critical HVAC/Air Handling or other Mechanical Systems or Infrastructure.	
x	Work involves hydraulic/water supply or drainage systems.	
x	Involves working with asbestos contaminated material or other hazardous materials in public view.	
x	Works are taking place in high visibility of the public and/or in patient areas.	
x	Works will impact or affect emergency access or egress routes.	
	Works require the use of a crane/helipad or will disrupt helicopter flight paths.	
x	Works may generate dust and/or require preparation of an infection control plan (as per AHFG).	
x	Works will cause noise and/or vibration that may cause disruption to surrounding users.	
	Works/site logistics impact vehicle movements/pedestrian routes/parking bays/require use of loading docks.	
	Works will interface with other construction activity during project and will require coordination.	
	Works take place after hours [1900-0700] or on weekends.	

Methodology/ Staging				
	Action/ Task	**Dates**	**Times**	**Notes**
1				
2				
3				
4				
5				
6				

Communication Protocol – FOR OFFICE USE		
Action	**Who**	**By When**

Key issues, Risks and Mitigation						
Risk No.	**Risk Title**	**Mitigating Actions**	**Likelihood**	**Impact**	**End Date**	**Owner**
1		•	Possible	Low		
2		•	Likely	Low		
3		•	Likely	Low		
4		•	Likely	Low		
5		•	Likely	Low		
6		•	Likely	Low		

Comments and Conditions of Approval – FOR OFFICE USE				
Comment by	**Organisation**	**Comment**	**Owner**	**Date To Be Actioned**

Review Representatives profile Westmead	Name	Notes	Date
Security	Andrew Moore		
General Services			
Work Health Safety	Angus Rennie		
Infection Control and Prevention Unit			
Nursing – Deputy Director of Nursing	Kylee McCauley		
Manager Telecommunications Services	Karen Edwards		
Fire Manager	Colin Anlezark		
ITS	Mark Bolst		
Communications			
Executive working group	**Name**	**Signature (can be electronic)**	**Date**
Director Corporate Services	Renata Melan		
A/Director of Nursing/Disaster Controller	Veronica Croome		
A/Associate Director Westmead Redevelopment	Robyn Campbell		
A/General Manager Westmead and Auburn Hospitals	Jenelle Matic		

15.7 HI/SCHN Complaints Management Procedure

Complaints process

A Complaints and Enquiries Procedure has been developed.

Health Infrastructure and/or Sydney Children's Hospital Network will acknowledge enquiries and complaints in an appropriate and timely manner (usually within 24 hours) so that stakeholders and the community know their concerns are being considered and mitigated where possible.

This demonstrates our commitment to working with the community to manage the impact of The Children's Hospital at Westmead Stage 2 Redevelopment.

Throughout construction, Health Infrastructure and the Sydney Children's Hospital Network (and its Contractors) will have contact with multiple and varied internal and external stakeholders. Complaints received and responded to will be managed in accordance with complaint guidelines and procedures unless otherwise determined by the Project Director.

There are a number of complaint or information channels available as outlined below. These channels will be used in all footers on external facing communications.

Complaints channels

1. Telephone Contacts
A toll-free information line is to be available from Monday to Friday during construction hours to provide information as well as complaints and feedback. This line is monitored by a suitably staff who refer calls to relevant members as required.

In the case of an emergency, the relevant Contractor's team will be notified immediately 24-hours a day, seven days a week.

Calls that are not directly related to contractor activities will be triaged to HI and other stakeholders where appropriate. If a call is received in error by the relevant contractor, sufficient contact details of the caller should at a minimum, be recorded and emailed through to HI-kids@health.nsw.gov.au for response.

2 Email and written contacts
While contractors may have their own general enquiries, procurement, employment or other email addresses, the Project phone number (xxx) and general email (HI-kids@health.nsw.gov.au) will be published on all external communications. Emails will be acknowledged within 24 hours, and during business hours only.

Health Infrastructure and others may forward community and stakeholder emails, received via their own channels, relating to the contractors' work, through to the nominated email.

3 Project Website
A project website (https://westmeadkidsredevelopment.health.nsw.gov.au) has been established and will provide the community with up-to-date information on construction activities.

Recording complaints in the stakeholder database

All complaints and representations, with any stakeholder will be recorded in a register.

All contact entries will include the following information (where available):

- The nature of the complaint, including the event or activity which is the basis of the complaint
- The response provided to the complainant
- The corrective action or further environmental actions taken.

The complaints register will be made available to the Department when requested.

16 List of Appendices

A. Construction Traffic & Pedestrian Management Sub Plan (CTPMSP)
B. Construction Noise & Vibration Management Sub Plan (CNVMSP)
C. Construction Waste Management Sub Plan (CWMSP)
D. Construction Soil & Water Management Sub Plan (CSWMSP)
E. Flood Emergency Response Sub Plan (FERSP)

REMEDIATION
INFRASTRUCTURE
ROADWORKS
BULK EARTHWORKS
ENVIRONMENTAL
LANDSCAPING

FORD CIVIL

APPENDIX A

Construction Traffic & Pedestrian Management Sub-Plan (CTPMSP)

Project	Westmead Children's Hospital Stage 2 Enabling Works
Site Address	Corner of Redbank Rd and Labyrinth Way, Westmead
Client	Health Administration Corporation
Contract no.	H121427
Date	31.03.2022

ABN	24 002 542 814
Address	9 Hattersley Street, Arncliffe NSW 2205
Phone	02 9597 4122
Web	www.fordcivil.com.au
Email	info@fordcivil.com.au

Document issue register

Revision #	Issue date	Update summary	Prepared/ Revised by	Reviewed By	Approved by
A	17.01.2022	Project Document	Danielle Simpson	Lawrence Saliba	Lawrence Saliba
B	28.02.2022	Updated to reflect DPE commentary	Danielle Simpson	Lawrence Saliba	Lawrence Saliba
C	03.03.2022	Updated to reflect DPIE commentary for MSCP	Danielle Simpson	Lawrence Saliba	Lawrence Saliba
D	23.03.2022	Updated to include HVNL CoR Policy	Danielle Simpson	Lawrence Saliba	Lawrence Saliba
E	31.03.2022	Updated to include Acceptance by CoPC	Danielle Simpson	Lawrence Saliba	Lawrence Saliba
F	5.05.2022	Update to reflet additional DPIE commentary for MSCP	Danielle Simpson	Lawrence Saliba	Danny Khal
G	14.11.2022	Updated to include new Redbank Rd gate access	Danielle Simpson	Lawrence Saliba	Danny Khal

Distribution

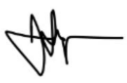
Controlled Copy No.	Issue Holder	Revision	Issue Date
1	1	G	14.11.2022

Authority

Ford Civil's Chief Operating Officer has authorised 'Danny Khal' as a Project Manager and allocated overall project delivery responsibility for the project to him.

This Project Environmental Management Plan has been prepared for use to manage applicable statutory and regulatory requirements as well as contractual and organisational requirements for the project.

The issue and revision of this Management plan is made under the authority of the Project Manager. This document and its effectiveness will be reviewed and evaluated during project monthly review meetings.

Function	Name	Position	Signature	Date
Prepared by	Danielle Simpson	Project HSEQ Representative		14.11.2022
Reviewed by	Lawrence Saliba	HSEQ Manager		14.11.2022
Approved by	Danny Khal	Project Manager		14.11.2022

Contents

1 Introduction

1.1 Context

This Construction Traffic and Pedestrian Management Sub-Plan (CTPMSP or Plan) forms part of the Construction Environmental Management Plan (CEMP) for the Children's Hospital Westmead - Stage 2 Enabling Works (the Project).

This CTPMSP has been prepared to address the requirements of the State Significant Development Applications (SSDA 10434896 and SSDA 10349252) conditions of consent.

1.2 Project & Scope Description

Ford Civil Contracting Pty Ltd (FCC) has been awarded the Contract for the Children's Hospital Westmead - Stage 2 Enabling Works Project.

The enabling works for the Paediatric Services Building (PSB) and the Multi Storey Car Park (MSCP) form part of the Combined Civil's Scope of Work and incorporates the design finalisation and construction of the following elements:

Multi Story Carpark:

- Design finalisation
- Demo of existing lodge building
- Salvage playground equipment
- Clear site (Trees & Pavements)
- Earthworks (Approx. 3500m3 C/Fill) up to 'BOC''
- Retaining wall & ramp upstand walls
- Wall piles and capping beam footings
- Stormwater drainage incl GPTs and filtration units
- Service trenching for electrical/ comms + conduit install
- Marker layer and temp capping layer to all areas
- No piling platform required for building platform
- Redbank Rd realignment
    - Temporary widening
    - Stormwater drainage
    - Pavement
    - Asphalting
    - Line marking
    - K&G
    - Reinstating existing light poles
- HV trenching

Paediatric Services Building development:

- Design finalisation
- Demo pavement and clear trees
- Piling for retaining wall
- Borrow pit excavation (approx. 9500m3) – VENM disposal
- Earthworks cut/fill (approx. 8000m3)
- Retaining wall and associated footings

- Stormwater drainage incl GPTs & filtration units
- Services trenching and conduits within building platform
- Hydraulic from building to park and across entry to north building
- Piling platform and marker layer
- Temp capping layer & marker layer to all external areas

Bike cage construction

1.3 Scope of the Sub-Plan

The Stage 2 Enabling Works will be carried out prior to the Main Infrastructure Works for the MSCP and the PSB. As part of the Stage 2 Enabling Works, it is necessary to realign the section of Redbank Road behind the Children's Hospital Westmead (CHW) between Labyrinth Way and the CHW Loading Dock. These works include the installation/relocation of services, new road and footpath construction.

As Redbank Rd is the main emergency route for the adults and children's emergency departments, this plan has been developed to minimise the disruptions during the enabling works construction and ensure priority is given to emergency vehicles at all times.

The extent of the proposed works is presented in Figure 1 below.

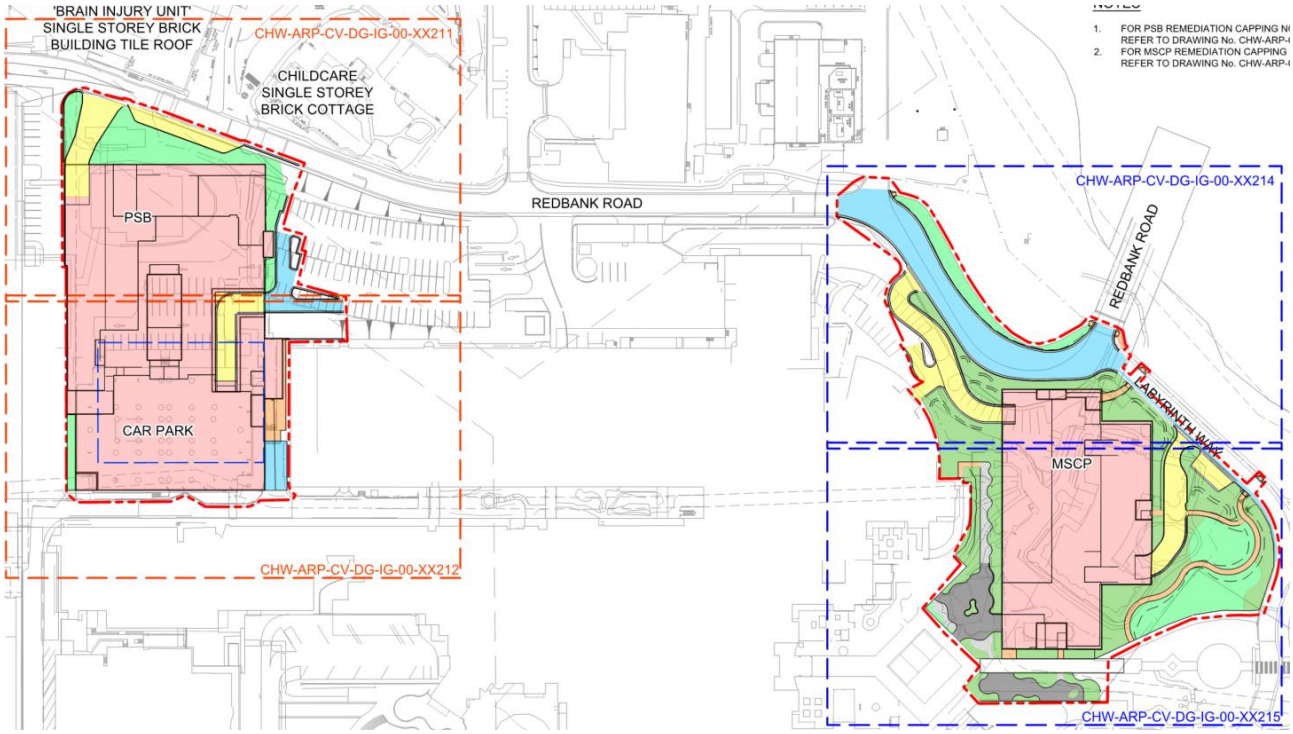


Figure 1: Extent of Works

1.4 Environmental Management Systems Overview

The environmental management system overview is described in section 1.5 of the CEMP.

2 Purpose & Objections

2.1 Purpose

The purpose of this CTPMSP is to describe how FCC propose to manage traffic and pedestrians during the construction of the project.

2.2 Objectives

The key objective of the CTPMSP is to ensure that traffic, pedestrians, parking and access impacts during the construction of the Project are minimised and are within the scope permitted by the planning approval. This includes minimising delays, ensuring consideration is given to the needs of all road users (incl. emergency vehicles) and maintaining safety for both workers and the general public.

To achieve these objectives, Ford Civil Contracting Pty Ltd will undertake the following:

- Ensure appropriate controls and procedures are implemented during construction activities to address potential traffic and access impacts along the Project corridor
- Ensure appropriate measures are implemented to address the relevant SSDA Conditions of Approval
- Ensure appropriate measures are implemented to comply with all relevant legislation and other requirements as described in Section 3.1 of this Plan

3 Environmental Requirements

3.1 Relevant Legislation & Guidelines

3.1.1 Legislation & Regulatory Requirements

Identified regulatory requirements are:

- Australian road rules
- Roads Act (NSW 1993)

3.1.2 Guidelines

The main guidelines, specifications and policy documents relevant to this Plan include:

- Roads and Maritime Traffic Control at Worksites Manual (2018)
- AUSTROADS Guide to Traffic Management 2009 – Parts 1-13
- AUSTROADS Guide to Road Design 2009 – Parts 1-7
- AUSTROADS Guide to Road Safety 2009 – Parts 1-9

3.2 SSDA Conditions of Approval

The Conditions of Consent relevant to this CTPMSP are listed in Tables 1 and 2 below. A cross reference is also included to indicate where the condition is addressed in this Plan or other Project management documents. All risks were assessed in the Environmental Risk Register, which is included as Section 15.3 (Attachment 3) of the CEMP.

Table 1: MSCP SSDA Conditions of Consent relating to this CTPMSP

SSDA No.	Condition of Consent	Document Reference
B12	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 the measures that are to be implemented to ensure road safety and network efficiency during construction in consideration of potential impacts on general traffic, cyclists and pedestrians and bus services; d) detail the measures that are to be implemented to mitigate adverse impacts to the Parramatta Light Rail (PLR) Project; e) provide a description and route map for vehicles involved in spoil removal, material delivery and machine floatage; f) provide the estimated number and type of construction vehicle movements including morning and afternoon peak and off-peak movements; g) ensure that turning areas within the site allow the forward entry and egress of construction vehicles; h) outline the location of construction site entrances and exits (controlled by a certified traffic controller), proposed work zones, proposed crane standing areas, vehicle loading / unloading points, truck layover zones, storage areas and on-site construction worker parking; and i) detail the proposed staging and the process for managing	Section 4 Section 5 Section 6
B16	A Driver Code of Conduct must be prepared and communicated by the Applicant to heavy vehicle drivers and must address the following: a) minimise the impacts of earthworks and construction on the local and regional road network; b) minimise conflicts with other road users; c) minimise road traffic noise; and d) ensure truck drivers use specified routes.	Appendix D
B17	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 in order to minimise demand for parking in nearby public and residential streets or public parking facilities. A copy of the strategy must be provided to the Planning Secretary for information.	Section 5.3
C10	All construction 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, unless directed by traffic control.	Section 5.3

Table 2: PSB SSDA Conditions of Consent relating to this CTPMSP

SSDA No.	Condition of Consent	Document Reference
B16	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);	Section 4 Section 5 Section 6

	b) be prepared in consultation with Council's traffic and transport manager and TfNSW; and 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 the measures that are to be implemented to minimise the impact of activities associated with the construction of the development the subject of this consent on the Parramatta Light Rail (PLR) Project, in liaison with PLR's Construction Contractor and/or Operator; (iv) construction and heavy vehicle routes, access and parking arrangements; (v) 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; (vi) 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); (vii) details of crane arrangements including location of any crane(s) and crane movement plan; and (viii) detail measures to minimise the cumulative construction impacts on surrounding road networks, identifying the duration of impacts.	
B21	A Driver Code of Conduct must be prepared and communicated by the Applicant to heavy vehicle drivers and must address the following: a) minimise the impacts of earthworks and construction on the local and regional road network; b) minimise conflicts with other road users; c) minimise road traffic noise; and d) ensure truck drivers use specified routes.	Appendix C
B22	Prior to the commencement of construction, the Applicant must provide sufficient parking facilities on-site or within any approved work zones for construction vehicles and machinery, including for heavy vehicles, to ensure that construction traffic associated with the development does not utilise public and residential streets or public parking facilities.	Section 5.3
B23	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 in order to minimise demand for parking in nearby public and residential streets or public parking facilities. A copy of the strategy must be provided to the Planning Secretary for information.	Section 5.3
C10	All construction 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, unless directed by traffic control.	Section 5.3

4 Consultation

The following section summaries the consultation undertaken as part of developing the CTPMSP.

4.1 Consultation Requirements under the SSDA Conditions

MSCP Condition B12 and PSB Condition B16 states that the Plan should be prepared in consultation with the relevant government organisations and surrounding stakeholders. These include:

- City of Parramatta Council;
- NSW Health
    - Western Sydney Local Health District (WSLHD) and Westmead Adult's Hospital;
    - Sydney Children's Hospital Network (SCHN) and Children's Hospital Westmead (CHW);

5 Construction traffic aspects and impacts

5.1 Traffic Impacts

FCC will aim to minimise any disruption caused by construction traffic to hospital operations, maintaining pedestrian and vehicular access along Redbank Rd.

To facilitate FCC's works there will be a number of large vehicle movements throughout the Project.

From analysing the programme for each work area, the following key movements have been identified:

- Demolition of existing lodge – bogie movements to tip demolition waste
- Excavation of the borrow pit at the PSB site – approximately 30 – 40 Truck & Dog movements per day
- Bulk excavation and earthworks at the MSCP site – bogie movements to cart and tip between the MSCP site and PSB site

Additional traffic control will be in place during the above load out periods to monitor pedestrian crossings and manage gates to minimise the impact on the network. Noting that it is expected that some of these movements will need to occur during peak periods, with up to 10 truck & dog movements expected to be staggered throughout both the morning and afternoon peaks during the load out of the borrow pit spoil.

Redbank Rd is the main emergency route for the adults and children's emergency departments. As such, when lane closures along Redbank Rd are required to facilitate site activities, Disruption Notices (DNs) will be submitted in consultation with key stakeholders, noting that priority will be given to emergency vehicles at all times. To minimise disruptions, lane closures (and contraflow) will only be in place at the following times to accommodate for peak periods and hospital staff shift changes:

- Monday to Fridays 9am to 2pm
- Saturdays 7am to 5pm

If practicable, works will be programmed such that these lane closures are not in place during periods of heavy vehicle movements (i.e., waste load out). Where this is unavoidable, additional traffic management will be in place to ensure disruption is minimised.

5.2 Haul Route

The proposed construction vehicle haul routes for the Project are from the nearest arterial route via the bridge on Redbank Rd. This will ensure the larger construction vehicles are confined to one area of the precinct and will minimise the impact on the hospital network as well as the Parramatta Light Rail Project along Hawkesbury Rd.

While the above nominated route is the preferred route, smaller construction vehicles may also use smaller local roads, like Briens Rd and Darcy Rd if required. This is shown in Figure 2 below.

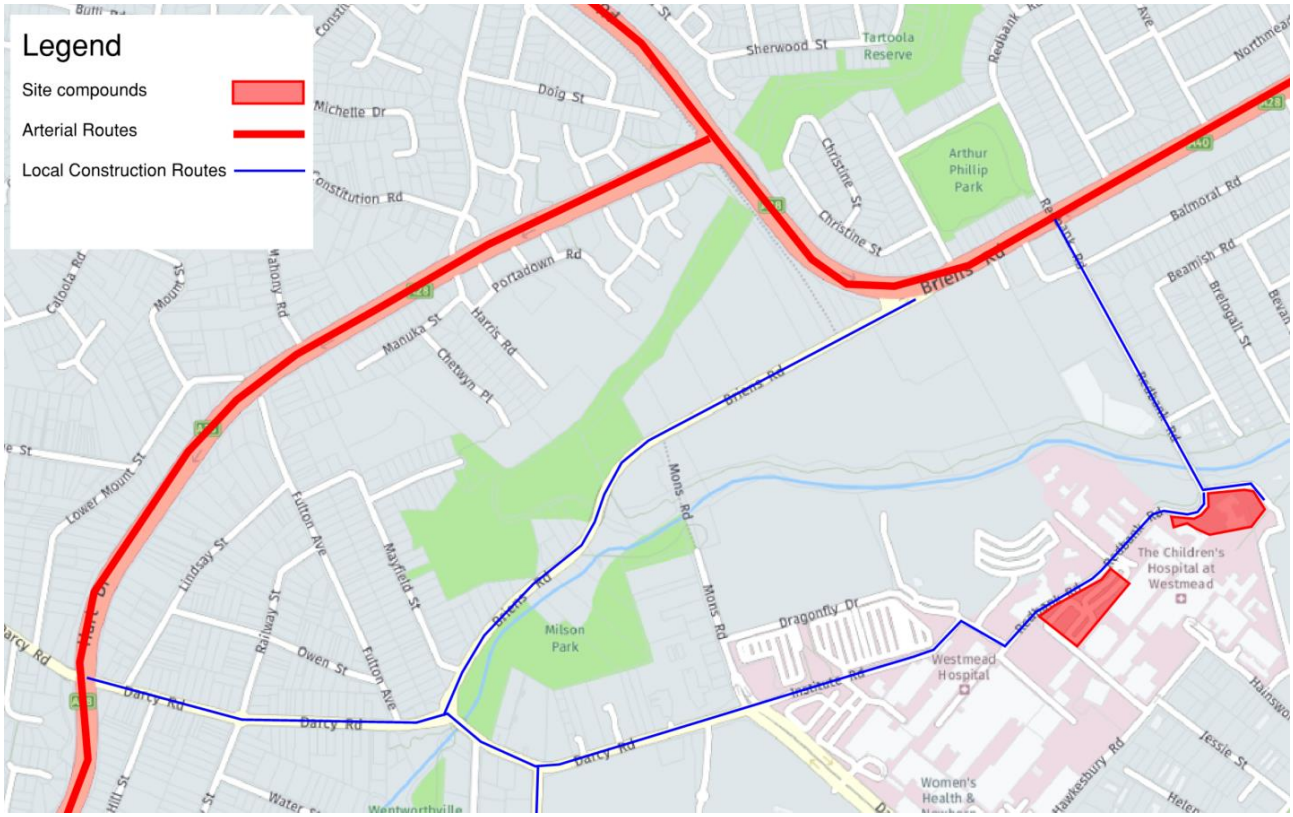


Figure 2: Construction Routes

All construction vehicles accessing the site are to turn within the site compound so that they enter and leave site in a forward direction. Where this is not possible (in exceptional circumstances) vehicles are to enter/exit site under the supervision of an accredited traffic controller. Noting that FCC will endeavour to schedule these vehicles during off-peak periods to minimise impacts on the hospital network. Examples of such situations may include an obstruction on site or safety/environmental hazard.

The requirements of this plan will be communicated via Toolbox talks including allocated haul routes and roads prohibited to all heavy vehicle construction traffic.

In the event that construction vehicle movements are required outside of normal working hours, stakeholders will be consulted and Out of Works protocols will be implemented if required.

5.3 Parking

As part of the Project, staff parking along Redbank Rd has had to be relocated to facilitate the works.

The existing P17 car park for Children's Hospital staff was relocated prior to the commencement of the demolition works at the PSB site. These car spaces were relocated to P23 and a shuttle bus service was implemented to transfer staff for the car park to the staff entrance of the Children's hospital.

P21 and the contractor's parking near the MSCP will also be impacted by the works. The vehicles in P21 will be relocated to P6 off Hainsworth St, while some of the contractor's parking will be removed entirely. As the Endeavour Energy substation is within the contractor's car park, FCC are required to maintain a minimum of two car spaces for access at all times. Access will be altered throughout the works to accommodate this.

With the exception of the above, no other parking along Redbank Rd or within the Westmead precinct will be impacted by the works. It will not be acceptable for construction vehicles to park or idle on residential roads. Traffic control will direct construction vehicles to park within site compounds and truck layover for haulage vehicles and deliveries will be provided within the main compound at the PSB site. Refer to Figure 3 below. Where multiple deliveries are scheduled on the same day, delivery times will be staggered to ensure there is ample room within site for the vehicles to park and unload.

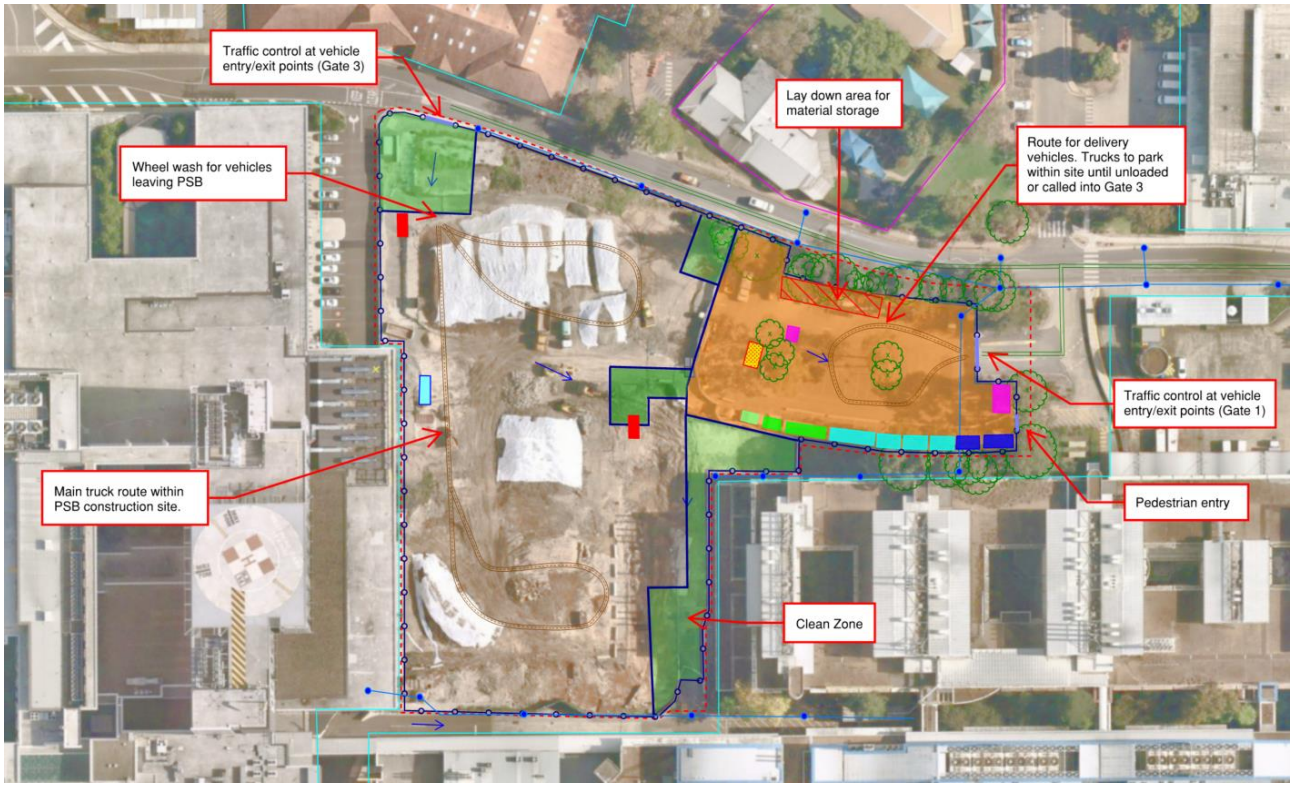


Figure 3: PSB Site Access for Haulage Vehicles & Material Lay Down

With regards to parking for site staff and subcontractors, there will be minimal parking (up to 10 spaces) within the site compound. Only FCC management staff (i.e. site supervisors) will be permitted to park within the PSB site and the number of spaces available will depend on site activities on the day. Some subcontractors utilising work vehicles for tools and equipment will also be permitted to park on site when required, however there will be no parking for personal vehicles.

The only designated parking for personal vehicles within the hospital precinct will be at the contractor's car park off Mons Rd. There will be no other parking within the hospital precinct as all parking is currently in use by hospital staff. Street parking will also be discouraged to minimise the impact on the local network.

Staff will be encouraged to utilise the public transport network where possible. Westmead train station is approximately 1100m from the PSB site compound and buses run along Mons Rd and Darcy Rd. The pedestrian routes from these stops to site are shown in Figure 4 below.

The above parking strategy will be communicated to site staff and subcontractors prior to arrival and will be reiterated in the site induction presentation.

Figure 4: Public Transport & Pedestrian Routes

5.4 Emergency Routes

Vehicle routes along Redbank Rd will be maintained throughout the duration of the works as this is the main access route for emergency vehicles to both the Children's and Adults Emergency Departments.

Should any of the works impact access along Redbank Rd, a DN will be submitted and the relevant stakeholders will be consulted. In the event that these impacts are significant, advance notice will be given to all stakeholders to ensure there is a significant consultation period.

Noting that priority is to be given to emergency vehicles at all times.

If an emergency occurs on site, vehicles will be able to access all areas that are accessible for construction vehicles. The proximity to the hospital ensures that any serious injuries on site will be dealt with in a timely manner, subsequently reducing risks for construction workers.

5.5 Vehicle Breakdown

In the event of a vehicle breakdown on Redbank Rd, FCC will provide a rescue vehicle to relocate the vehicle either into one of the works areas or to another location that will not block normal traffic. Where required and if available, traffic controllers will temporarily control traffic to assist to removal of the broken-down vehicles.

5.6 Cranes

FCC do not anticipate that there will be a requirement for the use of mobile cranes on the Project.

However, franna cranes will be required for the installation of the stormwater GPT units. These lifts will be undertaken from within the site compounds with minimal impact to the hospital network. Noting that these lifts will not commence until a risk assessment and lift study has been undertaken. For reference, the location of these GPTs are shown in Figure 5 below.

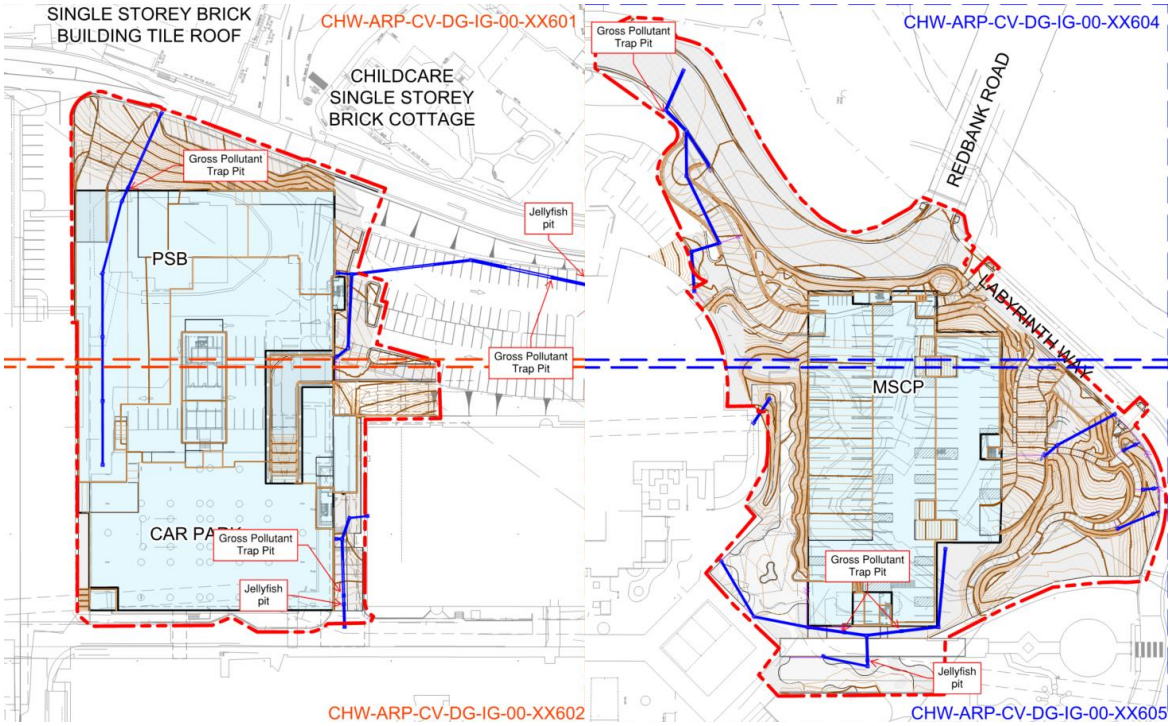


Figure 5: Location of GPT Stormwater Units

6 Construction Traffic Management

6.1 Construction stage traffic management

6.1.1 Construction staging

FCC are planning on constructing the Redbank Rd realignment in stages to ensure two-way traffic is maintained and disruptions to the hospital network, particularly emergency access routes, are minimised.

The proposed staging is outlined in Figure's 6, 7, 8 and 9 below. Noting that the staging of this project is still under development and is subject to change. As this CTPMSP is a living document, if changes to the construction staging or process are required this document will be updated to encompass the changes.

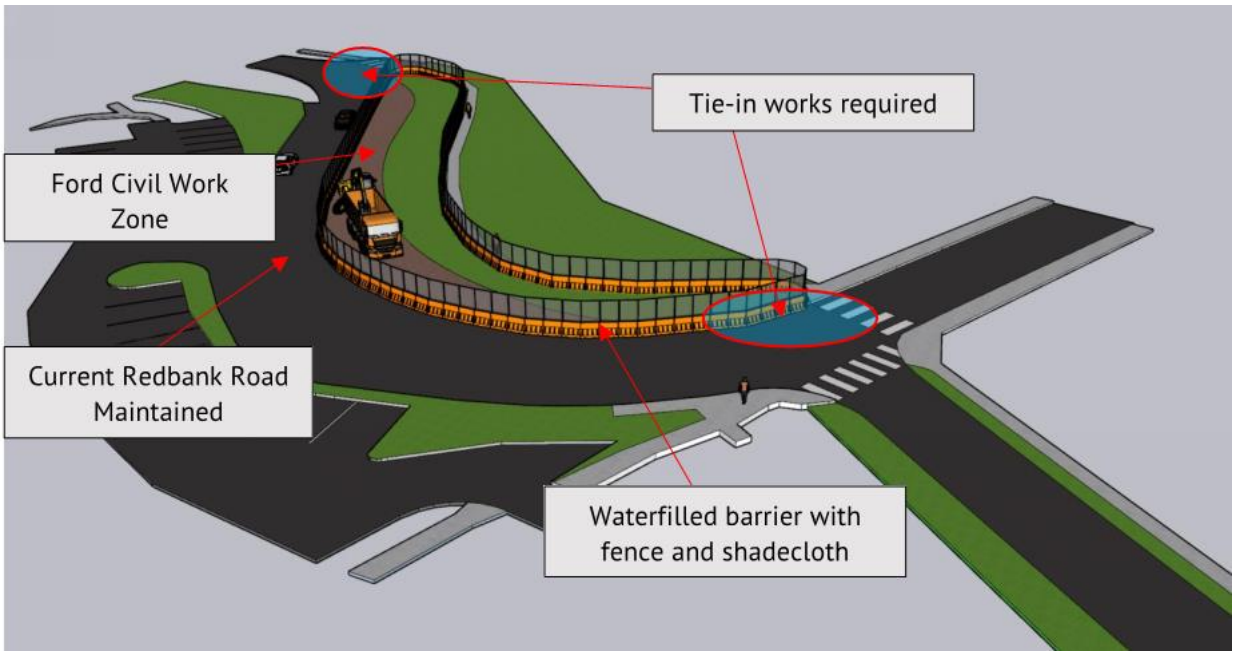


Figure 6: Stage 1 – Northbound Construction

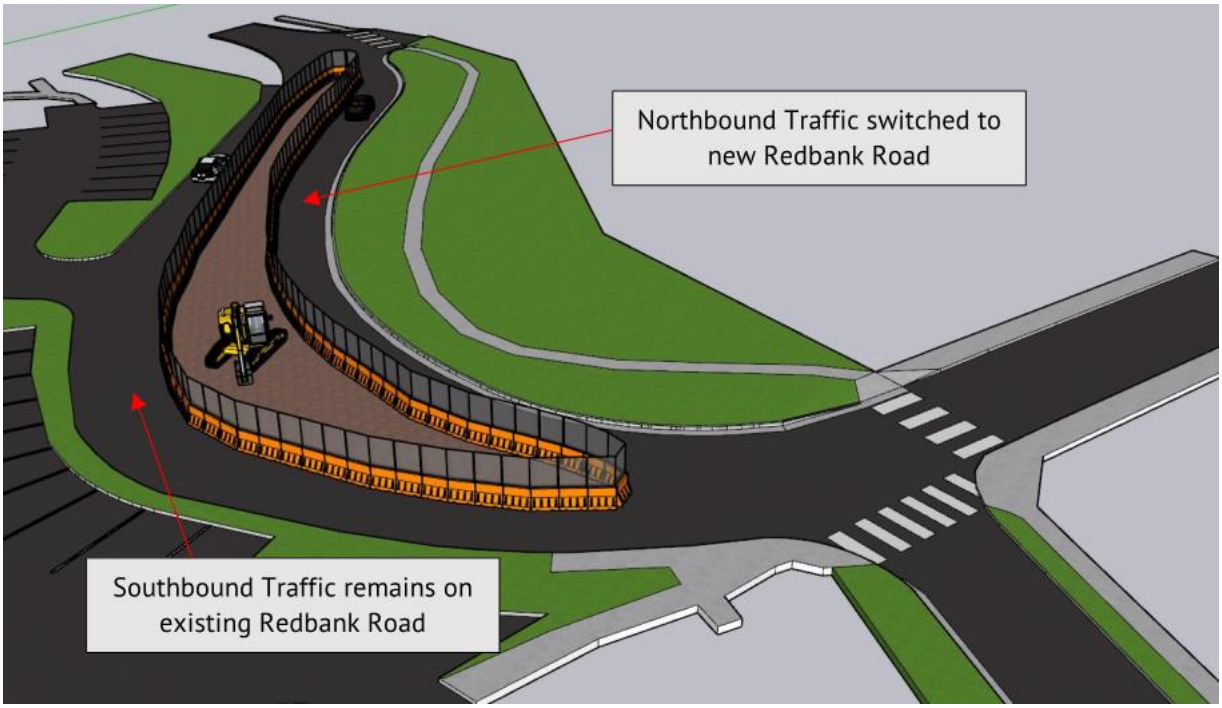


Figure 7: Stage 2 – Southbound Construction Part 1

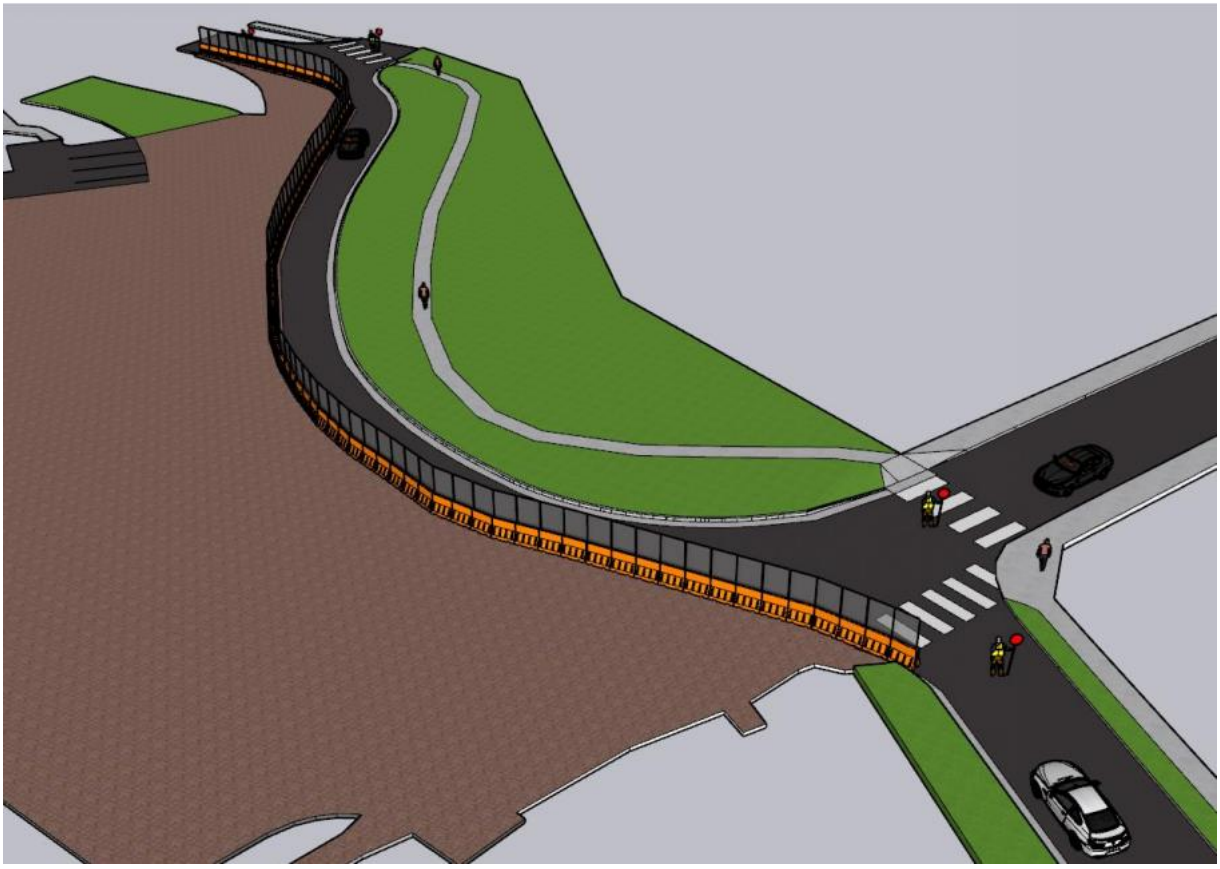


Figure 8: Stage 3 – Southbound Construction Part 2

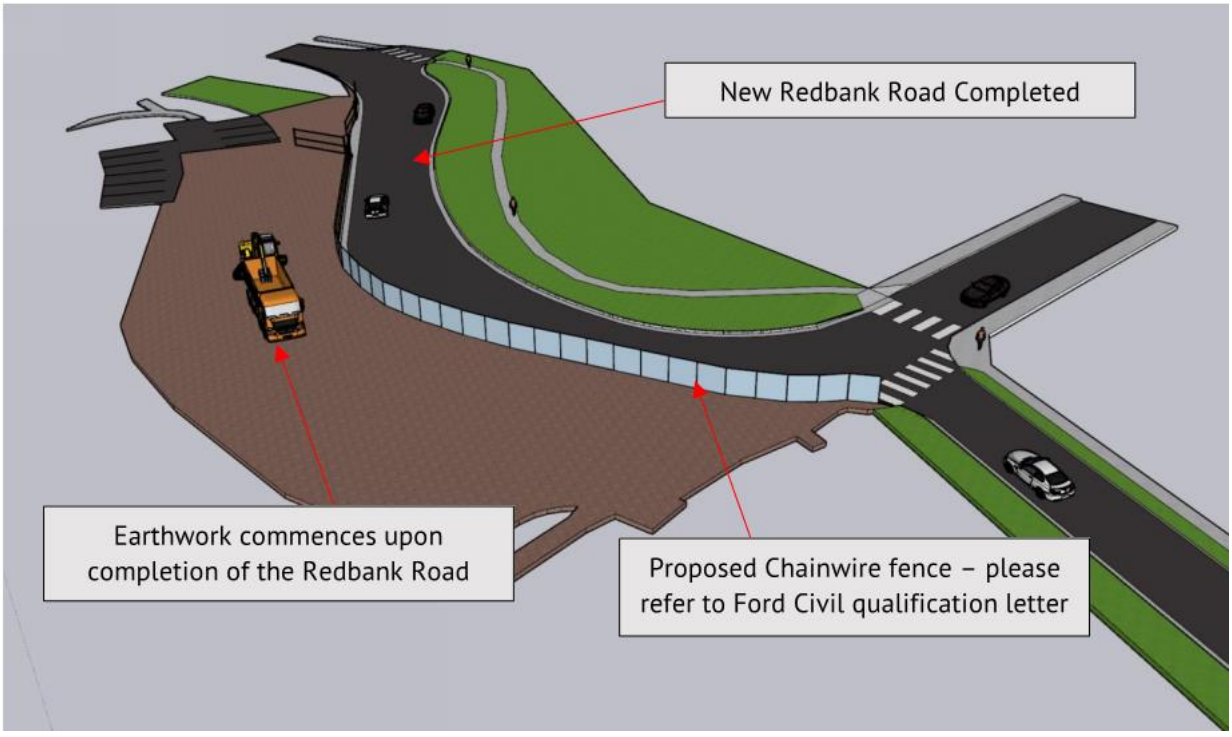


Figure 9: Completed Redbank Rd Realignment

TCPs will be produced for each of the above stages and will be submitted to stakeholders during the consultation phase.

6.1.2 Construction site traffic management

With the exception of Redbank Rd, the majority of the works are off the road and contained within the MSCP and PSB sites. Construction vehicles will be required to enter or exit these sites through designated gates. The location of these gates and the movement of vehicles are highlighted in Appendix C. To minimise the risk to existing road users, traffic control will present to manage access and stop oncoming traffic as required.

In addition to the above, FCC will also look at the placement of barrier fencing and shade cloth to ensure site distances of turning vehicles (i.e., at Labyrinth Way and the CHW Loading Dock Driveway) will not be impacted.

For the Redbank Rd realignment works, traffic management will be set-up in such a way that maintains one lane of traffic at all times. This is to ensure that access for emergency vehicles along Redbank Rd is maintained throughout the duration of the works.

Likewise, any pavement construction that will impact access to adjoining properties (i.e., Labyrinth Way, CHW Loading Dock, Endeavour Energy Car Park) will be staged in such a way that allows FCC to maintain one lane of access at all times. This staging will be communicated to stakeholders through Disruption Notices.

The traffic management along Redbank Rd and the contra flows that will be in place to maintain access are outlined in FCC's TCPs presented in Appendix B.

6.1.3 Site compound traffic management

All construction vehicles leaving the compounds will be loaded within suitable weight restrictions. TfNSW approval will be sought before manoeuvring overloaded or oversized vehicles. Cranage activities will be kept to a minimum and all loading and unloading will be conducted in one movement. All plant removal off site will be coordinated with all parties to reduce disruption.

The project will be set-up into three sites, the MSCP, Redbank Rd realignment and the PSB. All vehicles accessing the sites will ideally do so from the nearest arterial road, A28, to reduce the impact on the local road and hospital road networks. The largest vehicle that will be accessing this site compound are:

- Heavy rigid vehicle (HRV);
- Semi-trailer; and
- Truck and dog

A swept path analysis of the site compound is being conducted to confirm the proposed vehicles can access and egress the site in the forward gear. Refer to Attachment C. Likewise, a swept path analysis is being conducted to confirm that the larger delivery vehicles (19m semi-trailer) has sufficient access during the construction of the Redbank Rd realignment.

6.1.4 Construction traffic routes

All haul routes are outlined in Section 5.2. These have been selected to reduce the impact on the local road network surrounding the Westmead Hospital precinct by utilising arterial roads wherever possible. Construction traffic movements will be minimised between the hours of 7:00am to 9:00am and 2:00pm to 5:00pm, as there are shift changes for hospital staff during these times resulting in increased pedestrian and vehicular movements. Likewise, changes to traffic conditions (i.e. lane closures) will not be implemented during peak hours to reduce the impact on the local traffic. No lay over bays or loading zones

are proposed outside of the site compounds as all construction vehicles are to be parked wholly within the compounds.

To reduce the number of construction vehicle movements in relation to the haulage of waste materials a waste management system will be implemented as required. The strategy will involve the following priorities:

- Waste generation must be avoided and where avoidance is not reasonably practicable, waste generation must be reduced;
- Where avoiding or reducing waste is not possible, waste must be re-used, recycled, or recover; and
- Where re-using, recycling or recovering waste is not possible, waste must be treated or disposed of.

6.2 Road occupancy

The works undertaken on Redbank Rd require consultation with the following hospital networks:

- Western Sydney Local Health District (WSLHD)
- Sydney Children's Hospital Network (SCHN)
- City of Parramatta Council

As part of the consultation process, FCC will develop and submit DN's and site-specific TCP's for works interfacing with local roads like Redbank Rd and Labyrinth Way.

Consultation with stakeholders to date has indicated that FCC are unlikely to gain approval for stopping traffic at peak times.

6.3 Speed Management

The existing speed limit on Redbank Rd is 20km/hr. This will be maintained for the duration of the works. This speed limit was deemed suitable for construction works as it is the exiting speed limit and due to the proximity of the hospital.

6.4 Signposting and delineation

Throughout the duration of the works, minimum lane widths will be maintained on Redbank Rd. The signposting and delineation for each stage of works and for required closures will be noted on the TCPs.

A wayfinding strategy has also been developed and will be implemented prior to the commencement of works. This strategy has been submitted to the relevant stakeholders for their review and approval prior to installation. This has also been included in Appendix A.

6.5 Pedestrians

Throughout the works, pedestrian access along Redbank Rd and Labyrinth Way will be maintained. In some cases, likely during the construction of the Redbank Rd realignment, pedestrians may need to be diverted off the existing path and away from the works zone for safety purposes. In these instances, adequate access (i.e. minimum widths) will be maintained and appropriate signage will be installed.

The existing footpath from Redbank Rd through the P21 carpark to the Children's Hospital entrance will be closed for the duration of the works as it runs through the MSCP site. This closure will not be implemented without consultation and prior approval from the SCHN and stakeholders.

As part of this closure the pedestrian crossing at Labyrinth Way will be closed. The existing line marking at this location will be blacked out and the kerb ramp will be infilled with asphalt to deter pedestrians from crossing. Additional signage will also be installed at these locations to assist pedestrians.

Likewise, the existing pedestrian crossings at the PSB will also be closed as it was previously used to access the P17 carpark and is now redundant.

6.6 Pre-condition and dilapidation reports

Existing condition reports will be undertaken for all roads and infrastructure likely to be affected before the commencement of the works. These reports will be submitted to HI, Department of Planning and City of Parramatta Council as required in the SSDA conditions.

6.7 Incident management and response

The Environmental Incident and Emergency response protocol will be implemented in the event of an incident. Key personnel and their roles are as follows:

- Project Manager will act as Emergency Response Team Leader. They have the responsibility of co-ordinating physical response to the incident and updating the client
- The Emergency Response Team has the responsibility to deal with issues on site. The Emergency Response teams consists of the Site Supervisor, Site Foreman and the Project Engineers.

The HSEQ manager will provide safety and emergency response procedures induction to all personnel and will report all environmental incidents, reportable events and regulatory action to HI.

FCC will review their incident management methodology following an event to monitor the effectiveness of the procedures and implement any required changes/improvements through the corrective action system.

7 Compliance Management

7.1 Roles and responsibilities

The FCC Project team's organisational structure and overall roles and responsibilities are outlined in Section 2.3 of the CEMP. Specific responsibilities for the implementation of construction traffic management are detailed below.

Role, name and contact	Responsibilities and accountabilities
Traffic Planning Engineer Danielle Simpson M: 0411 302 181	Responsible for planning and approval of all TCP's and lane closures. Developing plans and priorities for traffic engineering, transportation planning, traffic signal and control systems and inspection protocols for each stage of construction and associated activities.
Traffic Control Site Manager LHR (Joseph Elias) M: 0421 485 611	Responsible for the control and management of all traffic management activities relating to construction and the traffic crew. Ensuring that all approved TCPs are correctly implemented on site at all times.
Traffic Field Crews LHR (Joseph Elias) M: 0421 485 611	Employing qualified traffic controllers along with the work crew to ensure safe traffic conditions are maintained throughout the duration of the works.

7.2 Inspections

Requirements and responsibilities in relation to inspections are documented in Section 10 of the CEMP.

7.3 Auditing

Internal audits will be undertaken to assess the effectiveness of traffic management measures, compliance with this sub plan, conditions of consent and other relevant approvals, licences and guidelines.

8 Review and improvement

8.1 Continuous improvement

Continuous improvement of this plan will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement.

The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of traffic management
- Determine the cause or causes of non-conformances and deficiencies
- Develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies
- Verify the effectiveness of the corrective and preventative actions
- Document any changes in procedures resulting from processes improvement
- Make comparisons with objectives and targets

8.2 CTPMSP update and amendment

As this CTPMSP is a living document, if changes to the construction staging or process are required this document will be updated to encompass the changes.

Only the Project Manager (in consultation with the HSEQ Manager) can amend this CTPMSP.

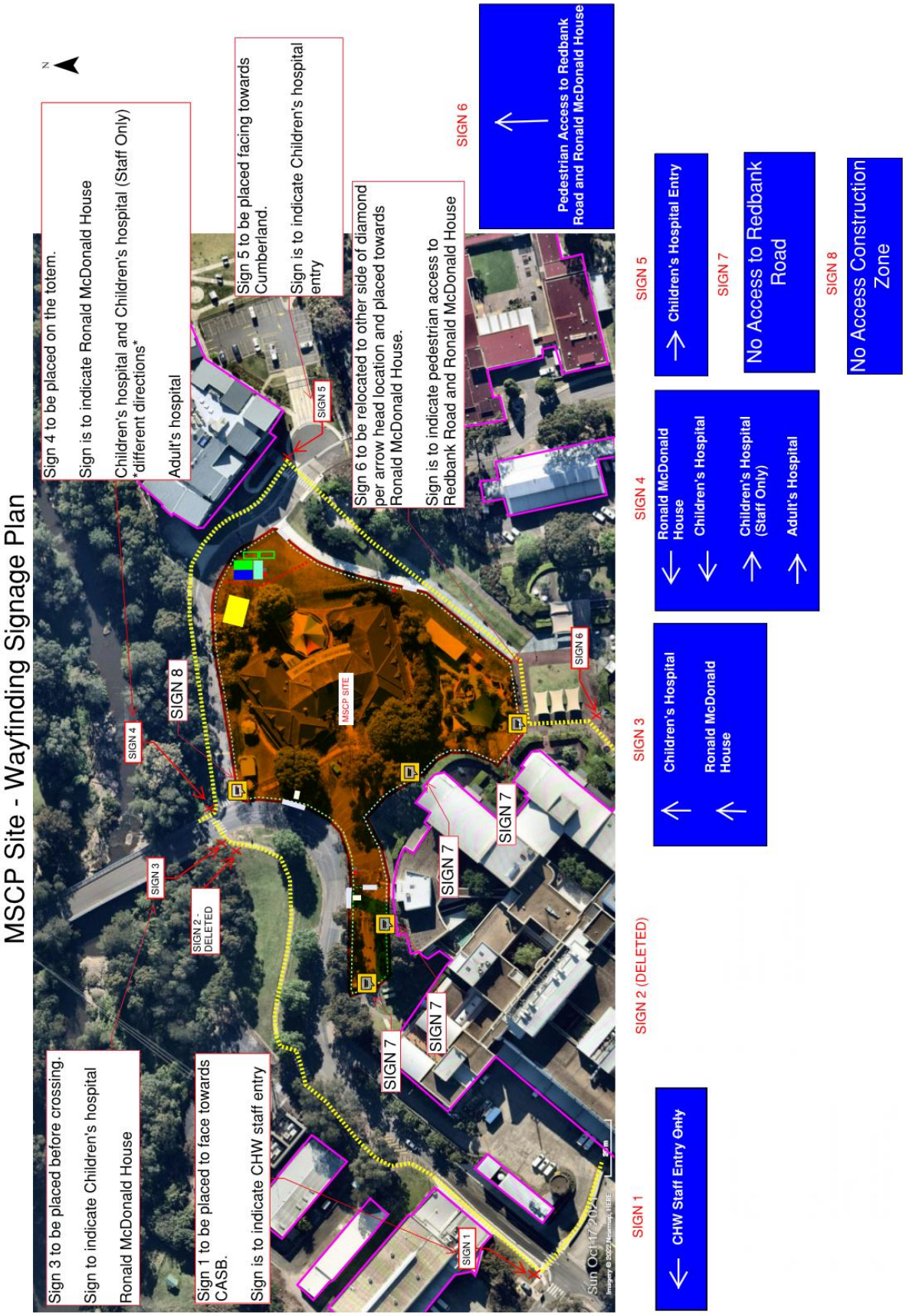
- A copy of the updated plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure.

8.3 CTPMSP approval

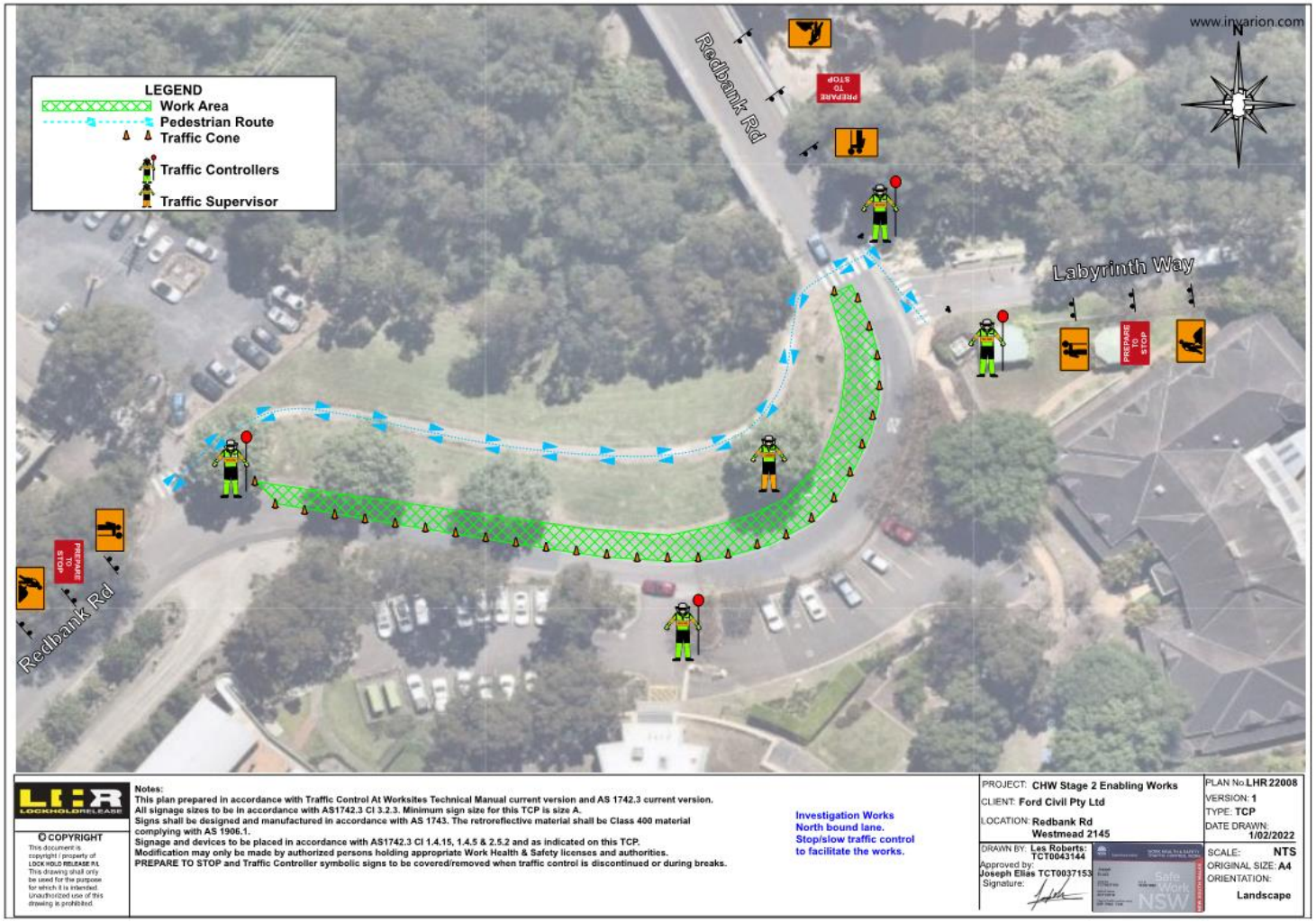
The CTPMSP has been put together in consultation with Health Infrastructure (the Client), TfNSW, council and major hospital stakeholders. Acceptance by council and endorsement by TfNSW is included as Appendix E.

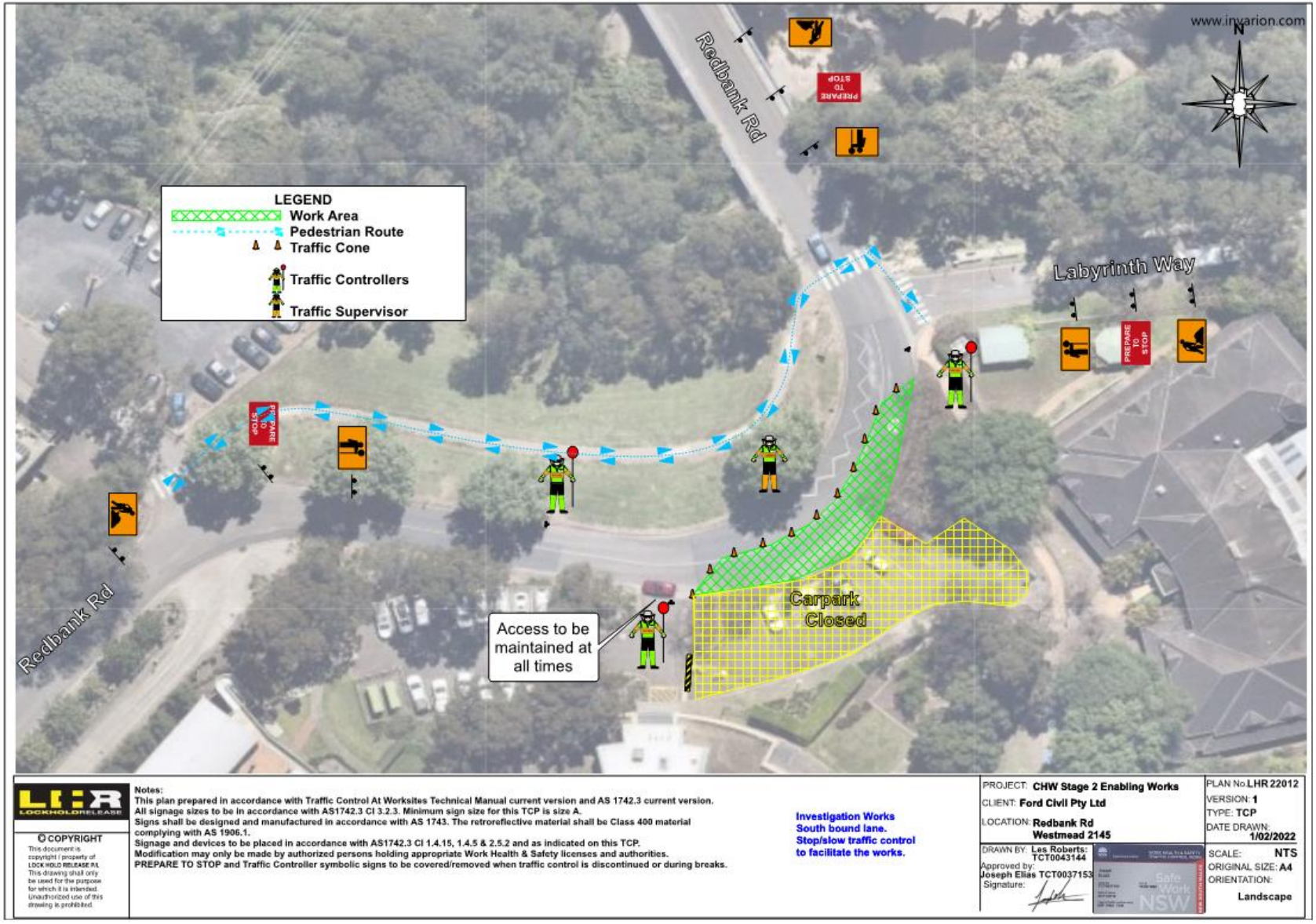
The plan has also been reviewed in consultation with LHR (Traffic Management Subcontractor) and independently reviewed by Traffic Control Licences (Traffic Consultant). Refer to Appendix F.

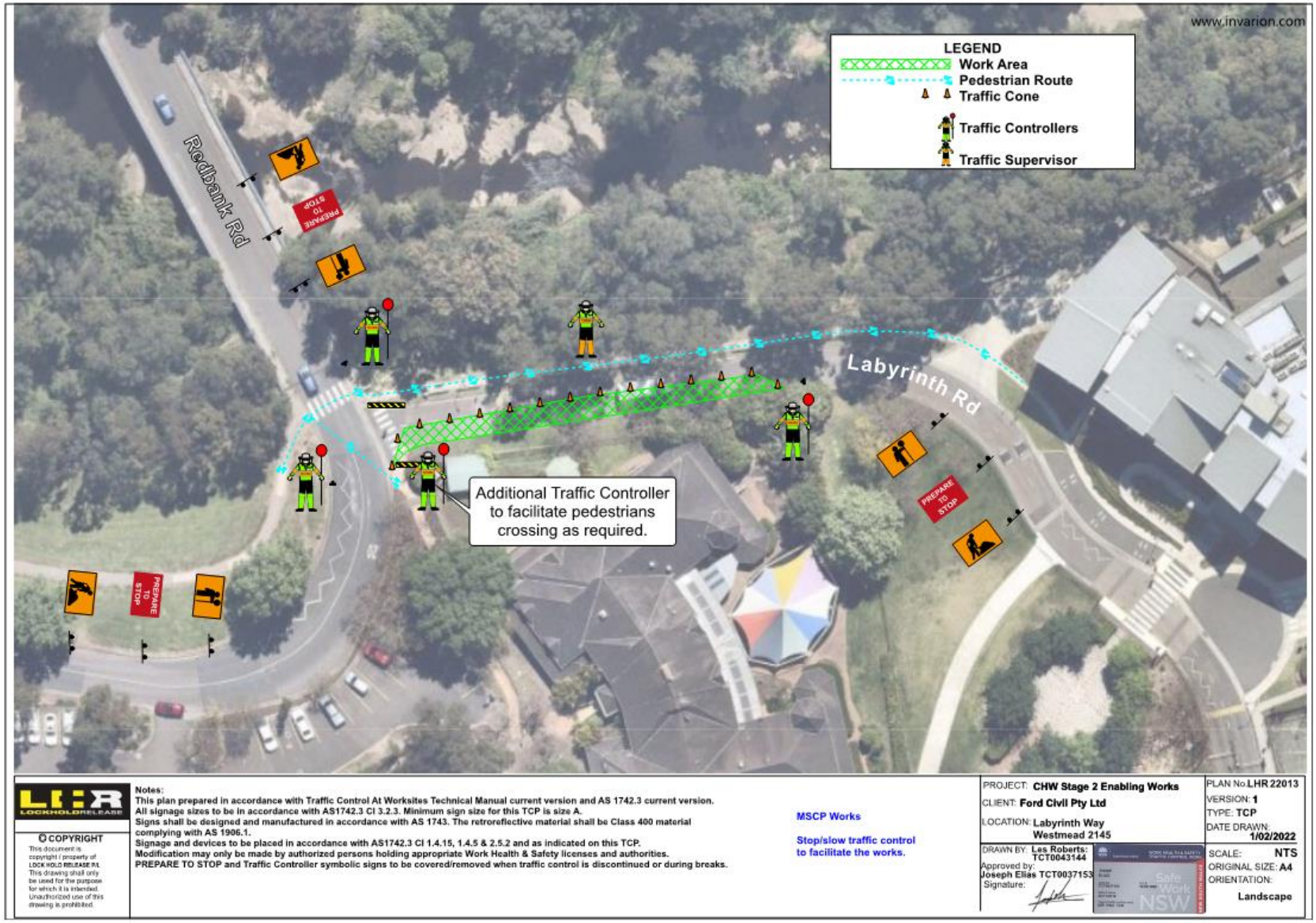
Appendix A – Wayfinding Strategy



Appendix B – Traffic Control Plans




www.invarion.com
N
Redbank Rd
Labyrinth Way
LEGEND
Work Area
Pedestrian Route
Traffic Cone
Traffic Controllers
Traffic Supervisor
PREPARE TO STOP
Carpark Closed
Access to be maintained at all times
Redbank Rd
Notes:
This plan prepared in accordance with Traffic Control At Worksites Technical Manual current version and AS 1742.3 current version.
All signage sizes to be in accordance with AS1742.3 Cl 3.2.3. Minimum sign size for this TCP is size A.
Signs shall be designed and manufactured in accordance with AS 1743. The retroreflective material shall be Class 400 material complying with AS 1906.1.
Signage and devices to be placed in accordance with AS1742.3 Cl 1.4.15, 1.4.5 & 2.5.2 and as indicated on this TCP.
Modification may only be made by authorized persons holding appropriate Work Health & Safety licenses and authorities.
PREPARE TO STOP and Traffic Controller symbolic signs to be covered/removed when traffic control is discontinued or during breaks.
Investigation Works
South bound lane.
Stop/slow traffic control
to facilitate the works.
© COPYRIGHT
This document is copyright / property of LOCKHOLD RELEASE P/L This drawing shall only be used for the purpose for which it is intended. Unauthorized use of this drawing is prohibited.
PROJECT: CHW Stage 2 Enabling Works
CLIENT: Ford Civil Pty Ltd
LOCATION: Redbank Rd
Westmead 2145
DRAWN BY: Les Roberts: TCT0043144
Approved by: Joseph Elias TCT0037153
Signature:
PLAN No. LHR 22012
VERSION: 1
TYPE: TCP
DATE DRAWN: 1/02/2022
SCALE: NTS
ORIGINAL SIZE: A4
ORIENTATION: Landscape


www.invarion.com
LEGEND
Work Area
Pedestrian Route
Traffic Cone
Traffic Controllers
Traffic Supervisor
Redbank Rd
Labyrinth Rd
PREPARE TO STOP
Additional Traffic Controller to facilitate pedestrians crossing as required.
LHR
LOCKHOLD RELEASE
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Notes:
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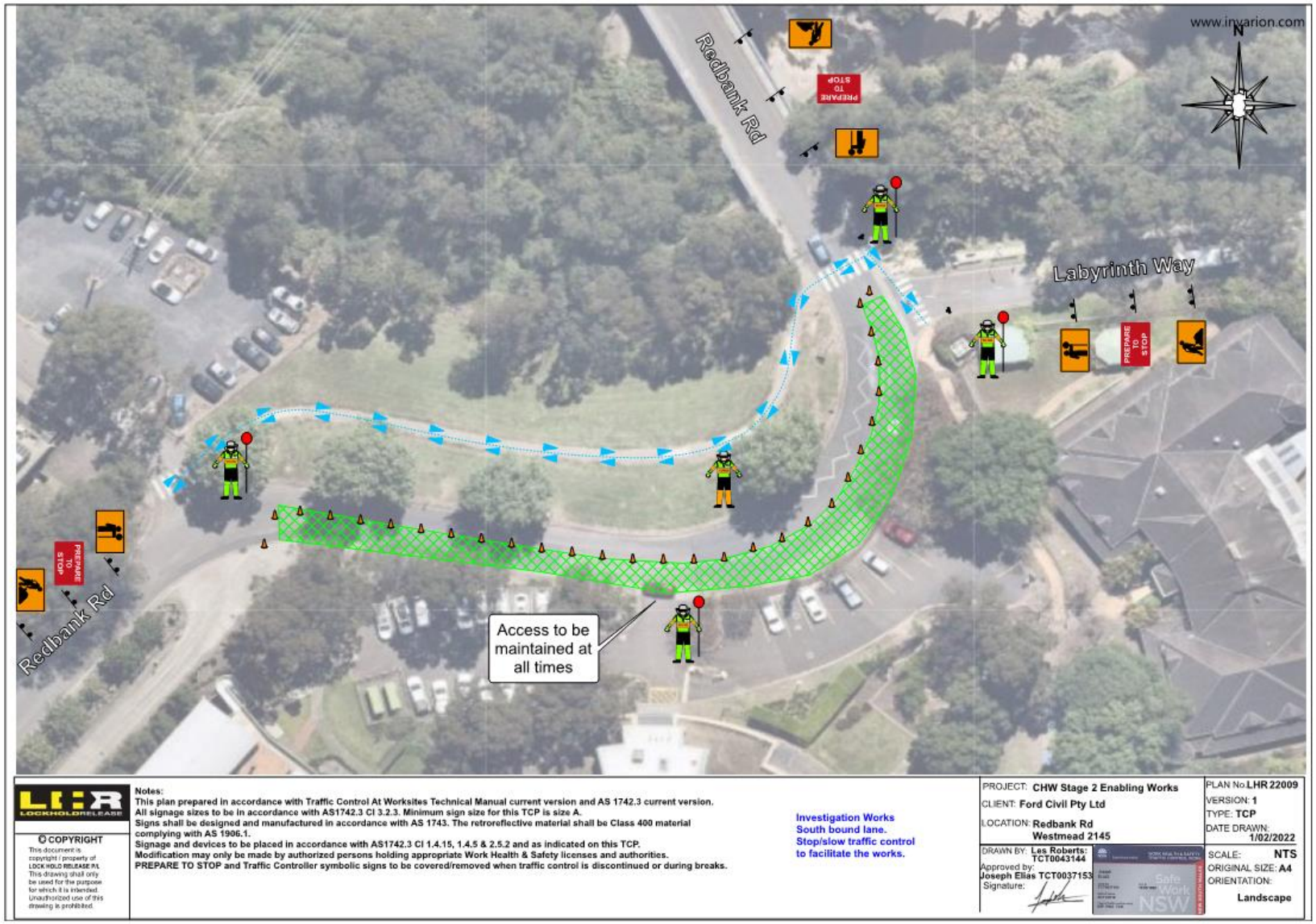
Signs shall be designed and manufactured in accordance with AS 1743. The retroreflective material shall be Class 400 material complying with AS 1906.1.
Signage and devices to be placed in accordance with AS1742.3 Cl 1.4.15, 1.4.5 & 2.5.2 and as indicated on this TCP.
Modification may only be made by authorized persons holding appropriate Work Health & Safety licenses and authorities.
PREPARE TO STOP and Traffic Controller symbolic signs to be covered/removed when traffic control is discontinued or during breaks.
MSCP Works
Stop/slow traffic control to facilitate the works.
PROJECT: CHW Stage 2 Enabling Works
CLIENT: Ford Civil Pty Ltd
LOCATION: Labyrinth Way Westmead 2145
DRAWN BY: Les Roberts: TCT0043144
Approved by: Joseph Elias TCT0037153
Signature:
Safe Work NSW
PLAN No. LHR 22013
VERSION: 1
TYPE: TCP
DATE DRAWN: 1/02/2022
SCALE: NTS
ORIGINAL SIZE: A4
ORIENTATION: Landscape



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Notes:
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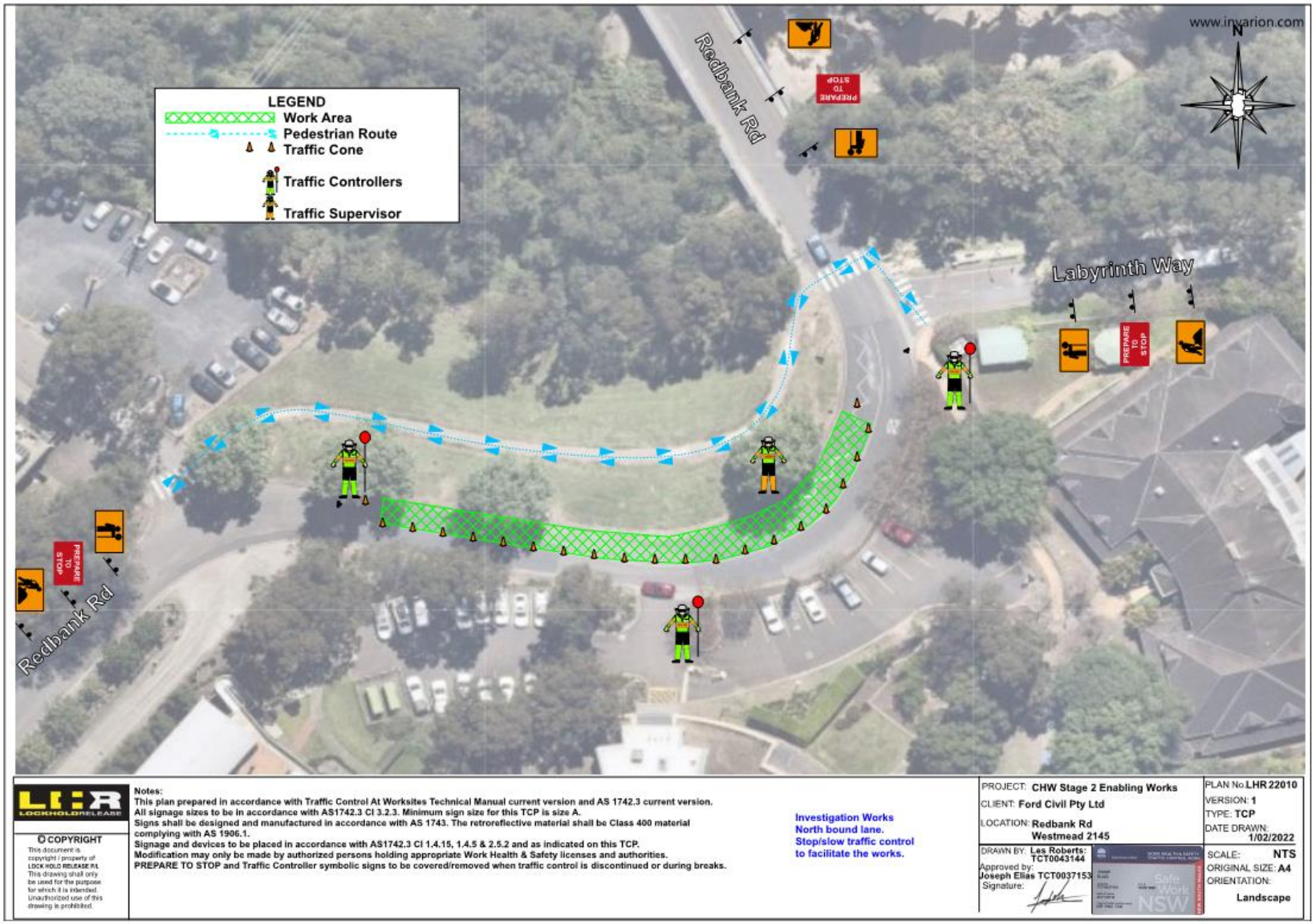
Signs shall be designed and manufactured in accordance with AS 1743. The retroreflective material shall be Class 400 material complying with AS 1906.1.
Signage and devices to be placed in accordance with AS1742.3 Cl 1.4.15, 1.4.5 & 2.5.2 and as indicated on this TCP.
Modification may only be made by authorized persons holding appropriate Work Health & Safety licenses and authorities.
PREPARE TO STOP and Traffic Controller symbolic signs to be covered/removed when traffic control is discontinued or during breaks.

Investigation Works
South bound lane.
Stop/slow traffic control to facilitate the works.

PROJECT: **CHW Stage 2 Enabling Works**
CLIENT: **Ford Civil Pty Ltd**
LOCATION: **Redbank Rd Westmead 2145**
DRAWN BY: **Les Roberts: TCT0043144**
Approved by: **Joseph Elias TCT0037153**
Signature:

PLAN No. **LHR 22009**
VERSION: **1**
TYPE: **TCP**
DATE DRAWN: **1/02/2022**
SCALE: **NTS**
ORIGINAL SIZE: **A4**
ORIENTATION: **Landscape**


www.invarion.com
N
LEGEND
Work Area
Pedestrian Route
Traffic Cone
Traffic Controllers
Traffic Supervisor
Redbank Rd
PREPARE TO STOP
Labyrinth Way
PREPARE TO STOP
Redbank Rd
PREPARE TO STOP
LOCKHOLDRELEASE
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Notes:
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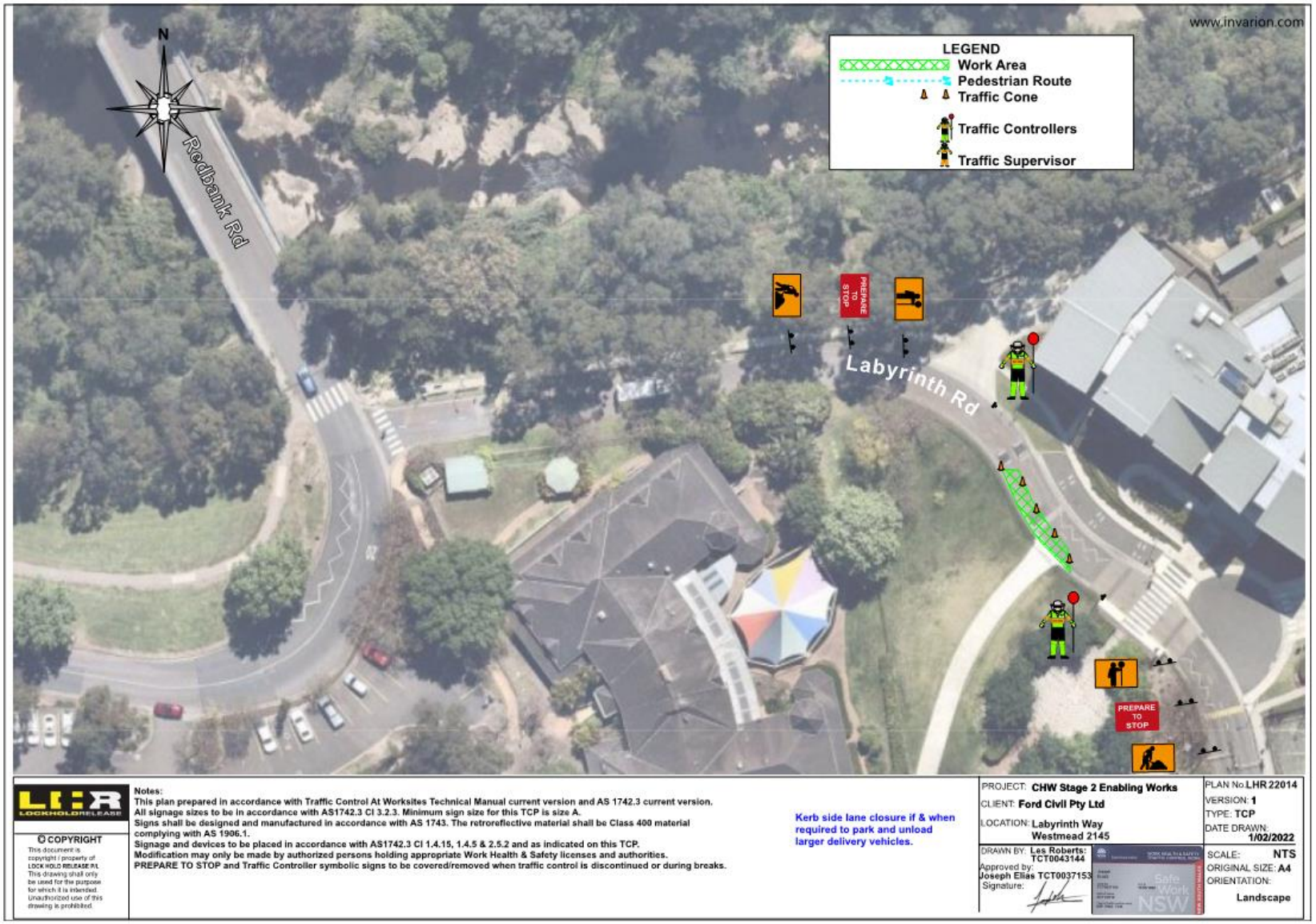
Signs shall be designed and manufactured in accordance with AS 1743. The retroreflective material shall be Class 400 material complying with AS 1906.1.
Signage and devices to be placed in accordance with AS1742.3 Cl 1.4.15, 1.4.5 & 2.5.2 and as indicated on this TCP.
Modification may only be made by authorized persons holding appropriate Work Health & Safety licenses and authorities.
PREPARE TO STOP and Traffic Controller symbolic signs to be covered/removed when traffic control is discontinued or during breaks.
Investigation Works
North bound lane.
Stop/slow traffic control
to facilitate the works.
PROJECT: CHW Stage 2 Enabling Works
CLIENT: Ford Civil Pty Ltd
LOCATION: Redbank Rd
Westmead 2145
DRAWN BY: Les Roberts: TCT0043144
Approved by:
Joseph Elias TCT0037153
Signature:
Safe Work NSW
PLAN No.LHR 22010
VERSION: 1
TYPE: TCP
DATE DRAWN: 1/02/2022
SCALE: NTS
ORIGINAL SIZE: A4
ORIENTATION: Landscape


www.invarion.com
N
Redbank Rd
Labyrinth Rd
LEGEND
Work Area
Pedestrian Route
Traffic Cone
Traffic Controllers
Traffic Supervisor
PREPARE TO STOP
PREPARE TO STOP
LOCKHOLDRELEASE
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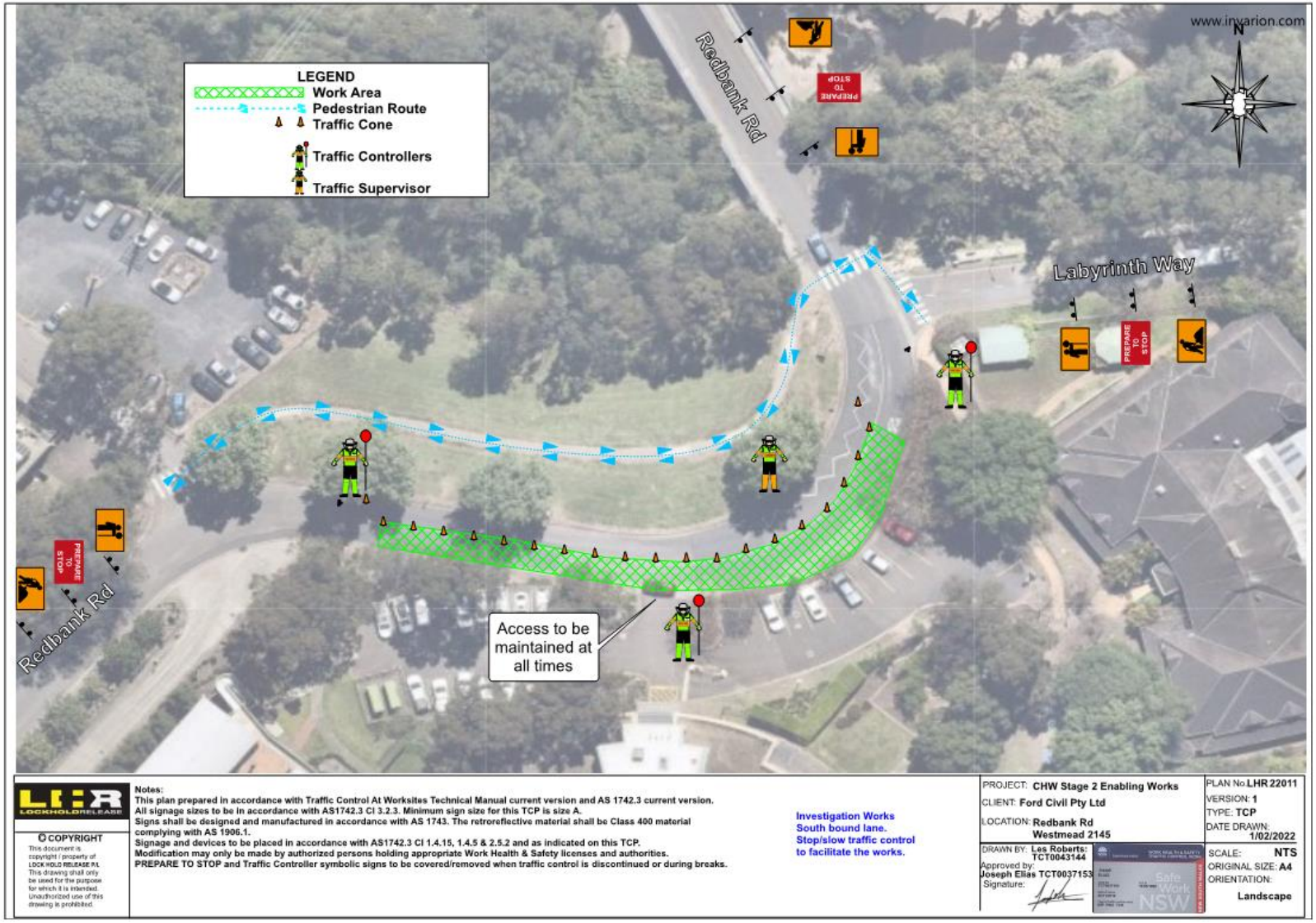
Signs shall be designed and manufactured in accordance with AS 1743. The retroreflective material shall be Class 400 material complying with AS 1906.1.
Signage and devices to be placed in accordance with AS1742.3 Cl 1.4.15, 1.4.5 & 2.5.2 and as indicated on this TCP.
Modification may only be made by authorized persons holding appropriate Work Health & Safety licenses and authorities.
PREPARE TO STOP and Traffic Controller symbolic signs to be covered/removed when traffic control is discontinued or during breaks.
Kerb side lane closure if & when required to park and unload larger delivery vehicles.
PROJECT: CHW Stage 2 Enabling Works
CLIENT: Ford Civil Pty Ltd
LOCATION: Labyrinth Way Westmead 2145
DRAWN BY: Les Roberts: TCT0043144
Approved by: Joseph Elias TCT0037153
Signature:
PLAN No. LHR 22014
VERSION: 1
TYPE: TCP
DATE DRAWN: 1/02/2022
SCALE: NTS
ORIGINAL SIZE: A4
ORIENTATION: Landscape


www.invarion.com
N
LEGEND
Work Area
Pedestrian Route
Traffic Cone
Traffic Controllers
Traffic Supervisor
Redbank Rd
PREPARE TO STOP
Labyrinth Way
PREPARE TO STOP
PREPARE TO STOP
Redbank Rd
Access to be maintained at all times
LOCKHOLD RELEASE
© COPYRIGHT
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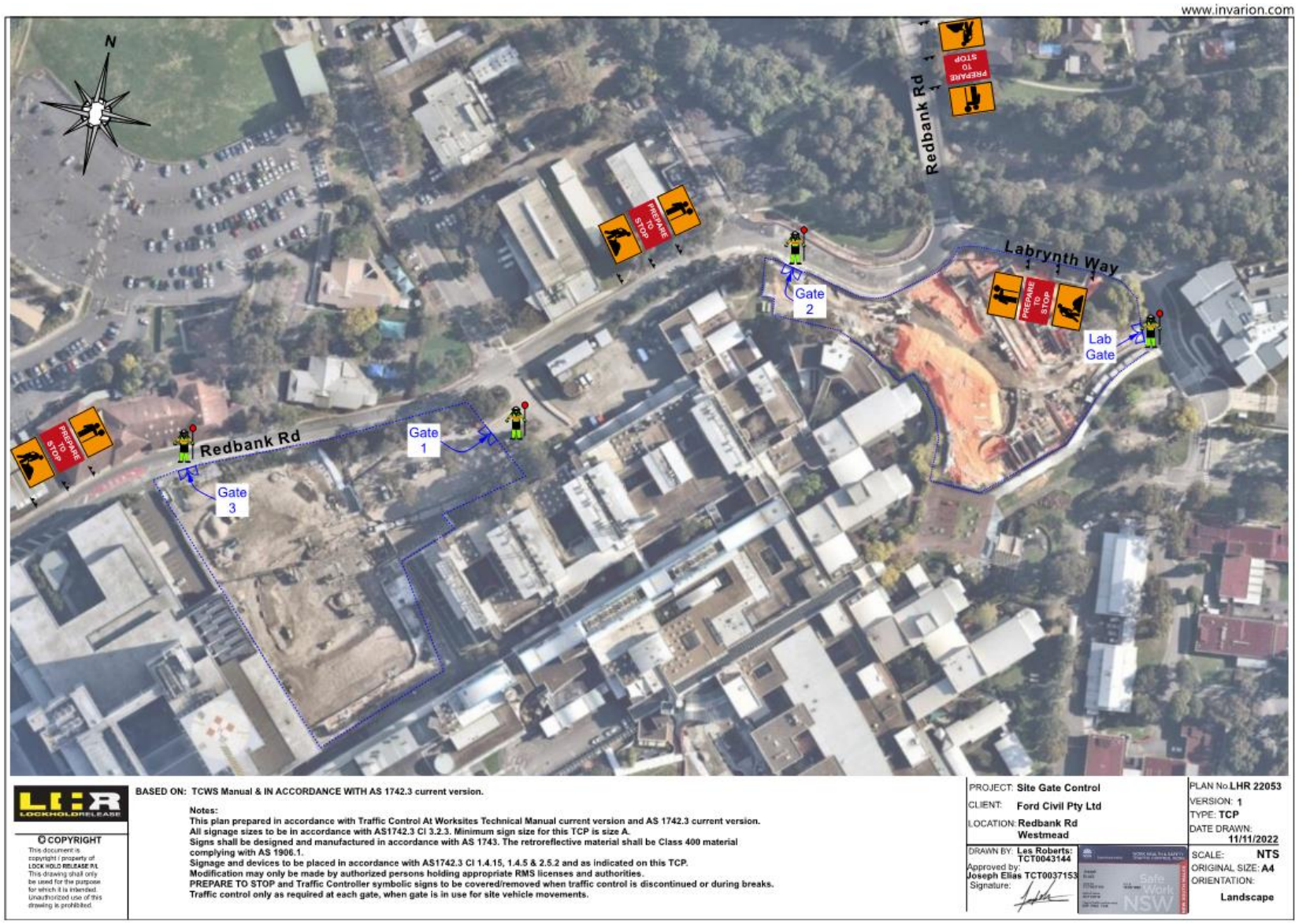
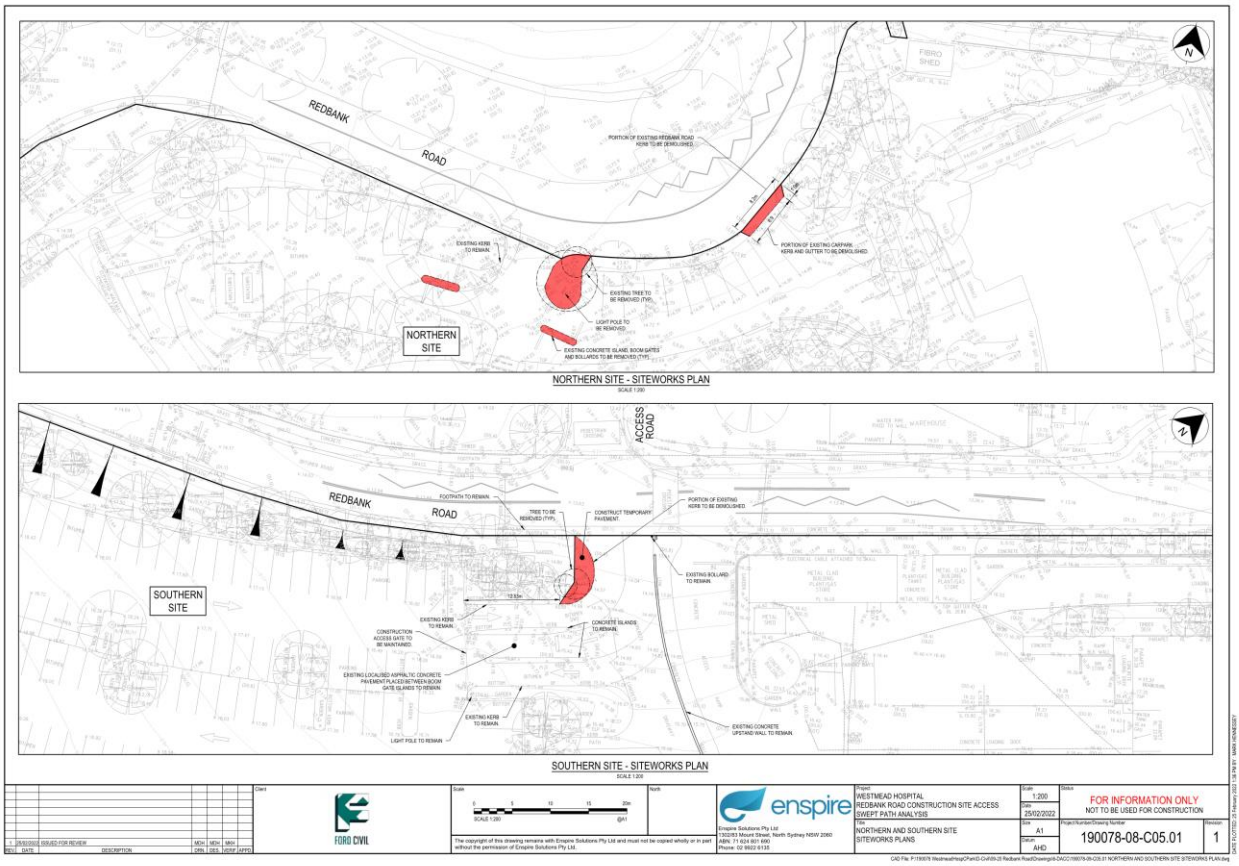
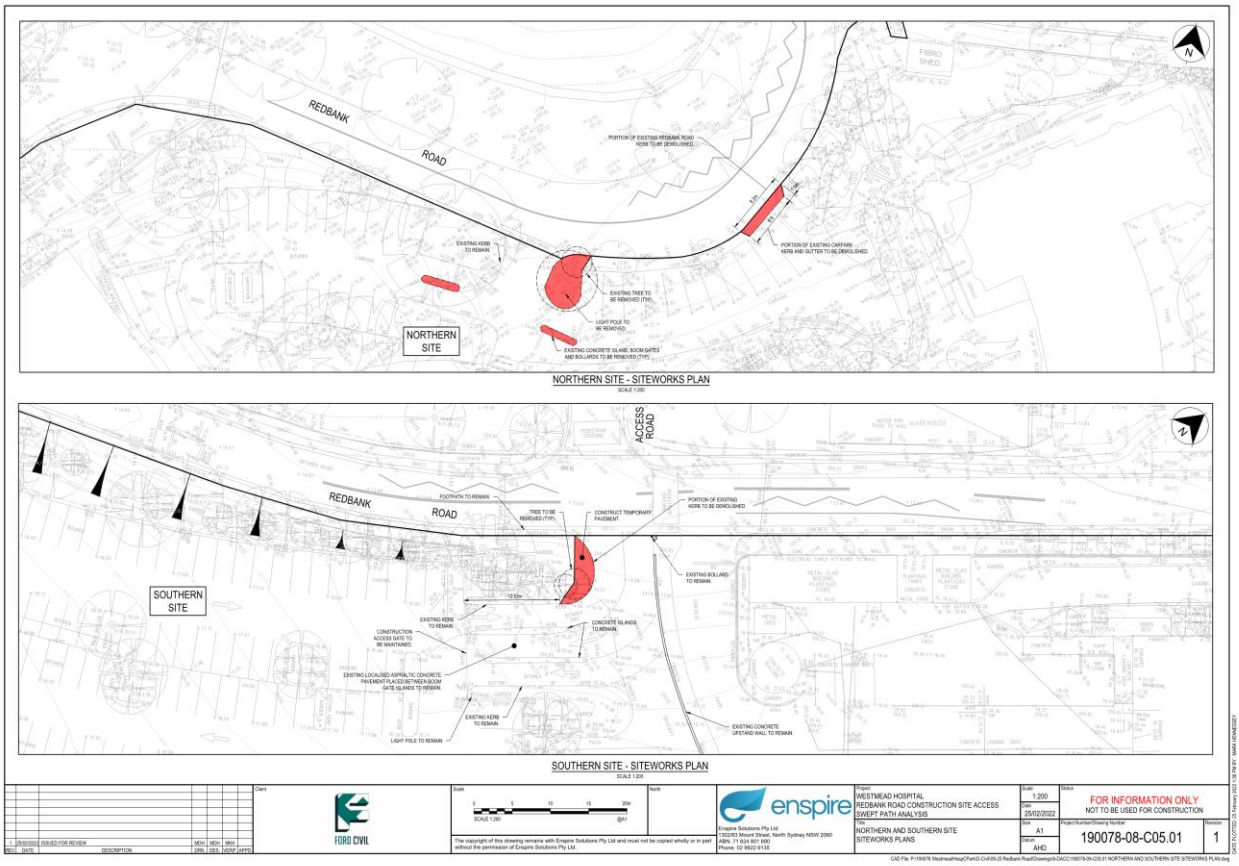
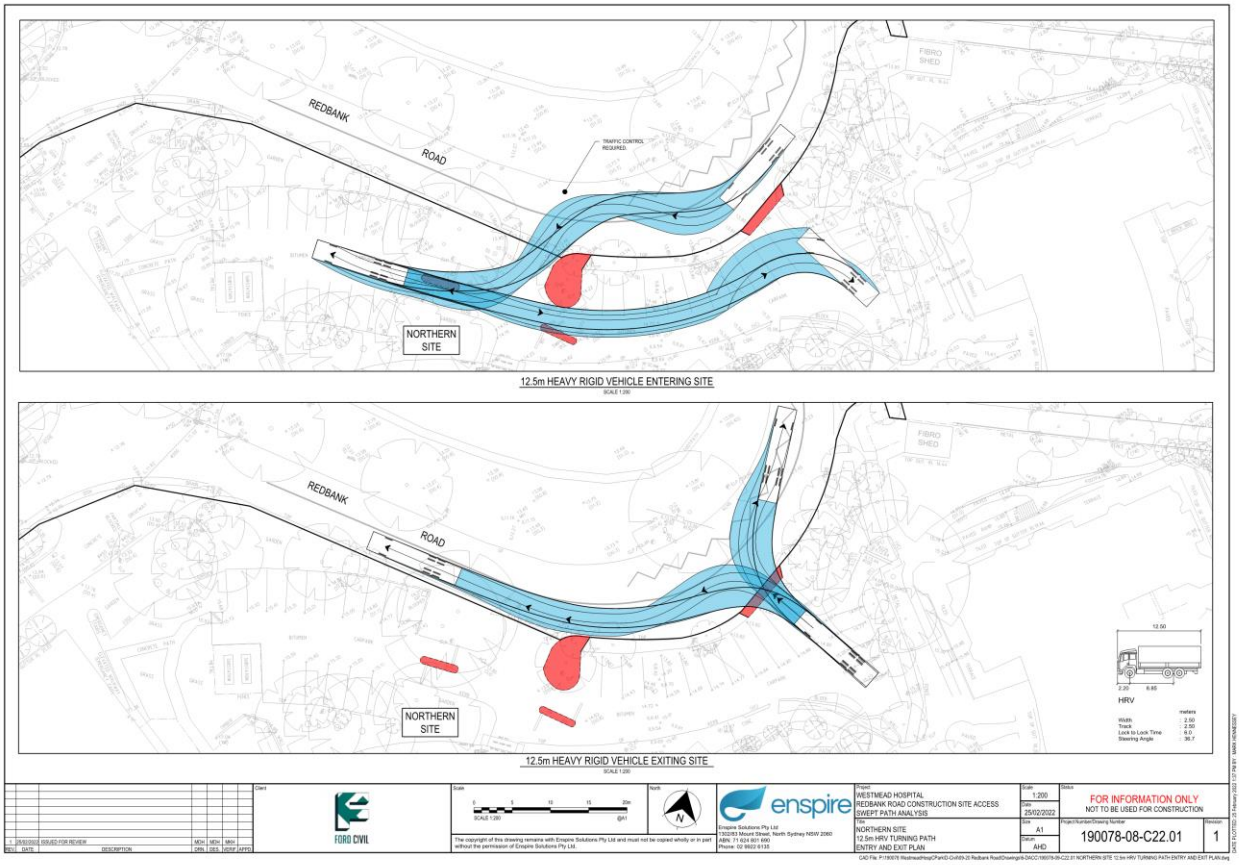
Notes:
This plan prepared in accordance with Traffic Control At Worksites Technical Manual current version and AS 1742.3 current version.
All signage sizes to be in accordance with AS1742.3 Cl 3.2.3. Minimum sign size for this TCP is size A.
Signs shall be designed and manufactured in accordance with AS 1743. The retroreflective material shall be Class 400 material complying with AS 1906.1.
Signage and devices to be placed in accordance with AS1742.3 Cl 1.4.15, 1.4.5 & 2.5.2 and as indicated on this TCP.
Modification may only be made by authorized persons holding appropriate Work Health & Safety licenses and authorities.
PREPARE TO STOP and Traffic Controller symbolic signs to be covered/removed when traffic control is discontinued or during breaks.
Investigation Works
South bound lane.
Stop/slow traffic control
to facilitate the works.
PROJECT: CHW Stage 2 Enabling Works
CLIENT: Ford Civil Pty Ltd
LOCATION: Redbank Rd
Westmead 2145
DRAWN BY: Les Roberts: TCT0043144
Approved by: Joseph Elias TCT0037153
Signature:
Safe Work NSW
PLAN No. LHR 22011
VERSION: 1
TYPE: TCP
DATE DRAWN: 1/02/2022
SCALE: NTS
ORIGINAL SIZE: A4
ORIENTATION: Landscape

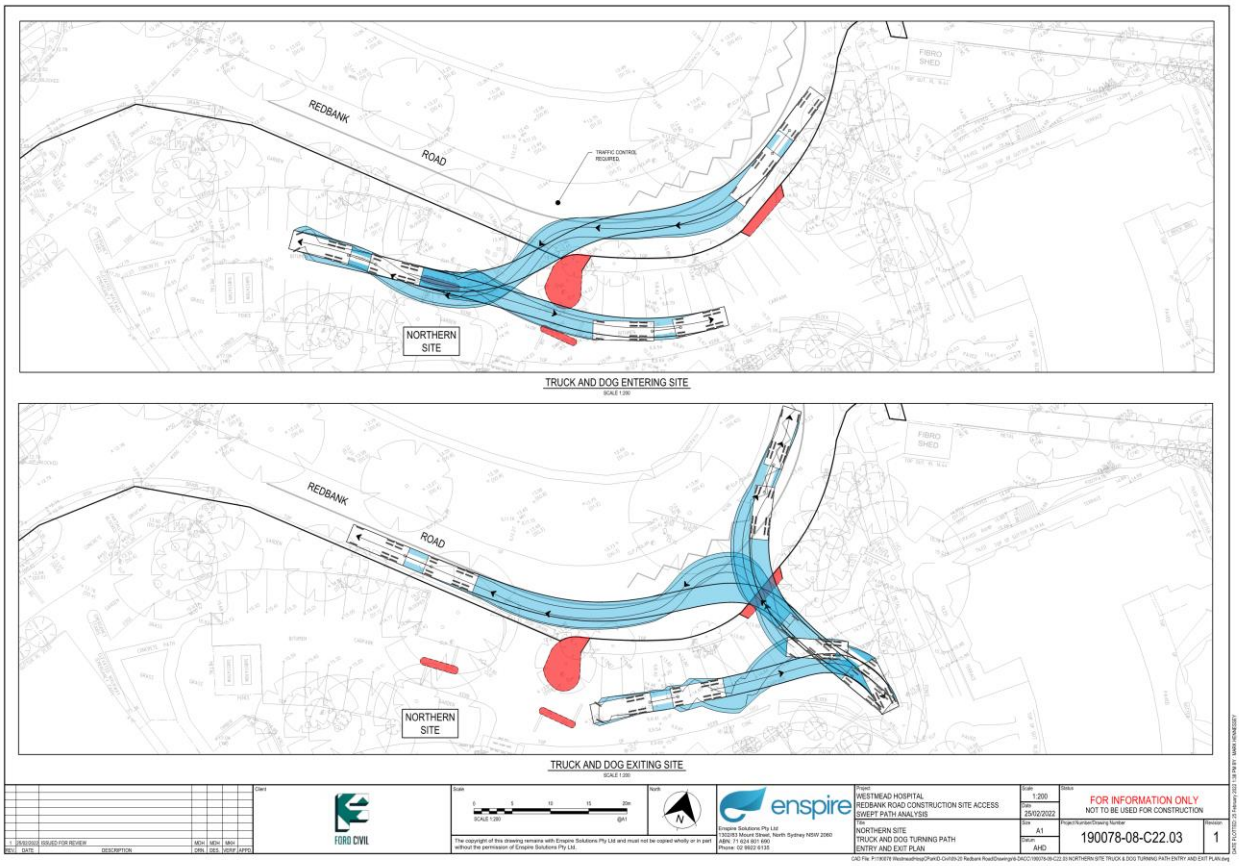

www.invarion.com
N
Redbank Rd
Redbank Rd
Labrynth Way
Gate 1
Gate 2
Gate 3
Lab Gate
PREPARE TO STOP
BASED ON: TCWS Manual & IN ACCORDANCE WITH AS 1742.3 current version.
Notes:
This plan prepared in accordance with Traffic Control At Worksites Technical Manual current version and AS 1742.3 current version.
All signage sizes to be in accordance with AS1742.3 Cl 3.2.3. Minimum sign size for this TCP is size A.
Signs shall be designed and manufactured in accordance with AS 1743. The retroreflective material shall be Class 400 material complying with AS 1906.1.
Signage and devices to be placed in accordance with AS1742.3 Cl 1.4.15, 1.4.5 & 2.5.2 and as indicated on this TCP.
Modification may only be made by authorized persons holding appropriate RMS licenses and authorities.
PREPARE TO STOP and Traffic Controller symbolic signs to be covered/removed when traffic control is discontinued or during breaks.
Traffic control only as required at each gate, when gate is in use for site vehicle movements.
© COPYRIGHT
PROJECT: Site Gate Control
CLIENT: Ford Civil Pty Ltd
LOCATION: Redbank Rd Westmead
DRAWN BY: Les Roberts: TCT0043144
Approved by: Joseph Elias TCT0037153
Signature:
PLAN No. LHR 22053
VERSION: 1
TYPE: TCP
DATE DRAWN: 11/11/2022
SCALE: NTS
ORIGINAL SIZE: A4
ORIENTATION: Landscape

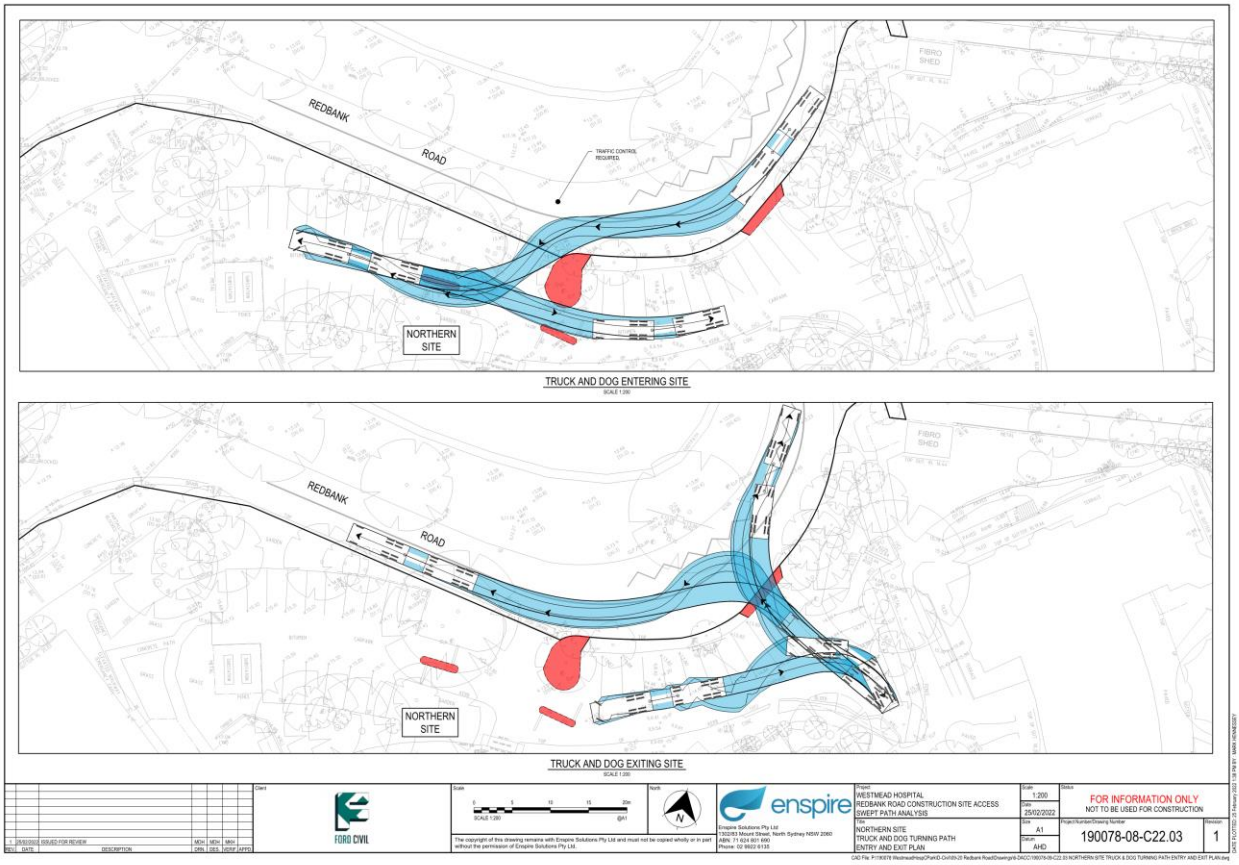
Appendix C – Construction Vehicle Swept Path

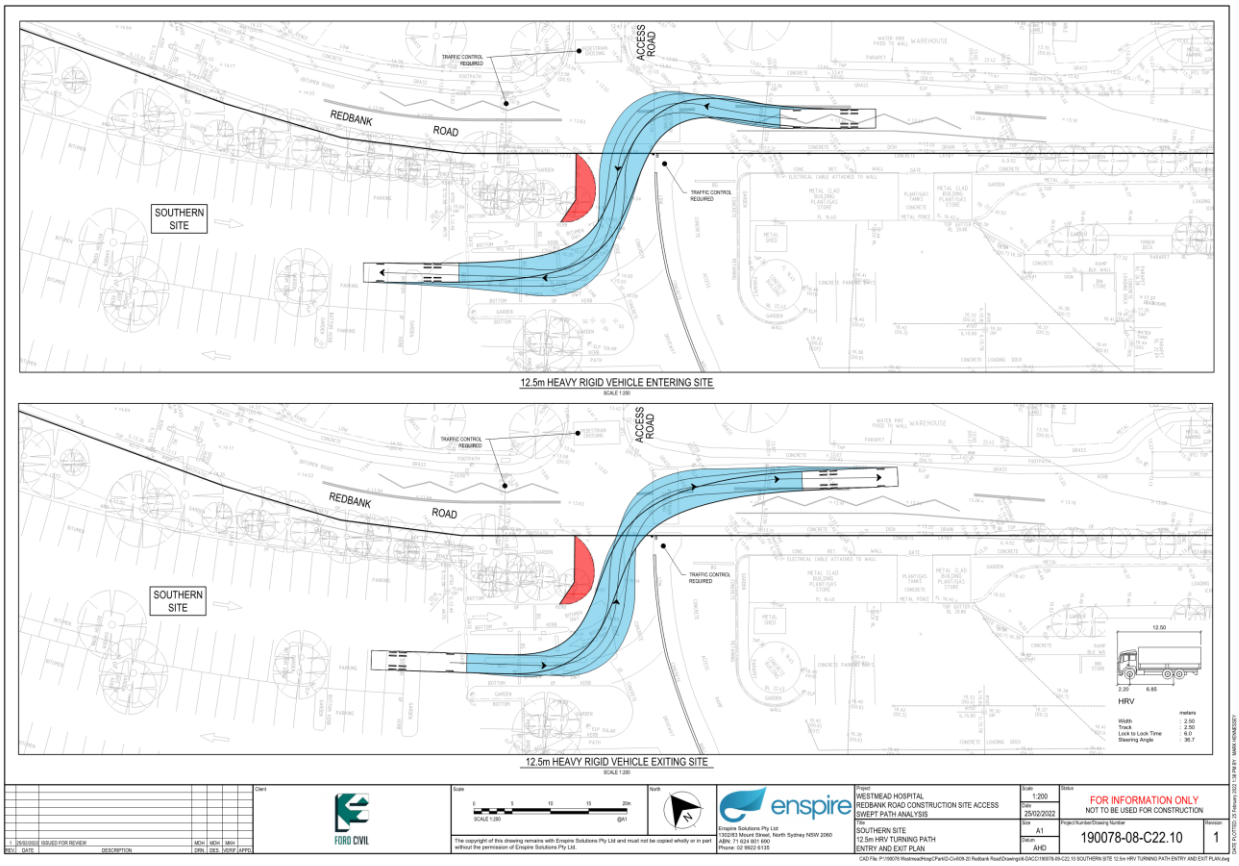


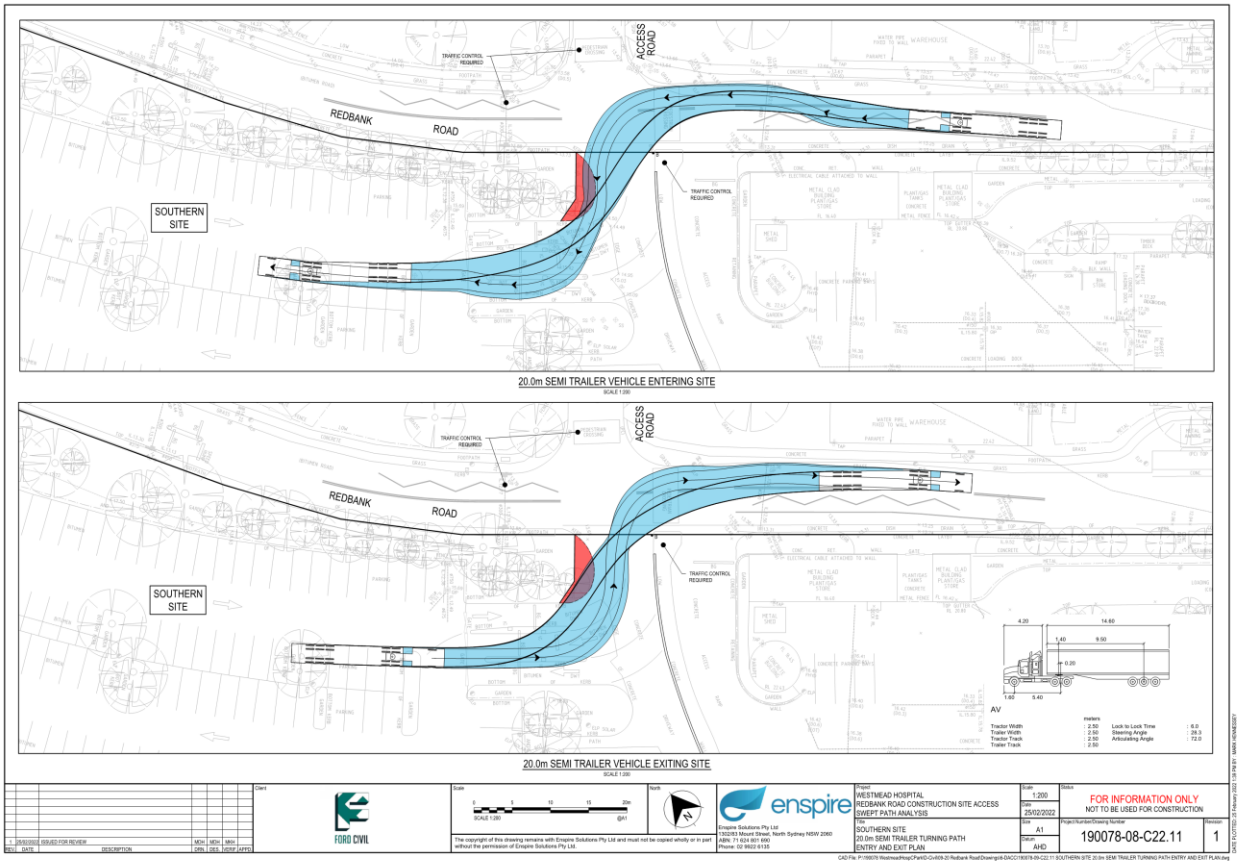

REDBANK
ROAD
NORTHERN SITE
EXISTING KERB TO REMAIN
PORTION OF EXISTING REDBANK ROAD KERB TO BE DEMOLISHED
PORTION OF EXISTING CARPARK KERB AND GUTTER TO BE DEMOLISHED
EXISTING TREE TO BE REMOVED (TYP)
LIGHT POLE TO BE REMOVED
EXISTING CONCRETE ISLAND, BOOM GATES AND BOLLARDS TO BE REMOVED (TYP)
NORTHERN SITE - SITEWORKS PLAN
SCALE 1:200
ACCESS ROAD
REDBANK
ROAD
SOUTHERN SITE
FOOTPATH TO REMAIN
TREES TO BE REMOVED (TYP)
CONSTRUCT TEMPORARY PAVEMENT
PORTION OF EXISTING KERB TO BE DEMOLISHED
EXISTING BOLLARD TO REMAIN
EXISTING KERB TO REMAIN
CONCRETE ISLANDS TO REMAIN
CONSTRUCTION ACCESS GATE TO BE MAINTAINED
EXISTING LOCALISED ASPHALTIC CONCRETE PAVEMENT PLACED BETWEEN BOOM GATE ISLANDS TO REMAIN
EXISTING KERB TO REMAIN
LIGHT POLE TO REMAIN
EXISTING CONCRETE UPSTAND WALL TO REMAIN
SOUTHERN SITE - SITEWORKS PLAN
SCALE 1:200
FORD CIVIL
enspire
WESTMEAD HOSPITAL
REDBANK ROAD CONSTRUCTION SITE ACCESS
SWEPT PATH ANALYSIS
NORTHERN AND SOUTHERN SITE
SITEWORKS PLANS
1:200
25/02/2022
A1
AHD
FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION
190078-08-C05.01
1

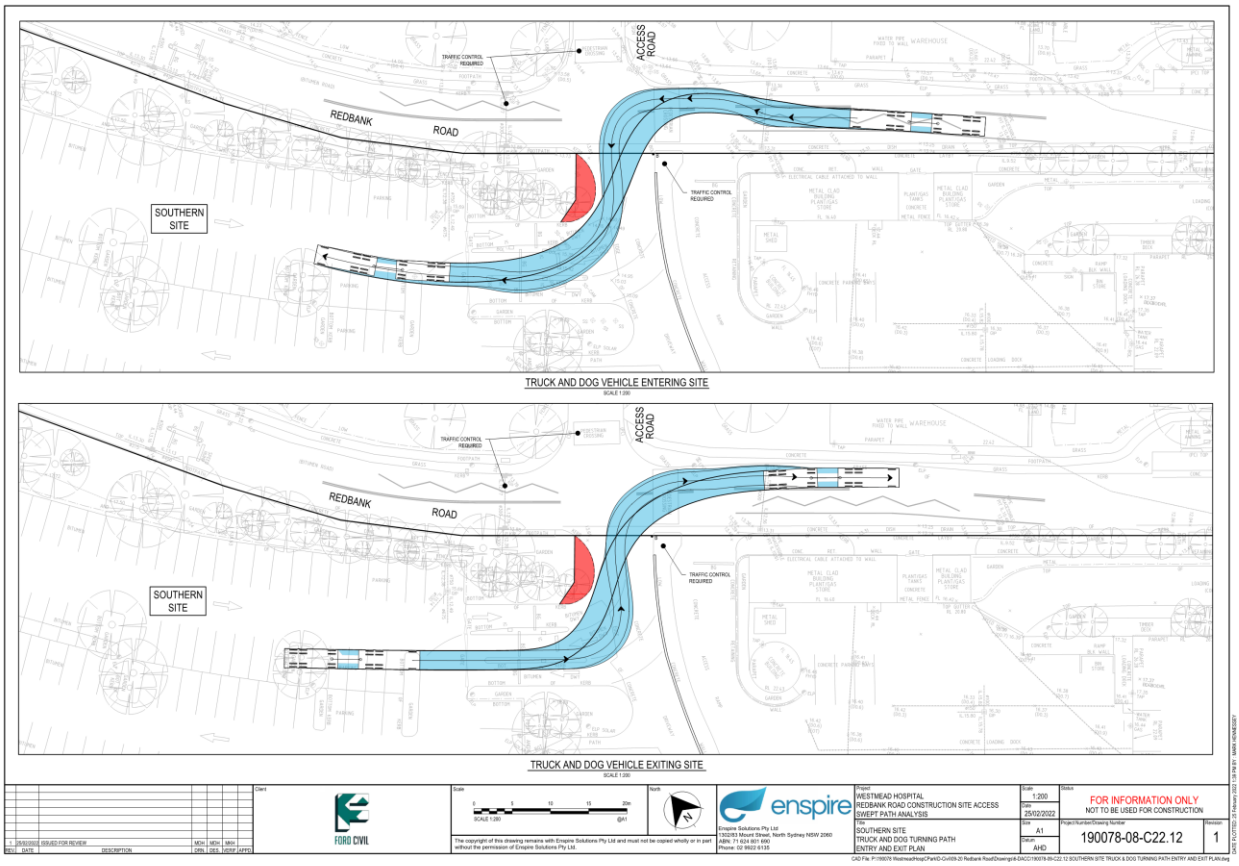

REDBANK
ROAD
TRAFFIC CONTROL REQUIRED
NORTHERN SITE
12.5m HEAVY RIGID VEHICLE ENTERING SITE
SCALE 1:200
REDBANK
ROAD
NORTHERN SITE
12.5m HEAVY RIGID VEHICLE EXITING SITE
SCALE 1:200
HRV
FORD CIVIL
enspire
WESTMEAD HOSPITAL
REDBANK ROAD CONSTRUCTION SITE ACCESS
SWEPT PATH ANALYSIS
NORTHERN SITE
12.5m HRV TURNING PATH
ENTRY AND EXIT PLAN
1:200
25/02/2022
A1
AHD
FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION
190078-08-C22.01
1

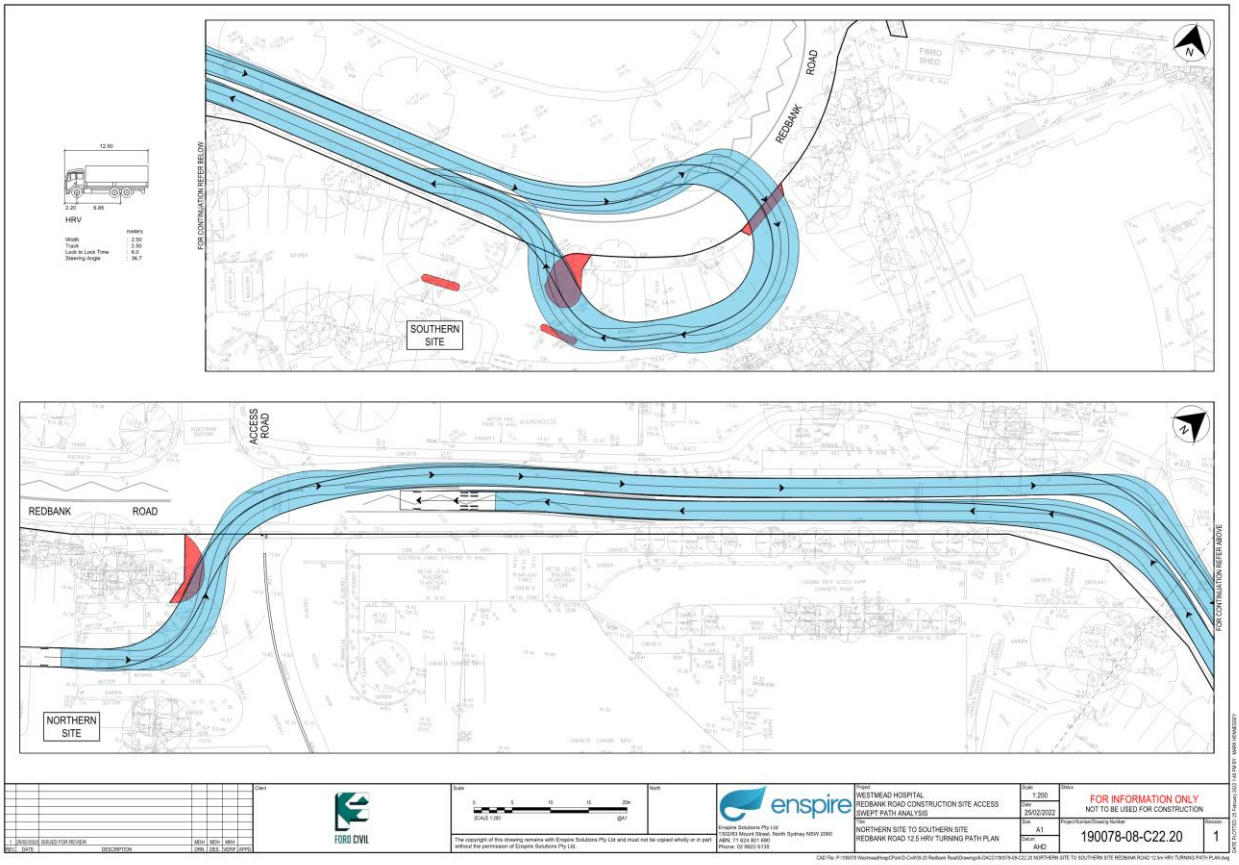

REDBANK
ROAD
TRAFFIC CONTROL REQUIRED
NORTHERN SITE
TRUCK AND DOG ENTERING SITE
SCALE 1:200
REDBANK
ROAD
NORTHERN SITE
TRUCK AND DOG EXITING SITE
SCALE 1:200
FORD CIVIL
enspire
WESTMEAD HOSPITAL
REDBANK ROAD CONSTRUCTION SITE ACCESS
SWEPT PATH ANALYSIS
NORTHERN SITE
TRUCK AND DOG TURNING PATH
ENTRY AND EXIT PLAN
1:200
25/02/2022
A1
AHD
FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION
190078-08-C22.03
1


REDBANK
ROAD
TRAFFIC CONTROL REQUIRED
NORTHERN SITE
TRUCK AND DOG ENTERING SITE
SCALE 1:200
REDBANK
ROAD
NORTHERN SITE
TRUCK AND DOG EXITING SITE
SCALE 1:200
FORD CIVIL
enspire
WESTMEAD HOSPITAL
REDBANK ROAD CONSTRUCTION SITE ACCESS
SWEPT PATH ANALYSIS
NORTHERN SITE
TRUCK AND DOG TURNING PATH
ENTRY AND EXIT PLAN
1:200
25/02/2022
A1
AHD
FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION
190078-08-C22.03
1


ACCESS ROAD
REDBANK ROAD
SOUTHERN SITE
TRAFFIC CONTROL REQUIRED
12.5m HEAVY RIGID VEHICLE ENTERING SITE
12.5m HEAVY RIGID VEHICLE EXITING SITE
HRV
enspire
WESTMEAD HOSPITAL
REDBANK ROAD CONSTRUCTION SITE ACCESS
SWEPT PATH ANALYSIS
SOUTHERN SITE
12.5m HRV TURNING PATH
ENTRY AND EXIT PLAN
FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION
190078-08-C22.10


ACCESS ROAD
REDBANK ROAD
SOUTHERN SITE
TRAFFIC CONTROL REQUIRED
20.0m SEMI TRAILER VEHICLE ENTERING SITE
20.0m SEMI TRAILER VEHICLE EXITING SITE
AV
enspire
WESTMEAD HOSPITAL
REDBANK ROAD CONSTRUCTION SITE ACCESS
SWEPT PATH ANALYSIS
SOUTHERN SITE
20.0m SEMI TRAILER TURNING PATH
ENTRY AND EXIT PLAN
FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION
190078-08-C22.11


ACCESS ROAD
REDBANK ROAD
SOUTHERN SITE
TRAFFIC CONTROL REQUIRED
TRUCK AND DOG VEHICLE ENTERING SITE
SCALE 1:200
ACCESS ROAD
REDBANK ROAD
SOUTHERN SITE
TRAFFIC CONTROL REQUIRED
TRUCK AND DOG VEHICLE EXITING SITE
SCALE 1:200
FORD CIVIL
enspire
WESTMEAD HOSPITAL
REDBANK ROAD CONSTRUCTION SITE ACCESS
SWEPT PATH ANALYSIS
SOUTHERN SITE
TRUCK AND DOG TURNING PATH
ENTRY AND EXIT PLAN
1:200
25/02/2022
A1
AHD
FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION
190078-08-C22.12
1


FOR CONTINUATION REFER BELOW
REDBANK ROAD
SOUTHERN SITE
12.50
2.20
6.85
HRV
ACCESS ROAD
REDBANK ROAD
NORTHERN SITE
FOR CONTINUATION REFER ABOVE
FORD CIVIL
enspire
WESTMEAD HOSPITAL
REDBANK ROAD CONSTRUCTION SITE ACCESS
SWEPT PATH ANALYSIS
NORTHERN SITE TO SOUTHERN SITE
REDBANK ROAD 12.5 HRV TURNING PATH PLAN
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FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION
190078-08-C22.20
1

Appendix D – FCC Policies

REMEDIATION
INFRASTRUCTURE
ROADWORKS
BULK EARTHWORKS
ENVIRONMENTAL
LANDSCAPING
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FCC-POL-074
Rev.1
10/01/2022

Motor Vehicle Policy

As part of Ford Civil commitment to achieving the principles of health and safety in the workplace, we recognise our moral and legal responsibility to provide a safe and healthy work environment for workers, contractors, customers and visitors. This commitment also extends to ensuring the safe use of motor vehicles.

It is the objective of Ford Civil that all motor vehicles will be provided and maintained in a safe and roadworthy condition, and that persons operating vehicles will be holders of the appropriate class of licence for the vehicle, and that vehicles will be driven in a safe and responsible manner in accordance with the road rules.

Management and supervisors must ensure that:

- → All vehicles that are to be driven on a public road are roadworthy and registered
- → All vehicles are serviced and maintained in a safe condition by a qualified mechanic

All motor vehicles must be operated in a safe and responsible manner in accordance with the road rules and taking road and traffic conditions into account. Traffic and parking infringement notices will be the responsibility of the driver, and not the company. Persons who breach road rules may be prohibited from further operation of company vehicles at the discretion of the company.

Persons operating vehicles in rough terrain or on unmade tracks, etc., must be familiar with the special techniques required to operate vehicles in abnormal conditions, and will not be allowed to undertake driving in hazardous conditions unless assessed as competent to do so.

Appropriate pre-start checks should be made of vehicles (when directed by the company), and include checks of fluids (oil, coolant, fuel, hydraulics, etc.), oil or other leaks, tyres, electrics (lights, horn, reversing beeper, etc.), and operation (steering, brakes, etc.). Repairs should only be carried out by authorised persons.

To comply with our policy, our staff will receive adequate induction and training to follow our systems and procedures.

This policy will apply to all employees and contractors and is reviewed periodically to ensure it remains relevant to the operations and activities of Ford Civil.

Alan Gordon
Chief Executive Officer

EXPERIENCE YOU CAN TRUST

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info@fordcivil.com.au
ABN: 24 002 542 814
PO BOX 26 Arncliffe NSW, 2205

FORD CIVIL
REMEDIATION
INFRASTRUCTURE
ROADWORKS
BULK EARTHWORKS
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LANDSCAPING

FCC-POL-050
Rev.1
10/01/2022

HVNL – Chain of Responsibility Policy

Ford Civil is committed to complying with the Chain of Responsibility (CoR) requirements under the Heavy Vehicle National Law (HVNL) legislation as it applies to its road transport operations.

This applies to all employees and contractors working for Ford Civil regardless of whether they are permanent, temporary, full-time, part-time or casual. For the purposes of this policy, the term contractor includes on-hire temporary labour services and sub-contractors.

This policy applies to all Ford Civil operations that:

→ use heavy vehicles with a gross vehicle mass (GVM) of over 4.5 tonnes; and/or
→ have a role to play in the Chain of Responsibility (CoR) as defined in the HVNL.

Principles To promote safety in the transport and logistics industry, the Heavy Vehicle National Law (HVNL) imposes exceedingly prescriptive requirements on the use, and operation, of heavy vehicles on the national road network. Amongst other things, these laws include limitations on weight, height, width, length, the amount of time spent driving, and the condition of vehicles that access the roadways. Road rules, such as speed, are also given extended effect within the HVNL, prohibiting actions/requests that cause or encourage drivers to exceed speed limits. Chain of Responsibility (CoR) applies to managers, supervisors, and officers, as well as operational staff directly involved in the transport activities. Ford Civil is committed to the ongoing health and safety of all persons involved with, or who may be affected by, its road transport operations and in complying with the HVNL through the development, implementation and maintenance of effective processes for:

→ the application of risk management practices for its transport activities;
→ the maintenance of vehicle standards to ensure Ford Civil vehicles are safe and roadworthy prior to use on a road;
→ assessing and managing vehicle mass and dimension;
→ speed monitoring;
→ fatigue management;
→ chain of responsibility requirements, including:
  - contracting, directing or employing drivers, and engaging service or repair agents; - preparing or packing goods for transport;
  - loading and unloading goods to or from a vehicle;
  - managing loading/unloading operations;
  - consigning goods to be, or receiving goods having been, transported by road; and
  - scheduling and directing the use of vehicles and drivers;
→ applying effective load restraint techniques;
→ developing and maintaining documentation for activities designed to control its transport risks;
→ ensuring that all Ford Civil personnel and management are effectively trained and proficient in their roles in its road transport activities;
→ conducting regular assurance activities to verify that risk controls are effective; and
→ management reporting.

To comply with our policy, our staff will receive adequate induction and training to follow our systems and procedures. This policy will apply to all employees and contractors and is reviewed periodically to ensure it remains relevant to the operations and activities of Ford Civil.

Alan Gordon
Chief Executive Officer

EXPERIENCE YOU CAN TRUST

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info@fordcivil.com.au

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PO BOX 26 Arncliffe NSW, 2205

Appendix E – Acceptance by CoPC and Endorsement by TfNSW

Danielle.Simpson

From: Sandy Leung <sleung@cityofparramatta.nsw.gov.au>
Sent: Thursday, 31 March 2022 9:01 AM
To: Danielle.Simpson
Cc: Richard Searle; Danny.Khal; Adam.Khan; Rafael Guintu
Subject: RE: Westmead - CHW Stage 2 Enabling Works

You don't often get email from sleung@cityofparramatta.nsw.gov.au. Learn why this is important

Thanks Danielle.

Kind regards,
Sandy Leung
Traffic & Transport Investigation Engineer | Development and Traffic Services

Ph 9806 5571

City of Parramatta
126 Church Street, Parramatta NSW 2150
PO Box 32, Parramatta, NSW 2124
cityofparramatta.nsw.gov.au

CITY OF PARRAMATTA

From: Danielle.Simpson <danielle.simpson@fordcivil.com.au>
Sent: Wednesday, 30 March 2022 5:26 PM
To: Sandy Leung <sleung@cityofparramatta.nsw.gov.au>
Cc: Richard Searle <RSearle@cityofparramatta.nsw.gov.au>; Danny.Khal <Danny.Khal@fordcivil.com.au>; Adam.Khan <Adam.Khan@fordcivil.com.au>; Rafael Guintu <Rafael.Guintu@fordcivil.com.au>
Subject: RE: Westmead - CHW Stage 2 Enabling Works

***[EXTERNAL EMAIL]** Stop and think before opening attachments, clicking on links or responding. ***

Hi Sandy,

Thanks for getting back to me.

Please see below in response to your queries:

1. The SSDA approved work hours are noted in Section 9.8 of the Project CEMP, noting that these hours also align with shift times for staff at the Children's Hospital Westmead (i.e. existing public transport already services these times) . Please find attached plan for your reference.

1

2. With regards to the staged construction of Redbank Road, Figure 8 may be a bit misleading however I can confirm that both Northbound and Southbound access will be maintained at all times (particularly given that this is used by emergency services for access to the hospital). Where this is not feasible (i.e. for pavement tie in works), access will be maintained under a contra-flow which will be managed by traffic controllers. VMS boards will also be installed prior to these tie-in works to provide sufficient notice & warning to motorists.
3. Noted. A NHVR application will be submitted as required by the transport companies responsible for any large deliveries.

I hope the above is satisfactory to close out your queries. If not, please let me know what else you may require.

Happy for you to give me a call to discuss.

Thanks,

DANIELLE SIMPSON

M 0411 302 181
E danielle.simpson@fordcivil.com.au
P 02 9597 4122
F 02 9597 4966
A 9 Hattersley Street, Arncliffe NSW, 2205
PO BOX 26, Arncliffe NSW, 2205
fordcivil.com.au

REMEDIATION BULK I
INFRASTRUCTURE ENVIRI

Ford Civil Contracting Pty Ltd
Experience You Can Trust

From: Sandy Leung <sleung@cityofparramatta.nsw.gov.au>
Sent: Friday, 25 March 2022 11:27 AM
To: Danielle.Simpson <danielle.simpson@fordcivil.com.au>
Cc: Richard Searle <RSearle@cityofparramatta.nsw.gov.au>
Subject: FW: Westmead - CHW Stage 2 Enabling Works

Hi Danielle,

Apologies for the delay in my response. I have been off sick and just came back today. Below are our comments on the attached CPTMSP:

- Proposed construction hours were not provided in the CTMSP however, it is recommended that the construction hours proposed will help encourage construction workers to arrive and depart the site using public transport (for example, generally aligning with morning and afternoon bus arrival and departure times).
- It is noted that Stage 3 of the construction (shown in Figure 8) appears to close northbound traffic on Redbank Road on the southern side of the bridge. VMS boards and notification letters to impacted residents and businesses are to be installed and sent at least 1 week before the proposed lane closure.
- Report indicates that overloaded or oversized vehicles will be used during construction. Should these vehicles travel on local roads, the applicant will need to submit an NHVR application and obtain approval.

Kind regards,
Sandy Leung

2

Traffic & Transport Investigation Engineer | Development and Traffic Services

Ph 9806 5571

City of Parramatta
126 Church Street, Parramatta NSW 2150
PO Box 32, Parramatta, NSW 2124
cityofparramatta.nsw.gov.au

CITY OF PARRAMATTA

From: Danielle.Simpson <danielle.simpson@fordcivil.com.au>
Sent: Wednesday, 16 March 2022 8:33 AM
To: Traffic <Traffic@cityofparramatta.nsw.gov.au>
Cc: Danny.Khal <Danny.Khal@fordcivil.com.au>; Adam.Khan <Adam.Khan@fordcivil.com.au>; Rafael Guintu <Rafael.Guintu@fordcivil.com.au>
Subject: RE: Westmead - CHW Stage 2 Enabling Works

***[EXTERNAL EMAIL]** Stop and think before opening attachments, clicking on links or responding. ***

Good morning,

Just following up as to whether the Construction Traffic and Pedestrian Management Sub Plan submitted on the 17/02/2022 has been reviewed and accepted by Council?

Please let me know if there are any additional comments that need to be addressed.

Sub plan is attached again for reference.

Thanks,

DANIELLE SIMPSON

M 0411 302 181
E danielle.simpson@fordcivil.com.au
P 02 9597 4122
F 02 9597 4966
A 9 Hattersley Street, Arncliffe NSW, 2205
PO BOX 26, Arncliffe NSW, 2205
fordcivil.com.au

REMEDIATION BULK I
INFRASTRUCTURE ENVIRI

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3

From: Danielle.Simpson
Sent: Thursday, 17 February 2022 11:40 AM
To: traffic@cityofparramatta.nsw.gov.au
Cc: Danny.Khal <Danny.Khal@fordcivil.com.au>; Adam.Khan <Adam.Khan@fordcivil.com.au>; Rafael Guintu <Rafael.Guintu@fordcivil.com.au>
Subject: Westmead - CHW Stage 2 Enabling Works

Hi,

FCC have been engaged by Health Infrastructure to complete the CHW Stage 2 Enabling Works – Combined Civils project.

As part of this we have prepared the attached Construction Traffic and Pedestrian Management Sub Plan.

Although the Project is within the hospital precinct, we would appreciate if you could review the attached plan given that arterial and local roads will be used for access. Noting that this plan has already been forwarded onto Christopher Smith from TfNSW given the Projects proximity to arterial roads and the Parramatta Light Rail Project.

If you have any questions or comments with regards to the attached, please give me a call.

Thanks,

DANIELLE SIMPSON

M 0411 302 181
E danielle.simpson@fordcivil.com.au
P 02 9597 4122
F 02 9597 4966
A 9 Hattersley Street, Arncliffe NSW, 2205
PO BOX 26, Arncliffe NSW, 2205
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Ford Civil Contracting Pty Ltd
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4

Danielle.Simpson

From: Christopher Smith <Christopher.SMITH3@transport.nsw.gov.au>
Sent: Friday, 18 February 2022 12:00 PM
To: Danielle.Simpson
Cc: Danny.Khal; Amy Walgers
Subject: RE: Westmead - CHW Stage 2 Enabling Works

Hi Danielle/Danny,

Thanks for providing the opportunity to review the above CTMP.

Ultimately, with the location of the worksite being wholly within the hospital precinct, the only concern for CJP/TfNSW would be the haulage routes and number of vehicle movements on these haulage routes.

It is detailed within Section 5.1, the expected number of heavy vehicle movements for each stage of the works. Theses volumes should be able to be accommodated comfortably within the existing road network on the stated haulage routes.

Accordingly, CJP/TfNSW have no objections to this proposed works as detailed in the CTMP.

However, should the haulage routes or volumes change significantly, I would ask that you contact me with details of the change.

Thanks

Chris Smith
Operations Manager – Central River City
Customer Journey Planning
Greater Sydney – Operations
Transport for NSW

T 02 8396 1613 | **M** 0439 588 418
25 Garden Street Eveleigh NSW 2015

From: Danielle.Simpson <danielle.simpson@fordcivil.com.au>
Sent: Wednesday, 16 February 2022 1:21 PM
To: Christopher Smith <Christopher.SMITH3@transport.nsw.gov.au>
Cc: Danny.Khal <Danny.Khal@fordcivil.com.au>
Subject: RE: Westmead - CHW Stage 2 Enabling Works

1

Appendix F – Independent Audit of CTPMSP

Worksite & Personnel Inspection Audit

Job/Project:	Westmead Children's Hospital Stage 2 Enabling Works					
Location:	Corner of Redbank Rd and Labyrinth Way, Westmead NSW 2145					
Inspected By:	Wade Lewis				**Date:**	THU 17 FEB 2022
Position:	SafeWork NSW Trainer, Assessor, Auditor. TfNSW – TR21494				**Time:**	11:00AM – 1:00PM (02 Hours)
Item	**Acceptable**			**Action needed?**	**Due**	**Notes**
General						
TCP on Site	Y	N	N/A	N/A		CTPMP – WENAB2-MAN-CTPMSP-REV.A
TCP appropriate	Y	N	N/A	N/A		
R O L/Permit on Site	Y	N	N/A	N/A		Westmead Hospital - Authority
S W M S on site	Y	N	N/A	N/A		FORD CIVIL Document (Site Office)
Emergency plan explained	Y	N	N/A	N/A		Site Induction / Pre-Start / Toolbox Meeting
Personnel						
RMS cards on site	Y					Carried by LHR Traffic Personnel
White cards on site	Y					Carried by LHR Traffic Personnel
S W M S signed off by all personnel	Y					Site Office documented (SWMS)
All crew Inducted	Y					Site Indcution / Pre-Start Meeting / SWMS
Correct PPE worn	Y					In accordance with AS1742.3
PPE in condition	Y					In accordance with AS1742.3
Breath/drug tested			N/A			
Fatigue managed	Y					15mins hand-over / 2hrs
Signs and Devices						
Signs accord with TCP/TGS	Y					Inspection completed
Devices accord with TCP	Y					Inspection completed
Signs visible to traffic	Y					Clearly Identified / Positioned
Taper lengths appropriate	Y					Within specifications
Variances noted on TCP			N/A			
Plant & Equip Inspected	Y					Vehicle Pre-Start Logbook Inventory Checklist completed daily
Work Site						
Work area secure from public	Y					Pedestrian Delineation implemented
Pedestrian pathways safe	Y					Pedestrian Delineation implemented
Controllers correctly positioned	Y					Sight-distances & Escape Routes maintained
Signs covered when not needed	Y					After Care procedures stated

Audit findings & conclusion:

Job/Project:	Westmead Children's Hospital Stage 2 Enabling Works		
Location:	Corner of Redbank Rd and Labyrinth Way, Westmead NSW 2145		
Inspected By:	Wade Lewis	**Date:**	THU 17 FEB 2022
Position:	SafeWork NSW Trainer, Assessor, Auditor. TfNSW – TR21494	**Time:**	11:00AM – 1:00PM (02 Hours)

Site documentation, TGS implementation, and traffic control operations inspected and observed.
All aspects and associated works found to be compliant in accordance with the following:

TfNSW – Traffic Control at Worksites Technical Guide (TCAWS V.6)
Australian Standard AS1742.3 – Manual of Uniform Traffic Control Devices (MUTCD)
AUSTROADS Guidelines & COP
Australian Road Rules 1993 / Act 1993

Nil amendment, modification, or action required at this time.
The CTPMSP and associated documents should be monitored and continually reviewed to ensure site safety and compliance.

Wade Lewis

SafeWork NSW Trainer Assessor
SafeWork NSW Workzone Planner & Auditor #TR21494
Ph. 0422 992 400 Em. info@trafficcontrollicences.com.au

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APPENDIX B

Construction Noise & Vibration Management Sub-Plan (CNVMSP)

Project	Westmead Children's Hospital Stage 2 Enabling Works
Site Address	Corner of Redbank Rd and Labyrinth Way, Westmead
Client	Health Administration Corporation
Contract no.	H121427
Date	28.03.2022

ABN	24 002 542 814
Address	9 Hattersley Street, Arncliffe NSW 2205
Phone	02 9597 4122
Web	www.fordcivil.com.au
Email	info@fordcivil.com.au

Document issue register

Revision #	Issue date	Update summary	Prepared/ Revised by	Reviewed By	Approved by
A	4.02.2022	Project Document	Danielle Simpson	Lawrence Saliba	Danny Khal
B	28.02.2022	Updated to reflect DPE commentary	Lawrence Saliba	Lawrence Saliba	Danny Khal
C	16.03.2022	Updated to reflect DPE commentary for MSCP	Danielle Simpson	Lawrence Saliba	Danny Khal
D	28.03.2022	Updated to reflect SLR's peer review comments	Danielle Simpson	Lawrence Saliba	Danny Khal
E	5.05.2022	Updated to reflect additional DPIE commentary for MSCP	Danielle Simpson	Lawrence Saliba	Danny Khal

Distribution

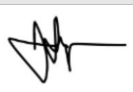
Controlled Copy No.	Issue Holder	Revision	Issue Date
1	1	E	5.05.2022

Authority

Ford Civil's Chief Operating Officer has authorised 'Danny Khal' as a Project Manager and allocated overall project delivery responsibility for the project to him.

This Project Environmental Management Plan has been prepared for use to manage applicable statutory and regulatory requirements as well as contractual and organisational requirements for the project.

The issue and revision of this Management plan is made under the authority of the Project Manager. This document and its effectiveness will be reviewed and evaluated during project monthly review meetings.

Function	Name	Position	Signature	Date
Prepared by	Danielle Simpson	Project HSEQ Representative		5.05.2022
Reviewed by	Lawrence Saliba	HSEQ Manager		5.05.2022
Approved by	Danny Khal	Project Manager		5.05.2022

Contents

1 Introduction

1.1 Context

This Construction Noise and Vibration Management Sub-Plan (CNVMSP or Plan) forms part of the Construction Environmental Management Plan (CEMP) for the Children's Hospital Westmead - Stage 2 Enabling Works (the Project).

This CNVMSP has been prepared to address the requirements of the State Significant Development Applications (SSDA 10434896 and SSDA 10349252) conditions of consent.

1.2 Project & Scope Description

Ford Civil Contracting Pty Ltd (FCC) has been awarded the Contract for the Children's Hospital Westmead - Stage 2 Enabling Works Project.

The enabling works for the Paediatric Services Building (PSB) and the Multi Storey Car Park (MSCP) form part of the Combined Civil's Scope of Work and incorporates the design finalisation and construction of the following elements:

Multi Story Carpark:

- Design finalisation
- Demo of existing lodge building
- Salvage playground equipment
- Clear site (Trees & Pavements)
- Earthworks (Approx. 3500m3 C/Fill) up to 'BOC''
- Retaining wall & ramp upstand walls
- Wall piles and capping beam footings
- Stormwater drainage incl GPTs and filtration units
- Service trenching for electrical/ comms + conduit install
- Marker layer and temp capping layer to all areas
- No piling platform required for building platform
- Redbank Rd realignment
    - Temporary widening
    - Stormwater drainage
    - Pavement
    - Asphalting
    - Line marking
    - K&G
    - Reinstating existing light poles
- HV trenching

Paediatric Services Building development:

- Design finalisation
- Demo pavement and clear trees
- Piling for retaining wall
- Borrow pit excavation (approx. 9500m3) – VENM disposal
- Earthworks cut/fill (approx. 8000m3)
- Retaining wall and associated footings

- Stormwater drainage incl GPTs & filtration units
- Services trenching and conduits within building platform
- Hydraulic from building to park and across entry to north building
- Piling platform and marker layer
- Temp capping layer & marker layer to all external areas

Bike cage construction

1.3 Scope of the Sub-Plan

The Stage 2 Enabling Works will be carried out prior to the Main Infrastructure Works for the MSCP and the PSB. As part of the Stage 2 Enabling Works, it is necessary to realign the section of Redbank Road behind the Children's Hospital Westmead (CHW) between Labyrinth Way and the CHW Loading Dock. These works include tree removal, demolition of the existing lodge, pavement construction and piling works.

As the Project is within the Westmead Hospital Precinct, this plan has been developed to minimise the disruptions to sensitive stakeholders during the enabling works construction.

The extent of the proposed works is presented in Figure 1 below.

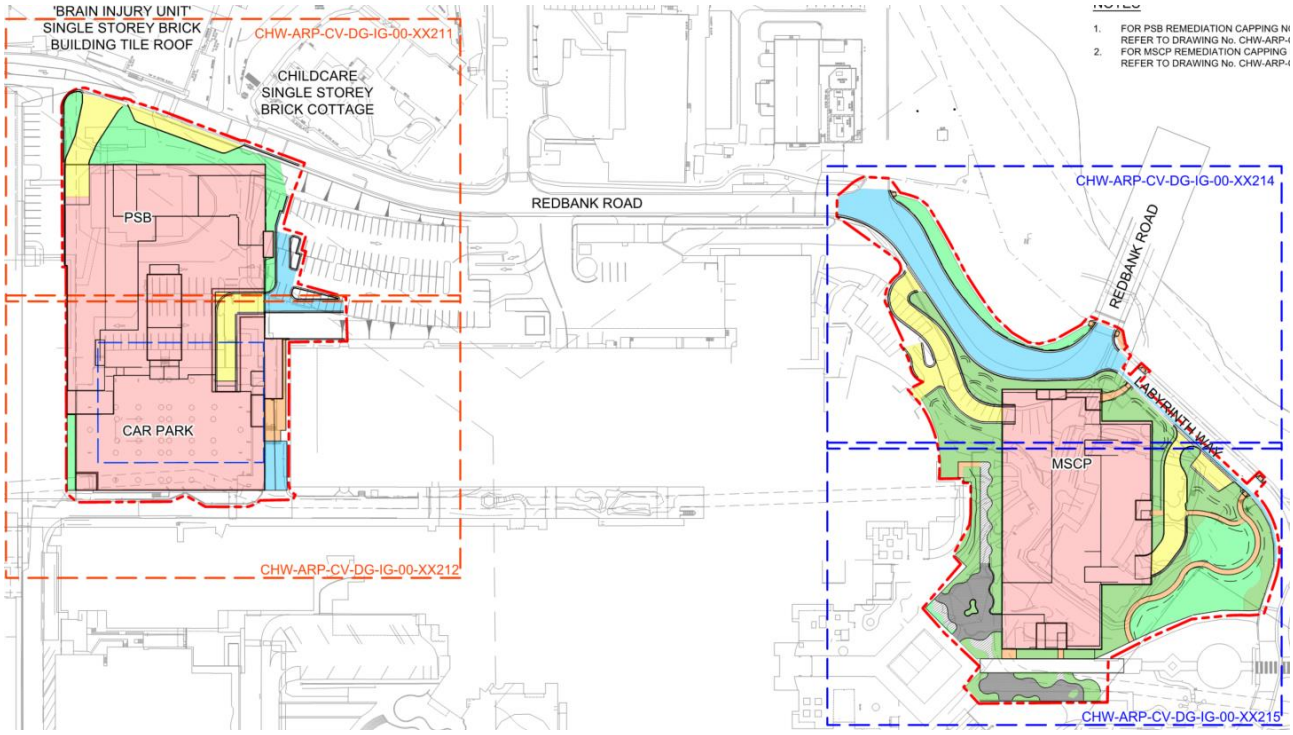


Figure 1: Extent of Works

1.4 Environmental Management Systems Overview

The environmental management system overview is described in section 1.5 of the CEMP.

2 Purpose & Objections

2.1 Purpose

The purpose of this CNVMSP is to describe how FCC propose to manage potential noise and vibration impacts during the construction of the project.

2.2 Objectives

The key objective of the CNVMSP is to ensure that noise and vibration impacts during the construction of the Project are minimised and are within the scope permitted by the planning approval.

To achieve these objectives, Ford Civil Contracting Pty Ltd will undertake the following:

- Ensure appropriate controls and procedures are implemented during construction activities to address potential noise and vibration impacts within the Westmead Precinct
- Ensure appropriate measures are implemented to address the relevant SSDA Conditions of Approval
- Ensure appropriate measures are implemented to comply with all relevant legislation and other requirements as described in Section 3.1 of this Plan

3 Environmental Requirements

3.1 Relevant Legislation & Guidelines

3.1.1 Legislation & Regulatory Requirements

Identified regulatory requirements are:

- Protection of the Environment Operations (Noise Control) Regulation (NSW 2008)
- Local Government Act (NSW 2008)
- Environmental Planning and Assessment Act 1979

3.1.2 Guidelines

The main guidelines, specifications and policy documents relevant to this Plan include:

- AS 2436 Guide to noise Control on Construction, Maintenance and Demolition sites (1981)
- AS 1055 Acoustics – Description and Measurement of Environmental Noise (1997)
- AS 2107 Acoustics – Recommended Design Sound Levels and Reverberation Times for Building Interiors (2000)
- National Code of Practice for Noise Management and Protection of Hearing – 3rd Edition - NOHSC:1007(2000)
- National Standard for Plant - NOHSC:1010(1994)
- National Standard for Occupational Noise - NOHSC:1013(1995)

3.2 SSDA Conditions of Approval

The Conditions of Consent relevant to this CNVMSP are listed in Tables 1 and 2 below. A cross reference is also included to indicate where the condition is addressed in this Plan or other Project management documents. All risks were assessed in the Environmental Risk Register, which is included as Section 15.3 (Attachment 3) of the CEMP.

Table 1: MSCP SSDA Conditions of Consent relating to this CNVMSP

SSDA No.	Condition of Consent	Document Reference
B11	(f) Construction Noise and Vibration Management Sub-Plan (see condition B13);	
B13	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 B13(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	Appendix E Section 4 Section 5 Section 6
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: between 1pm and 5pm, Saturdays."	Section 6.2
C13	The development must achieve the construction noise management levels during construction as 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.	Section 6.1
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, unless allowed by Condition C5.	Section 6.3
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.	Section 6.3
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).	Section 6.4
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.	Not applicable for this project as all works are further than 30m from residential buildings.

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 B13 of this consent.	Section 6.4

Table 2: PSB SSDA Conditions of Consent relating to this CNVMSP

SSDA No.	Condition of Consent	Document Reference
B15	(e) Construction Noise and Vibration Management Sub-Plan (see condition B17);	
B17	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 B17(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 B14	Appendix E Section 4 Section 5 Section 6
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 5pm, Saturdays.	Section 6.2
C13	Construction must be undertaken in accordance with the construction noise management levels during construction as 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.	Section 6.1
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, unless allowed by Condition C5.	Section 6.3
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.	Section 6.3
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).	Section 6.4
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.	Not applicable for this project as all works are further than 30m from

		residential buildings.
C18	The limits in conditions C16 and C17 apply unless otherwise outlined in a Construction Noise and Vibration Management Plan, approved as part of the CEMP required by condition B17 of this consent.	Section 6.4

4 Consultation

The following section summaries the consultation undertaken as part of developing the CNVMSP.

4.1 Consultation Requirements under the SSDA Conditions

MSCP Condition B13 and PSB Condition B17 states that the Plan should be prepared in consultation with the relevant government organisations and surrounding stakeholders. These include:

- NSW Health
    - Western Sydney Local Health District (WSLHD) and Westmead Adult's Hospital;
    - Sydney Children's Hospital Network (SCHN) and Children's Hospital Westmead (CHW);
- Kids Research Institute (KRI)
- Ronald McDonald House

4.2 Ongoing consultation

Ongoing consultation with key hospital stakeholders, particularly SCHN and WSLHD, containing noise and/or vibration sensitive equipment will continue throughout the construction of the project. This will be in the way of weekly interface and disruption notice meetings.

Following these meetings and prior to key events, precinct wide staff and community updates will also be distributed by the Redevelopment Team (HI/SCHN) in the way of fact sheets and notices. Monthly construction updates will also be distributed via the project website: https://westmeadkidsredevelopment.health.nsw.gov.au/

Although the works are unlikely to impact residential receivers, FCC will also advise residents along Redbank Road and Hawkesbury Road of any upcoming high impact works that may impact them throughout the construction period. Noting that these notifications will be sent out in consultation with the Client and the hospital network.

4.3 Complaints Procedure

A complaint procedure will also be implemented where stakeholder complaints are tracked weekly and reported back to the principal during weekly contractor and interface meetings.

These complaints, whether it be from the community members or from hospital stakeholders, will be tracked in FCC's Community Contacts and Complaints Register. An example of this register has been included as Appendix D.

Clear signage, including a 24 hour contact, will be displayed on all site compounds should a stakeholder wish to make a complaint.

Further to the above, a complaints management process has also been developed by HI and SCHN for the Stage 2 Redevelopment Project. This has been included as Appendix F of this plan.

5 Existing Environment

5.1 Sensitive Receivers

There are a number of sensitive receivers located in the proximity of both the PSB and the MSCP sites. FCC will aim to minimise any disruption caused by high noise and vibration activities to these receivers and the hospital network.

Key stakeholders and sensitive receivers include, but are not limited to, the following:

- The Sydney Children's Hospitals Network (SCHN)
- Children's Hospital Westmead (CHW) – particularly Hall Ward, Wade Ward, Hunter Baillie Ward, Turner Ward/CBP, Renal Treatment Centre, Camperdown Ward, Clancy Ward, Edgar Stephens Ward – H1
- Ronald McDonald House (RMH) – S1
- Western Sydney Local Health District (WSLHD)
- Central Acute Services Building (CASB) – H3
- Brain Injury Unit (BIU) – H4
- Kids Research Institute (KRI) – H2
- Children's Medical Research Institute (CMRI)
- Westmead Institute of Medical Research (WIMR)
- Westmead & CHW Child Care Centres – C1
- Health Share – H5
- Care Flight – B2
- Residential Properties – R1 and R2
- Commercial Properties/Businesses – B1

These key stakeholders are shown in Figure 2 below.

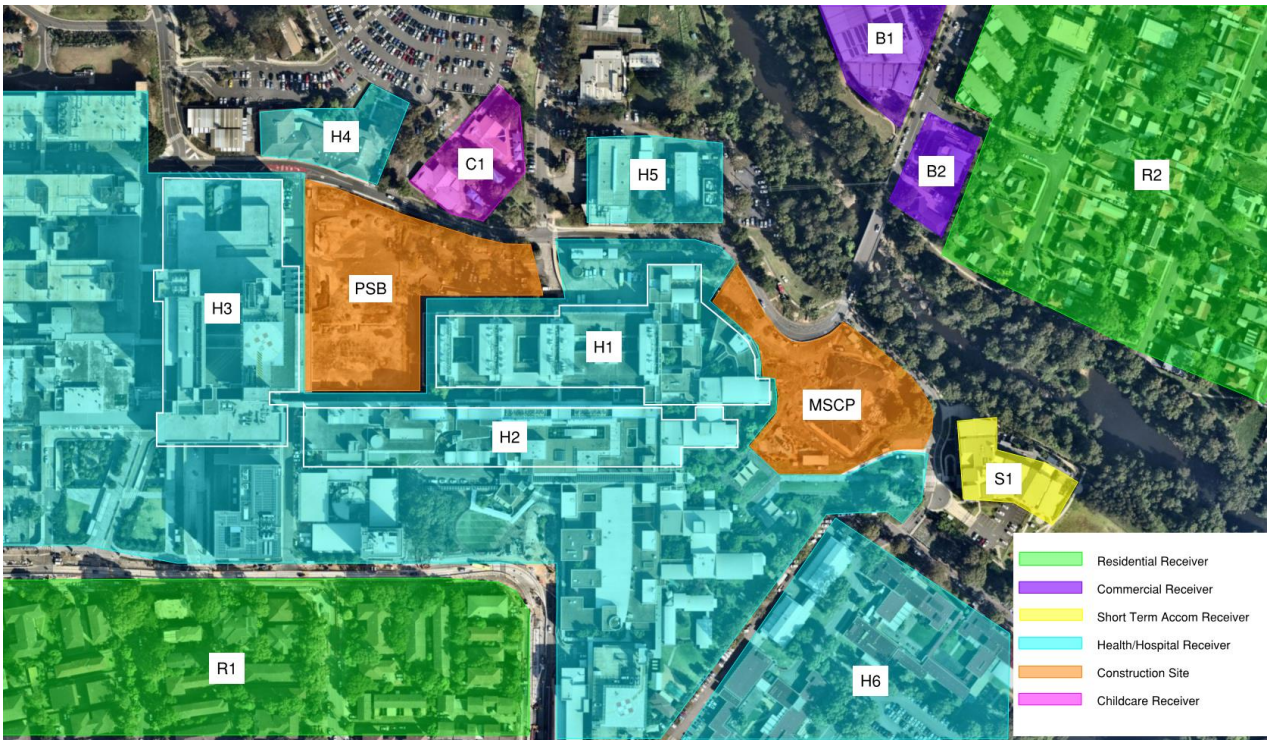


Figure 2: Key Stakeholders

5.2 Noise reduction strategies

As the Project involves some high impact noise activities, the following controls have been agreed upon by Health Infrastructure, PwC, Westmead hospital and it's stakeholders. Noting that consultation is ongoing and will continue throughout the Project in the form of weekly meetings and the Disruption Notice process.

In addition to working within the SSDA approved works hours (listed below), respite periods of 3 hours on 2 hours off starting from 9am will be observed for high impact noise activities.

- 7:00 am – 6:00 pm Monday to Friday
- 8:00 am – 1:00 pm Saturday *(construction works below 5dB above background levels are permitted to continue on Saturdays from 1pm until 5pm)*

Where such works are adjacent to pedestrian pathways, building or sensitive receivers it will also be a requirement that temporary fencing with noise mats/sound barriers be placed around the activities generating high noise levels. With the aid of noise mats being placed around the noise source, FCC can achieve a 40dB noise reduction.

All plant and equipment must also be serviced within the specified time frames to ensure noise outputs are as per manufactures requirements.

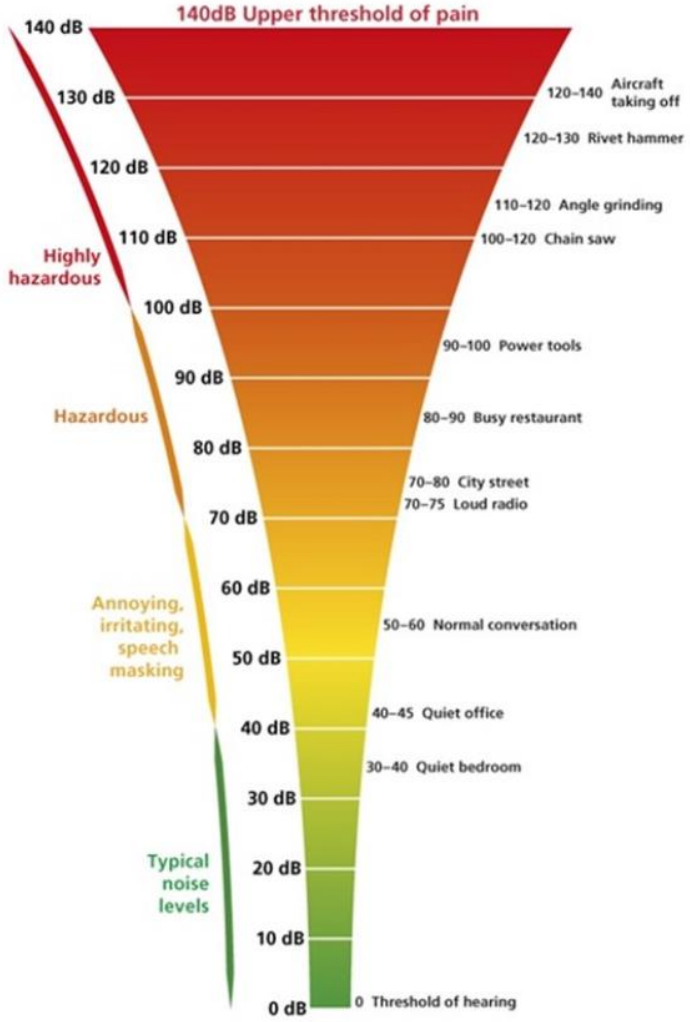


Figure 3: Uncontrolled Noise Levels

Where practicable, works will also be programmed to reduce the compounding effect of having multiple high noise activities occurring concurrently.

Noise loggers with live notifications will be installed in strategic locations around both the MSCP and PSB sites. The monitors send live alerts when exceedances occur. The locations of these monitors are shown in Appendix C.

6 Noise & vibration criteria

6.1 Construction noise and assessment objectives

The NSW Construction Noise Guideline provides strategies for the assessment and management of construction noise. It focuses on applying a range of work practices to minimise construction noise impacts rather than achieving numeric noise levels.

The main objectives of this guideline are to:

- Identify and minimise noise from construction works

- Focus on applying all 'feasible' and 'reasonable' work practices to minimise construction noise impacts
- Construction must only occur during recommended standard hours, unless works cannot be undertaken during normal work hours and appropriate approval is given.
- Reduce time spent dealing with complaints at the project implementation stage
- Provide flexibility in selecting site-specific feasible and reasonable work practices to minimise noise impacts.

6.2 Quantitative noise assessment criteria

6.2.1 Construction periods

The work hours for this Project are as follows:

- 7:00 am – 6:00 pm Monday to Friday
- 8:00 am – 5:00 pm Saturday

As per the SSDA conditions, construction works below 5dB above background levels are permitted to continue on Saturdays from 1pm until 5pm. These works exclude any high impact noise activities including, but not limited to, piling, saw cutting and rock breaking activities. High impact noise activities include anything which exceeds + 5 dBa above background noise. Works that can continue are anything below this threshold including fencing, sediment controls, steel fixing etc.

Where high impact noise activities occur, these should be limited to 3 hour blocks with a 2 hour respite starting from 9am.

With the exception of the following emergency construction work (unplanned works), work outside these hours and weekends will only be permitted with the prior written approval from the client / principal.

The emergency construction work that may be undertaken urgently out of normal work hours to avoid:

- Loss of life,
- Damage to property, or
- Environmental

6.2.2 Respite periods

Respite periods are periods of time where 'noisy' works are stopped to provide respite for nearby sensitive receivers.

Where noise level exceedances cannot be avoided, consideration should be given to implementing time restrictions and/or providing periods of repose for sensitive receivers where reasonable and feasible. This could include scheduling respite periods if the work to be undertaken would be likely to generate noise and vibration emissions from the premises and would be conducted over extended periods in the same locality.

Aside from the approved construction hours noted above, works may also be undertaken between 6pm and 7pm, Mondays to Fridays inclusive; and between 1pm and 5pm, Saturdays provided noise levels do not exceed the existing background noise level plus 5dB.

6.3 Noise criteria & management

6.3.1 External & Internal Noise Criteria

The noise criteria associated with construction and it's related activities are outlined in Stantec's Acoustic Reports for the PSB dated 17 March 2021 and the MSCP dated 1 April 2021 (included as Appendix A and B respectively) and are shown in Tables 3 & 4 below.

Table 3: Construction Noise Criteria at Residences

Time of Day	Management Level $L_{Aeq\ (15\ min)}$	How to Apply
Recommended Standard Hours	Noise Affected RBL + 10dB.	The noise affected level represents the point above which there may be some community reaction to noise. • Where the predicted or measured LAeq,15min 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 residences of the nature of works to be carried out, the expected noise levels and duration as well as contact details.
	Highly Noise Affected 75 dB(A)	The highly noise affected level represents the point above which there may be strong community reaction to noise. • Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur in, taking into account: - 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) - If the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
Outside Recommended Standard Hours	Noise Affected RBL + 5dB.	• A strong justification would typically be required for 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(A) above the noise affected level, the proponent should negotiate with the community. • For guidance on negotiating agreements see Section 7.2.2. of the ICNG

The external noise levels should be assessed at the most affected point within 50 m of the area boundary for recreation areas and at the most affected occupied point for commercial and industrial uses. In general, the internal criteria can be converted to external criteria by adding 10 dB as advised in the ICNG.

Table 4: Construction Noise Criteria for Other Land Uses

Land Use	Management Level, $L_{Aeq,15min}$ – applies when land use is being utilised
Classrooms at schools and other educational institutions	Internal noise level 45 dB(A)
Hospital wards and operating theatres	Internal noise level 45 dB(A)
Places of worship	Internal noise level 45 dB(A)
Active recreation areas	External noise level 65 dB(A)
Passive recreation areas	External noise level 60 dB(A)
Community centres, childcare, etc.	Depends on the intended use. Refer to recommended maximum internal levels in AS/NZS 2107.
Industrial premises	External noise level 75 dB(A)
Offices, retail outlets	External noise level 70 dB(A)
Short Term Accommodation	Internal noise level 35 dB(A)

Based on the criteria in the tables above, the following external noise management levels in Table 5 should be applied to all receivers outlined in Figure 2. Likewise, the internal noise management levels are outlined

in Table 6. Noting that construction during standard hours and outside of standard hours have been assumed.

Table 5: Project Specific Construction Noise Management Levels (External)

Receiver Space	Location of Receiver(s)	Management Level, $L_{Aeq,15min}$	
		PSB	MSCP
Residential (Standard Hours)	R1	RBL +10dB = 59 dB(A)	-
	R2	RBL +10dB = 53 dB(A)	RBL + 10dB = 52 dB(A)
Residential (Outside standard hours)	R1	RBL +5dB = 54 dB(A)	-
	R2	RBL +5dB = 49 dB(A)	-
Commercial Receiver Offices, retail outlets	C1 H1 (Level 3 Offices) H2 (Level 2 Offices) B1, B2	External noise level 70 dB(A)	External noise level 70 dB(A)
Short Term Accommodation	S1	-	Internal noise level 35 dB(A)
Health/Hospital Receiver	H1	External noise level 55 dB(A)	Internal noise level 45 dB(A)
	H2	External noise level 55 dB(A)	Internal noise level 45 dB(A)
	H3, H4	External noise level 55 dB(A)	-
	H6	-	Internal noise level 45 dB(A)

Table 6: Project Specific Construction Noise Mangement Levels at PSB (Internal)

Receiver Space	Location of Receiver(s)	Management Level, $L_{Aeq,15min}$
Commercial Receiver Offices, retail outlets	C1 H1 (Level 3 Offices) H2 (Level 2 Offices)	RBL + 10dB = 62 dB(A)
Health/Hospital Receiver	H1, H2, H3, H4	RBL + 10dB = 62 dB(A)
Animal House	Level 1 – KR Building (H2)	50 dB(A) L_{amax} 65dB(A)

6.3.2 Construction road traffic noise

Noise emissions from trucks and other vehicles when travelling on the public roads are considered as additional road traffic noise.

If noise levels are expected to increase by more than 2dBA, further assessment of the noise impact from construction vehicles on local road networks would be required to be conducted in accordance with the Road Noise Policy (RNP). The relevant section of this policy is outlined in Table 7 below.

Table 7: RNP criteria for assessing construction vehicles on public roads

Road Category	Type of Project/Land Use	Assessment Criteria (dBA)	
		Day (7am - 10pm)	Night (10pm - 7am)
Freeway/ arterial/ sub-arterial roads	Existing residences affected by noise from new freeway/arterial/sub-arterial road corridors.	$L_{Aeq\ (15\ hour)}$ 55 (external)	$L_{Aeq\ (9\ hour)}$ 50 (external)
	Existing residences affected by additional traffic on existing freeways/arterial/sub-arterial roads generated by land use developments.	$L_{Aeq\ (15\ hour)}$ 60 (external)	$L_{Aeq\ (9\ hour)}$ 55 (external)
Local roads	Existing residences affected by additional traffic on existing local roads generated by land use developments.	$L_{Aeq\ (1\ hour)}$ 55 (external)	$L_{Aeq\ (1\ hour)}$ 50 (external)

The preferred delivery and haul route for the project has been chosen with the consideration of the impact construction vehicles may have on road traffic noise. This is further detailed in Section 5.2 of the CTPMSP.

6.3.3 Noise management and monitoring

Activities undertaken by FCC must not exceed the nominated thresholds. In the event that the works do exceed the thresholds, FCC will consult with the Principal and stakeholders and follow the protocol set-out in the Acoustic Reports prepared by Stantec (Appendix A and Appendix B) and outlined in Figure 4 below.

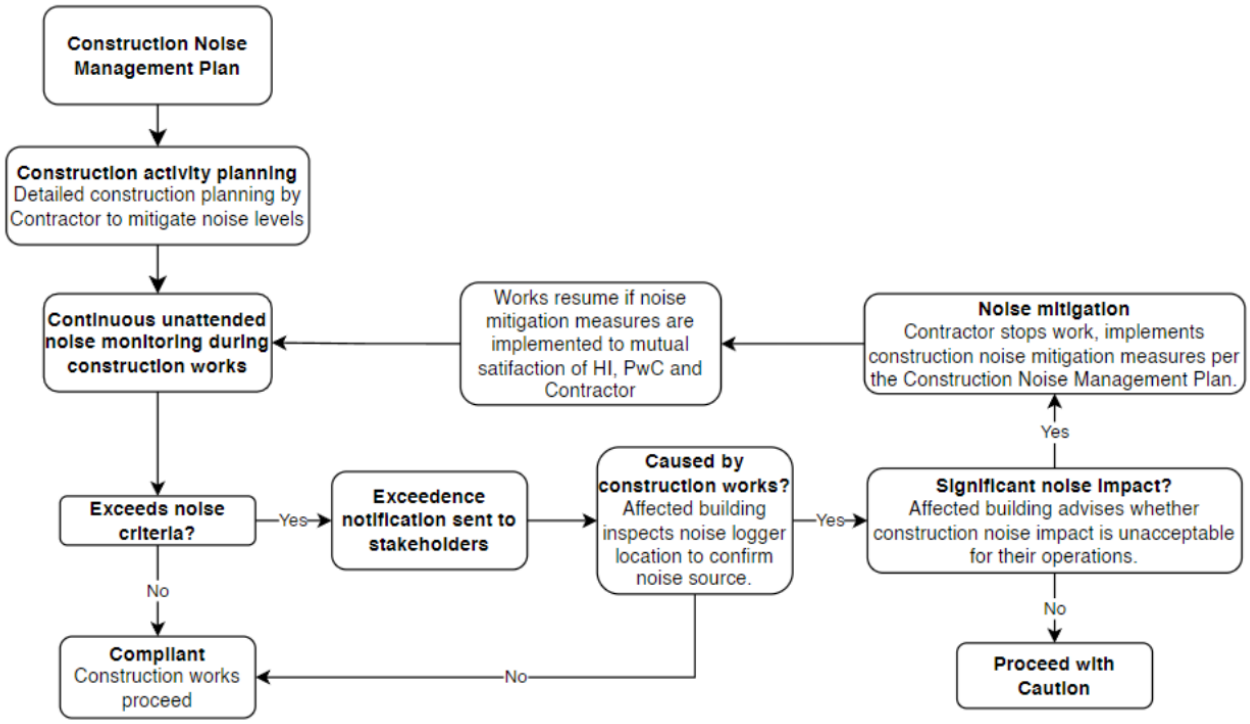


Figure 4: Noise exceedance protocols

Monitoring shall be undertaken at strategic locations during construction for both the PSB and MSCP sites. These locations should take into consideration existing background noise that may hinder accurate results.

Continuous unattended noise monitoring will be installed at the locations proposed below with live exceedance notifications being sent through to FCC, the Client and relevant stakeholders. These exceedances will also be recorded and tracked accordingly to monitor for non-compliances.

- CASB – one monitor on the lower floor and one of the mid-upper floor
- KRI – one monitor
- CHW – one monitor in block 5 (adjacent to the PSB site) and one near the mental health ward (adjacent to the MSCP site)
- Ronald McDonald House

In addition to the above, supplementary attended noise measurements will also be undertaken as required, such as on the commencement of any high-impact activities, to demonstrate compliance with the NMLs at other potentially affected areas. These may include the adjacent Brain Injury Unit building, Child Care Centre and residential receivers off Redbank Road and Hawkesbury Road.

To ensure efficient noise attenuation performance is achieved, practicable and reasonable noise mitigation and management measures are used during construction works, including the following:

- identifying and using least noisy construction methods, vehicles, plant and equipment available for the type of work being undertaken;
- maintaining plant and equipment properly;
- strategically positioning the plant and equipment that generates high noise levels, impulsive noise, intermittent noise, low-frequency noise or tonal noise as to minimise noise impacts on surrounding noise sensitive receivers including employees;
- avoiding the simultaneous operation of more than one item of noisy plant or equipment close together and near noise sensitive receivers;
- planning the work site and work processes and taking all such practicable measures necessary to minimise movements that would activate audible reversing and movement alarms, especially during out of hours work;
- planning work site activities to ensure construction vehicles (including concrete agitator trucks) do not arrive at the site or surrounding residential precincts outside of the construction hours of work;
- undertaking any loading or unloading operations away from noise sensitive receivers;
- selecting and locating access points and roads to the premises as far away as practicable from noise sensitive receivers;
- scheduling respite periods if the work to be undertaken would be likely to generate noise and vibration emissions from the premises and would be conducted over extended periods in the same locality;
- switching off any equipment not in use for extended periods during construction work;
- using temporary acoustic fencing/barriers, structures and topography to shield noise sensitive receivers from noise impacts.

6.4 Vibration criteria and management

Vibration will be generated during some construction activities and has the potential to impact human perception, buildings/structures and sensitive devices such as medical instruments or photographic equipment. The seriousness of the impact of the vibration is dependent on factors such as the type of soil, the condition of the buildings/structures, the construction activity being undertaken, the type of equipment being used, and the equipment or facilities located in nearby buildings.

Criteria for construction vibration must address:

- the potential for disturbance and annoyance to building occupants (human comfort)
- the potential damage to contents within a building, and
- the potential for damage to buildings and other structures
- The effects on sensitive equipment and spaces

6.4.1 Human comfort

Structural vibration in buildings can be detected by occupants and can affect them in many ways including reducing their quality of life and also their working efficiency. Complaint levels from occupants of buildings subject to vibration depend upon their use of the building and the time of the day.

Potential vibration disturbance to human occupants of buildings is made in accordance with the NSW DEC 'Assessing Vibration; a technical guideline'. The criteria outlined in the guideline is based on the British Standard BS 6472-1992 'Evaluation of human exposure to vibration in buildings (1-80Hz)'.

Sources of vibration are defined as either 'Continuous', 'Impulsive' or 'Intermittent', as described in Table 8 below.

Table 8: Definitions of sources of vibration

Type of Vibration	Definition	Examples
Continuous vibration	Continues uninterrupted for a defined period (usually throughout the day-time and/or night-time).	Machinery, steady road traffic, continuous construction activity.
Impulsive vibration	A rapid build-up to a peak followed by a damped decay that may or may not involve several cycles of vibration (depending on frequency and damping). It can also consist of a sudden application of several cycles at approximately the same amplitude, providing that the duration is short, typically less than 2 seconds.	Infrequent: Activities that create up to 3 distinct vibration events in an assessment period, e.g. occasional dropping of heavy equipment, occasional loading and unloading.
Intermittent vibration	Can be defined as interrupted periods of continuous or repeated periods of impulsive vibration that varies significantly in magnitude.	Trains, nearby intermittent construction activity, passing heavy vehicles, forging machines, impact pile driving, jack hammers, crushing. Where the number of vibration events in an assessment period is three or fewer, this would be assessed against impulsive vibration criteria.

The vibration emitted from construction works should be such that it does not exceed the maximum limits set out in the criteria presented in Table 9.

Table 9: Criteria for exposure to continuous and impulsive vibration

Place	Time	Vibration Acceleration, mm/s^{-2}			
		Preferred		Maximum	
Continuous Vibration		**z axis**	**x and y axis**	**z axis**	**x and y axis**
Critical working areas (e.g. hospital operating theatres precision laboratories)	Day or night time	0.005	0.0036	0.01	0.0072
Residences	Daytime Night time	0.010 0.007	0.0071 0.005	0.020 0.014	0.014 0.010
Offices	Day or night time	0.02	0.014	0.04	0.028
Workshops	Day or night time	0.04	0.029	0.08	0.058
Impulsive Vibration		**z axis**	**x and y axis**	**z axis**	**x and y axis**
Critical working areas (e.g. hospital operating theatres precision laboratories)	Day or night time	0.005	0.0036	0.01	0.0072
Residences	Daytime Night time	0.030 0.1	0.21 0.071	0.6 0.2	0.42 0.14
Offices	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

Disturbance caused by vibration will depend on its duration and its magnitude. This methodology of assessing intermittent vibration levels involves the calculation of a parameter called the Vibration Dose Value (VDV) which is used to evaluate the cumulative effects of intermittent vibration. The criteria applicable when considering periods of intermittent vibration are presented in Table 10.

Table 10: Acceptable Vibration Dose Values for intermittent vibration (1.75 m/s)

Location	Daytime		Night time	
	Preferred Value	Maximum Value	Preferred Value	Maximum Value
Critical areas	0.1	0.2	0.1	0.2
Residences	0.2	0.4	0.13	0.26
Offices, schools, educational institutions and places of worship	0.4	0.8	0.4	0.8
Workshops	0.8	1.6	0.8	1.6

6.4.2 Structural damage

Potential structural or cosmetic damage to buildings as a result of vibration is typically assessed in accordance with BS7385-2. BS7385-1, defines different levels of structural damage as:

- Cosmetic - The formation of hairline cracks on drywall surfaces, or the growth of existing cracks in plaster or drywall surfaces; in addition, the formation of hairline cracks in mortar joints of brick/concrete block construction.
- Minor - The formation of large cracks or loosening of plaster or drywall surfaces, or cracks through bricks/concrete blocks.
- Major - Damage to structural elements of the building, cracks in supporting columns, loosening of joints, splaying of masonry cracks, etc.

The limits for the protection against different levels of structural damage, as outlined in in BS7385-2, are included in Table 11 below.

Table 11: BS 7385.2 structural damage criteria

Type of Structure	Damage Level	Peak Component Particle Velocity, mm/s^{-1}		
		4 Hz to 15 Hz	15 Hz to 40 Hz	40 Hz and above
Reinforced or framed structures Industrial and heavy commercial buildings.	Cosmetic	50		
	Minor	100		
	Major	200		
Un-reinforced or light framed light commercial type buildings structures Residential or	Cosmetic	15 to 20	20 to 50	50
	Minor	30 to 40	40 to 100	100
	Major	60 to 80	80 to 200	200

Monitoring shall be undertaken at strategic locations before and during construction to measure the Peak Particle Velocity at the structure and to check that the Peak Particle Velocity remains below the guide values in Table 9. Exceedances of those guide values might indicate that resonance has been activated in the structure. Reduction of the guide value and potential further investigations would then be required.

6.4.3 Buried services

Short-term vibration is defined as vibration which does not occur often enough to cause structural fatigue, and which does not produce resonance in the structure being evaluated. DIN 4150-2:1999 sets out guideline values for short term vibration effects on buried pipework. These guidelines are reproduced in Table 12 below.

Table 12: Guideline values for short-term vibration impacts on buried pipework

Pipe Material	Guideline values for vibration velocity measured on the pipe (mm/s)
Steel (including welded pipes)	100
Clay, concrete, reinforced concrete, pre-stressed concrete, metal (with or without flange)	80
Masonry, plastic	50

For gas and water supply pipes within 2 m of buildings, the levels given in DIN4150 shall be applied. Consideration must also be given to pipe junctions with the building structure as potential significant changes in mechanical loads on the pipe must be considered.

The guideline values above may be reduced by 50% without further analysis when evaluating the effects of long-term vibration on buried pipework.

For the Jemena High Pressure Gas within the Redbank Rd realignment and adjacent to the MSCP site, the compaction requirements outlined in Figure 5 below should also be followed to ensure the impact of vibration on the service is minimised.

To ensure the above guidelines are met, supplementary attended vibration measurements can also be undertaken as required upon the commencement of any high-impact activities, particularly those adjacent to high risk services.

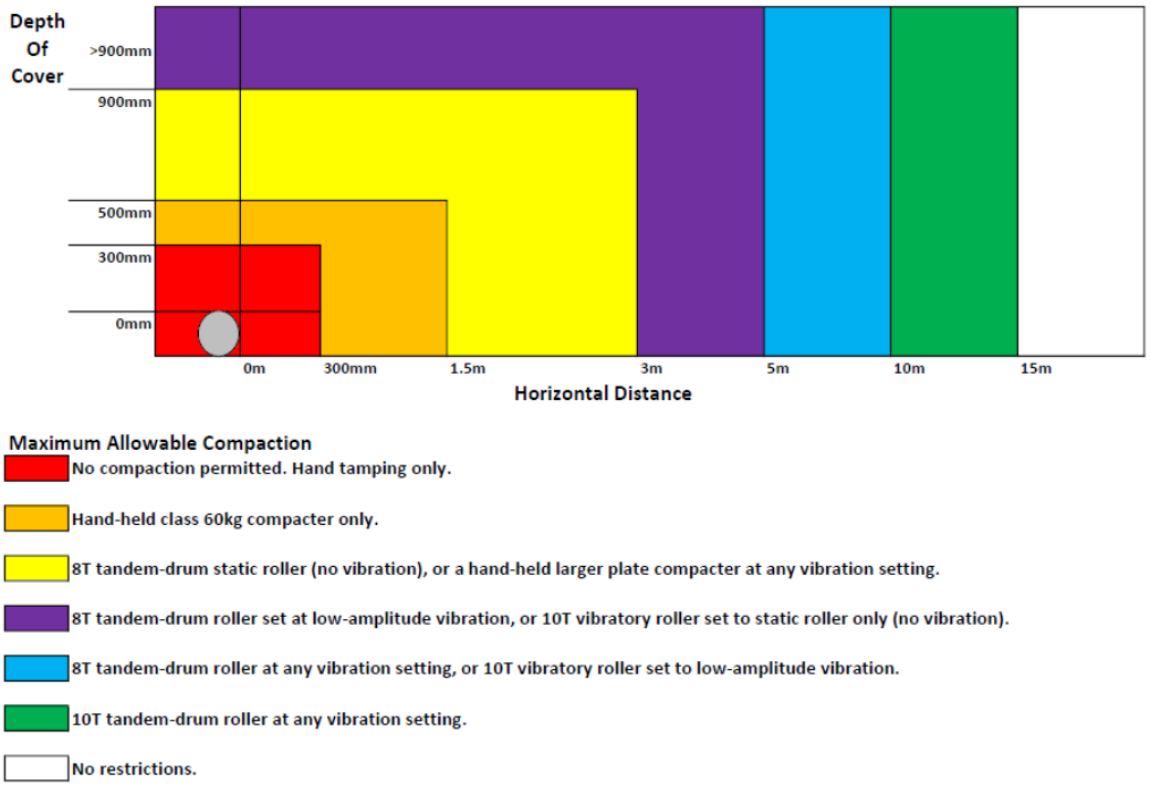


Figure 5: Jemena HPG compaction requirements

6.4.4 Sensitive laboratory and medical spaces

The following vibration sensitive laboratory or medical facilities that may be impacted by the Project have been identified by Westmead Hospital and its stakeholders. These have been further analysed in ARUP's findings included in Appendix C.

- CHW Level 1 endocrinology laboratory – The lab is close to the PSB works and houses very sensitive equipment including Immulite 1000 Analyser, iSYS Analyser, Wizard 2470 Gamma Counter, TQ-S Tandem Mass Spectrometer and TQ-XS Tandem Mass Spectrometer.
- CHW Level 1 mental health unit – This is the closest facility to the MSCP site.
- KRI Level 1 animal house - The animal house is considered highly important and is close to the construction site of the PSB.
- KRI Level 4 lab 9 - Lab 9 is known to have the most sensitive equipment. The level 3 labs are also considered to be somewhat sensitive however they have higher vibration limits than Lab 9 and as such will not require monitoring.
- CASB Level 2 MRI scanner - MRI scanners are considered the most sensitive piece of equipment within the CASB.
- CASB Level 3 surgical suite - The surgical suites are of elevated risk and closest to the PSB site.

A summary of the vibration criteria for the sensitive facilities identified above is provided in Table 13.

It should be noted that exceedance of these vibration criteria may result in significant impacts such as permanent loss of research data or loss of valuable research animals rather than loss of time due to measurements needing to be repeated.

Table 13: Vibration criteria summary

Location	PPV Criteria	RMS Velocity Criteria
CHW Level 1 Endocrinology Lab	Not Applicable	Curve VC-C (1/3rd Octave band V_{RMS} to be below 0.0125mm/s), based on the two analysers
CHW Level 1 Mental Health Unit	Not Applicable	Curve 2 Australian Standard AS2670.2 (1/3rd Octave band V_{RMS} to be below 0.204mm/s), based on daytime residence human comfort limit
KRI Level 1 Animal House	1.0mm/s	Curve 1 Australian Standard AS2670.2 (1/3rd Octave band V_{RMS} to be below 0.102mm/s)
KRI Level 4 Lab 9	Not Applicable	Curve VC-B (1/3rd Octave band V_{RMS} to be below 0.025mm/s)
CASB Level 2 MRI Scanner	Not Applicable	Curve VC-A (1/3rd Octave band V_{RMS} to be below 0.051mm/s)
CASB Level 3 Surgical Suite	Not Applicable	Curve 1 Australian Standard AS2670.2 (1/3rd Octave band V_{RMS} to be below 0.102mm/s)

6.4.5 Vibration management and monitoring

Prior to commencing works, FCC will inspect and photograph any structure at risk from vibration impacts. This inspection will be conducted with the consent of the building owner as a basis for assessing any damage that may arise from construction works. This will then be submitted to the Principal in the form of a dilapidation report. A final inspection will be conducted post construction of any building/structure considered to be at risk from vibration to ensure that no damage has occurred.

FCC will implement a range of control measures based on site-specific risk factors. These measures may include using smaller plant, reducing the magnitude of the vibration, restricting the use of vibration in compaction equipment, restricting the speed of heavy equipment, and using alternative methods i.e. the use of rippers and pulverisers in lieu of hammers for rock excavation and demolition works.

The Construction Noise and Vibration Guideline (CNVG) provides, as a guide, minimum working distances from sensitive receivers for typical items of vibration intensive plant. The minimum working distances are reproduced in Table 14.

Table 14: CNVG recommended minimum working distances for vibration intensive equipment

Plant item	Rating Description	Safe working distance	
		Cosmetic Damage (BS 7385)	Human Response (NSW EPA Vibration Guideline)
Vibratory roller	< 50 kN (Typically 1-2t)	5m	15m to 20m
	< 100 kN (Typically 2-4t)	6m	20m
	< 200 kN (Typically 4-6t)	12m	40m
	< 300 kN (Typically 7-13t)	15m	100m
	> 300 kN (Typically 13-18t)	20m	100m
	> 300 kN (Typically > 18t)	25m	100m
Small hydraulic hammer	300 kg – 5 to 12t excavator	2m	7m
Medium Hydraulic Hammer	900 kg - 12 to 18t excavator	7m	23m
Large Hydraulic Hammer	1600 kg - 18 to 34t excavator	22m	73m
Vibratory Pile Driver	Sheet piles	2m to 20m	20m
Pile Boring	≤ 800 mm	2 m (nominal)	4m
Jackhammer	Hand held	1 m (nominal)	2m
Heavy Site Traffic		2m	2m
Road Saw		2m	10m
Jumping Jack/plate compactor		5m	55m
Trench Roller		5m	15m

The minimum working distances are indicative only and will vary depending on the item of plant and local geotechnical conditions.

Activities undertaken by FCC must not exceed the nominated thresholds, however in the event that the works do exceed the vibration criteria outlined above, FCC will consult with the Principal and stakeholders and follow the protocol set-out in the Acoustic Reports prepared by Stantec (Appendix A and Appendix B) and outlined in Figure 6 below.

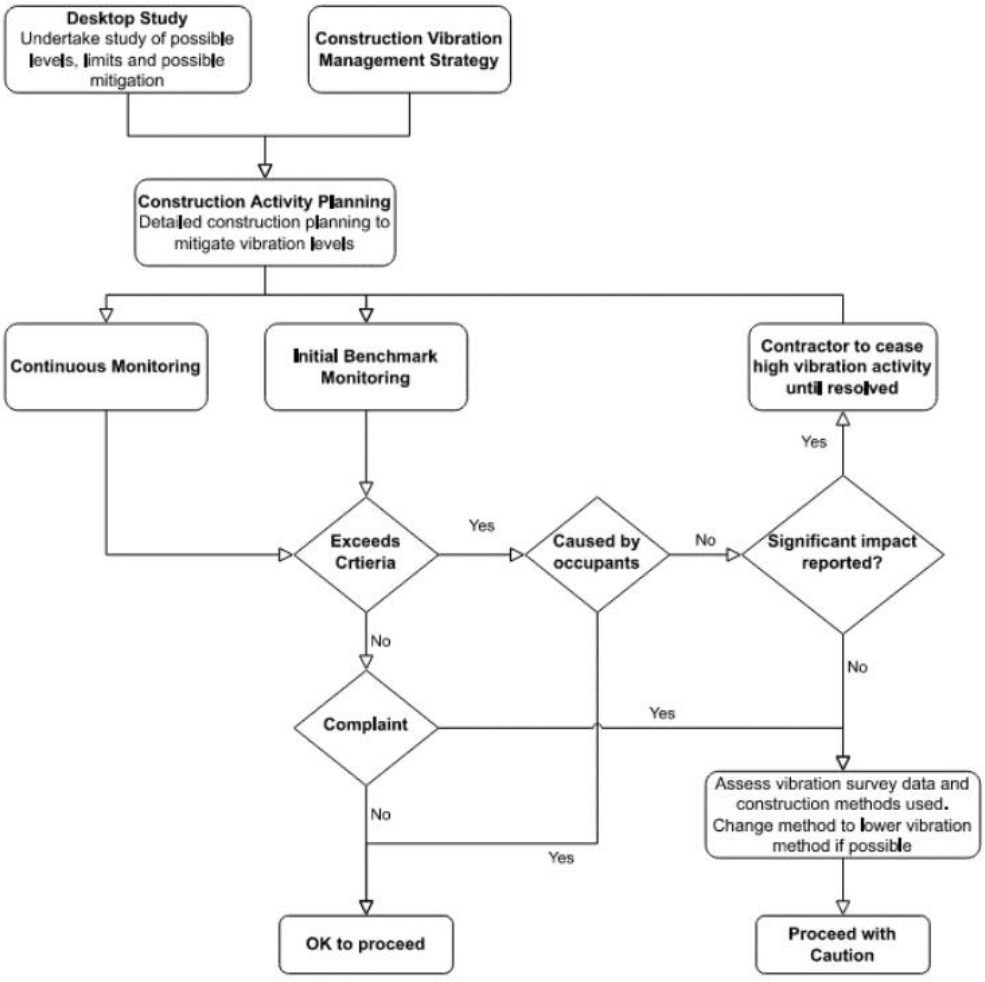


Figure 6: Vibration exceedance protocols

Continuous unattended vibration monitoring will be installed at key strategic locations surrounding both the PSB and MSCP sites to monitor this should an exceedance occur. In the event of an exceedance live notifications will be sent to FCC, the Client and relevant stakeholders. These exceedances will also be recorded and tracked accordingly to monitor and address any periods of non-compliance.

Based on a desktop review and the vibration monitoring results from previous construction works (i.e. the CASB development and the P17 demolition) the proposed locations for these monitors are listed below:

- CHW Level 1 endocrinology laboratory
- CHW Level 1 mental health unit
- KRI Level 1 animal house
- KRI Level 4 lab 9
- CASB Level 2 MRI scanner
- CASB Level 3 surgical suite

In addition to the above, supplementary attended vibration monitoring will also be undertaken at the commencement of significant vibration intensive works. These operator attended measurements will allow for the movement of the operator between multiple locations during an event to capture relevant vibration levels at the receptor locations. They will also enable in-field analysis to provide preliminary advice on corresponding vibration levels associated with the construction activities, and if required, any mitigation options.

Likewise, consideration will also be given to the requirement of attended vibration monitoring at the commencement of high vibratory activities adjacent to the sensitive receivers noted above given the significant impacts of exceedances, such as the permanent loss of research data or animals. This will allow FCC to assess whether activities are likely to cause an exceedance and if so, review construction methodologies.

7 Environmental aspects and impacts

7.1 Environmental aspects

The Project will involve a range of activities incorporating various type of machinery, plant and equipment that will operate in a number of locations across the Project area. The construction activities likely to impact on nearby receivers are described below:

- Site establishment
- Tree clearing and grubbing
- Demolition
- Earthworks
- Drainage and sewerage
- Installation of services
- Piling works including drilling and sheet piling
- Pavement construction

7.2 Environmental impacts

The potential for noise and vibration impacts on sensitive receivers or structures will depend on a number of factors including, but not limited to, the following:

- The type of equipment in use
- The number of equipment simultaneously in use
- Ground conditions
- Topography and other physical barriers
- Proximity to sensitive receivers
- The condition of sensitive receivers
- Hours/duration of construction works
- Proximity of heavy traffic areas such as the highway.

Relevant aspects and the potential for related impacts have been considered in the risk assessment included in Section 15.3 of the CEMP.

Noise and vibration impacts attributable to the Project are anticipated. A summary of the proposed mitigation measures is also included in Section 15.3 of the CEMP.

8 Compliance Management

8.1 Roles and responsibilities

The FCC Project team's organisational structure and overall roles and responsibilities are outlined in Section 2.3 of the CEMP.

8.2 Training

FCC and its subcontractors will undergo site induction training which will include information relating to noise and vibration management issues. The induction training will address elements related to noise and vibration management including:

- Existence and requirements of this sub-plan
- Relevant legislation
- Normal construction hours
- Out of hours works protocol, including consultation
- Location of noise sensitive areas
- Complaint reporting
- General noise and vibration management measures

Targeted training in the form of toolbox talks or specific training will also be provided to personnel with a key role in soil and water management. This will include:

- Lessons learnt from incidents and other event
- Alternate construction methods to reduce impacts
- Stakeholder feedback/complaints
- Requirements of Disruption Notices

8.3 Inspections & monitoring

Requirements and responsibilities in relation to inspections are documented in Section 10 of the CEMP.

Noise and vibration monitoring will be ongoing throughout the project. These results will be recorded and assessed to ensure the criteria outlined in Section 6 above is met.

Noise and vibration results will also be addressed in the Contractor's Monthly Report. This will include any non-conformances that may have occurred and the subsequent mitigation strategies. This report will be submitted to the Client. It's distribution to relevant stakeholders will be at the Clients discretion.

8.4 Auditing

In addition to the noise and vibration monitors installed, internal audits will also be undertaken to assess the effectiveness of noise and vibration management measures, compliance with this sub plan, conditions of consent and other relevant approvals, licences and guidelines.

9 Review and improvement

9.1 Continuous improvement

Continuous improvement of this plan will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement.

The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of traffic management
- Determine the cause or causes of non-conformances and deficiencies
- Develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies
- Verify the effectiveness of the corrective and preventative actions
- Document any changes in procedures resulting from processes improvement
- Make comparisons with objectives and targets

9.2 CNVMSP update and amendment

As this CNVMSP is a living document, if changes to the construction staging or process are required this document will be updated to encompass the changes.

Only the Project Manager (in consultation with the HSEQ Manager) can amend this CNVMSP.

- A copy of the updated plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure.

9.3 CNVMSP peer review

The CNVMSP is a living document, as such the initial document has been peer reviewed by a suitably qualified and experienced noise expert. A copy of this review and subsequent endorsement have been included as Appendix E.

Appendix A – Stantec Acoustic Report – Paediatric Services Building, The Children's Hospital at Westmead (dated 17/03/2021) Extract of Section 7

Paediatric Services Building, The Children's Hospital at Westmead

Acoustic Report

Development Application

Prepared for: Health Infrastructure c/- PwC

Attention: Hanan Husani

Date: 17 March 2021

Prepared by: Mia Strembickyj

Ref: 44311-1

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Revision

Revision	Date	Comment	Prepared By	Approved By
001	01/11/2020	Draft Issue	MIS	ORFG
002	25/11/2020	Updated with Comments	MIS	ORFG
003	21/01/2021	Updated with SEARs requirements	MIS	ORFG
004	22/01/2021	Updated with Construction Assessment	MIS	ORFG
005	05/03/2021	Updated with DPIE Comments	MIS	ORFG
006	16/03/2021	Updated for work outside of standard hours	ORFG	ORFG
007	16/03/2021	Updated OOHW Comments	ORFG	ORFG
008	17/03/2021	Minor changes with PwC Comments	MIS	ORFG

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7. Construction Noise and Vibration Criteria

7.1 Construction Noise

7.1.1 External Noise Criteria

We understand the proposed hours of construction are outlined below:

- Mon to Fri: 7am to 6pm
- Saturday – 8am to 5pm

In this report, it is assumed that all works are performed during these proposed hours.

Works are not usually permitted outside of the standard hours outlined in the ICNG, however as per the NSW DEC Interim Construction Noise Guideline section 2.3 (Construction outside the recommended standard hours), there are five categories of works that might be undertaken outside the recommended standard hours, which are:

- The **delivery of oversized plant or structures** that police or other authorities determine require special arrangements to transport along public roads
- **Emergency works** to avoid the loss of life or damage to property, or to prevent environmental harm
- **Maintenance and repair of public infrastructure** where disruption to essential services and/or considerations of worker safety do not allow work within standard hours
- **Public infrastructure works** that shorten the length of the project and are supported by the affected community
- Works where a proponent demonstrates and justifies **a need to operate outside the recommended standard hours**

In the case of the project, the PSB can be assimilated to a public infrastructure works further to this the following can be considered as a justification as to why the works could be permitted outside of the recommended standard hours (Saturday 8am-5pm):

- The quantitative results of the noise and vibration impact assessment presented in Section 9 of this report demonstrates that none of the four main construction phases of the proposed PSB exceeds the established noise criteria during standard hours of construction, in fact the results shows that all activities conservatively comply with the established criteria. If we are assuming that outside of standard hours construction have the potential to greater impact the surrounding community or occupants of adjacent buildings to the construction site, the results presented in Section 9 shows that lower noise levels will be achieved. Indeed the ICNG recommends a more stringent criteria for construction works conducted outside standard working hours for residential receivers. The nearest external resident receiver (R1) has been assessed in Section 9.1 against both the standard hours and the OOHW and no exceedances are predicted.
- The surrounding residential receivers respectively R1 and R2 are located approximately 140m and 500m from the construction site. These distances eliminate the risk for any vibration impact. In terms of noise the closest receiver R1 is also shielded by the Kids Research institute for all the early works period which will be typically the noisiest construction activities including the piling of the foundations and all inground services set out.
- The newly completed Central Acute Services Building located adjacent to the proposed PSB Building was constructed with allowances for work to be conducted outside of Standard hours (similar to the requested hours for the PSB) which was successfully delivered and completed
- The demolition of the P17 carpark (although approved under a REF) located at the same site as the proposed development and within close proximity to buildings with animal shelter, sensitive equipment and people was also considered work out of standard hours and together with the implementation of noise and vibration mitigation measures combined with a strict regime of noise and vibration monitoring was delivered successfully with minimal noise and vibration impact.

All these factors considered, clearly indicate that the risks for noise and vibration impact associated with conducting construction works outside of standard hours (nominally on Saturdays between 8am and 5pm) on the surrounding community and adjacent occupant of surrounding buildings are minimal.

Further to the above, previous works within the precinct and within close proximity to the PSB were successfully conducted under the Environmental Planning and Assessment (COVID Development - Construction work days) 2020 Ministerial Order, works are permitted under the outlined following conditions:

> *"(2) The conditions specified for the development are that the development must-*
>
> *(a) Be the subject of a development consent, and*
>
> *(b) Comply with all conditions of the consent other than any condition that restricts the hours of work or operation on a Saturday, Sunday or public holidays, and*
>
> *(i) Comply with the conditions of the consent that restrict the house of work or operation on any other days as if the conditions applied to work or operation on a Saturday, Sunday or public holiday, and*
>
> *(ii) Not involve the carrying out of rock breaking, rock hammering, sheet piling, pile driving or similar activities during the hours of work or operation that would not be permitted but for this Order, and*
>
> *(iii) Take all feasible and reasonable measures to minimise noise."*

The assessment undertaken in Section 9.1, demonstrates compliance with the Ministerial Order, following conditions set, and criteria outlined by the ICNG during the out of hours works (OOHW).

The Parramatta Council DCP (2011) also requires a Construction Noise and Vibration Management Plan to be prepared, which will outline the exact procedures and processes required to properly manage the process. This should be prepared prior to the commencement of construction of the proposed development.

The previous building structure (P17 carpark) located at the same site the proposed development was demolished following the strict CNVMP and the noise and vibration monitoring program successfully, demonstrating that a comprehensive CNVMP can ensure amenity of the nearby receivers is achieved.

The noise criteria associated with construction and its related activities are shown in Table 19, as presented in Section 4.1.1 Table 2 of the ICNG.

Table 19: Construction Noise Criteria at Residences

Time of Day	Management Level $L_{Aeq,15min}$	How to Apply
Recommended Standard Hours:	Noise Affected RBL + 10dB	The noise affected level represents the point above which there may be some community reaction to noise. • Where the predicted or measured **$L_{Aeq,15min}$** 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 residences of the nature of works to be carried out, the expected noise levels and duration as well as contact details.
	Highly Noise Affected 75 dB(A)	The highly noise affected level represents the point above which there may be strong community reaction to noise. • Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur in, taking into account: - 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) - If the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
Outside Recommended Standard Hours	Noise Affected RBL + 5dB	• A strong justification would typically be required for 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(A) above the noise affected level, the proponent should negotiate with the community. • For guidance on negotiating agreements see Section 7.2.2. of the ICNG

Note: 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 30m away from the residence, the location for measuring or predicting noise levels is at the most noise-affected point within 30m of the residence. Noise levels may be higher at upper floors of the noise affected residence.

Table 20 below (Section 4.1.2 and 4.1.3 of the ICNG) sets out the noise management levels for other land uses, including commercial premises. The external noise levels should be assessed at the most affected point within 50 m of the area boundary for recreation areas and at the most affected occupied point for commercial and industrial uses. In general, the internal criteria can be converted to external criteria by adding 10 dB as advised in the ICNG.

Table 20: Construction Noise Criteria for Other Land Uses

Land Use	Management Level, $L_{Aeq,15min}$ – applies when land use is being utilised
Classrooms at schools and other educational institutions	Internal noise level 45 dB(A)
Hospital wards and operating theatres	Internal noise level 45 dB(A)
Places of worship	Internal noise level 45 dB(A)
Active recreation areas	External noise level 65 dB(A)
Passive recreation areas	External noise level 60 dB(A)
Community centres, childcare, etc.	Depends on the intended use. Refer to recommended maximum internal levels in AS/NZS 2107.
Industrial premises	External noise level 75 dB(A)
Offices, retail outlets	External noise level 70 dB(A)

Based on the criteria in the tables above, the following noise management levels in Table 21 should be applied to all receivers outlined in Figure 7. Construction during standard hours and outside of standard hours have been assumed.

Table 21: Project Specific Construction Noise Management Levels (External)

Receiver Space	Location of Receiver(s)	Management Level, $L_{Aeq,15min}$
Offices, retail outlets	C1 H1 (Level 3 offices) H2 (Level 2 offices)	External noise level **70 dB(A)**
Hospital wards and operating theatres (including Labs)	H1, H2, H3, H4	External noise level **55 dB(A)**
Residential (Standard Hours)	R1	RBL +10dB = **59 dB(A)**
	R2	RBL +10dB = **53 dB(A)**
Residential (Outside Standard Hours)	R1	RBL +5dB = **54 dB(A)**
	R2	RBL +5dB = **49 dB(A)**

7.1.2 Internal Noise Criteria

Due to the existing internal noise level already exceeding the internal criteria outlined by the ICNG, Stantec propose the below criteria for the internal noise criteria for sensitive spaces within the hospital buildings.

There is an Animal Housing facility located on Level 1 of Block 3 in the KR Building. There is a lack of published criteria by Australian code (including AS/NZS2107:2016) for the care and use of animals for scientific purposes.

Arup have previously provided a construction noise criterion in their Construction Noise Assessment report which outlined a Management Level for the KR Animal Housing for the Westmead Hospital Redevelopment project. This was based off Acoustics Logic's previous advice and Arup's experience. Stantec propose to the same criteria set by Acoustic Logic and Arup which is defined in Table 22, as we see this as appropriate.

Table 22: Project Specific Construction Noise Management Levels (Internal)

Receiver Space	Location of Receiver(s)	Management Level, $L_{Aeq,15min}$
Offices	C1 H1 (Level 3 offices) H2 (Level 2 offices)	RBL + 10dB = **62 dB(A)**
Hospital wards and operating theatres (including Labs)	H1, H2, H3, H4	RBL + 10dB **= 62 dB(A)**
Animal House	Level 1 – KR Building	**50 dB(A)** L_{amax} 65dB(A)

7.2 Construction Vibration

7.2.1 Human Comfort – Continuous and Impulsive Vibration Criteria

Structural vibration in buildings can be detected by occupants and can affect them in many ways including reducing their quality of life and also their working efficiency. Complaint levels from occupants of buildings subject to vibration depend upon their use of the building and the time of the day. The vibration emitted from construction works should be such that it does not exceed the maximum limits set out in the criteria presented in Table 12 to Table 18. The guide on preferred values for human comfort have been extracted from the NSW DEC *Assessing Vibration: A Technical Guideline* (2006). The criteria for continuous and impulsive vibration are summarized in Table 23.

Table 23: Criteria for Exposure to Continuous and Impulsive Vibration

Place	Time	Vibration Acceleration (mm/s^2)			
		Preferred		Maximum	
Continuous Vibration		z axis	x and y axis	z axis	x and y axis
Critical working areas (e.g. hospital operating theatres precision laboratories)	Day or night time	0.005	0.0036	0.010	0.0072
Residences	Daytime	0.010	0.0071	0.020	0.014
	Night time	0.007	0.005	0.014	0.010
Offices	Day or night time	0.020	0.014	0.040	0.028
Workshops	Day or night time	0.040	0.029	0.080	0.058
Impulsive Vibration		z axis	x and y axis	z axis	x and y axis
Critical working areas (e.g. hospital operating theatres precision laboratories)	Day or night time	0.005	0.0036	0.010	0.0072
Residences	Daytime	0.30	0.21	0.60	0.42
	Night time	0.10	0.071	0.20	0.14
Offices	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

Disturbance caused by vibration will depend on its duration and its magnitude. This methodology of assessing intermittent vibration levels involves the calculation of a parameter called the Vibration Dose Value (VDV) which is used to evaluate the cumulative effects of intermittent vibration. The criteria applicable when considering periods of intermittent vibration are presented in Table 13.

Table 24: Acceptable Vibration Dose Values for Intermittent Vibration (1.75 m/s)

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

7.2.2 Structural Damage

Ground vibration criteria are defined in terms of levels of vibration emission from construction activities that will not damage surrounding buildings or structures. It should be noted that human comfort criteria are normally expressed in terms of acceleration whereas structural damage criteria are normally expressed in terms of velocity. The human comfort criteria are also often exceeded before a risk of structural damage.

Structural damage criteria are presented in German Standard DIN 4150-Part 3 *Structural vibration in buildings – Effects on structures* and British Standard BS 7385-2:1993 *Evaluation and Measurement for Vibration in Buildings*. The British Standard BS 7385-2:1993 establishes vibration values for buildings based on the lowest vibration levels above which damage has been credibly demonstrated. These values are evaluated to give a minimum risk of vibration-induced damage, where minimal risk for a named effect is usually taken as 95% probability of no effect. The aforementioned values are summarised in Table 25.

Table 25: Transient Vibration Guide Values for Cosmetic Damage – BS 7385-2:1993

Type of Building	Peak component particle velocity in frequency range of predominant pulse	
	4 Hz to 15 Hz	15 Hz and above
Reinforced or framed structures Industrial or light commercial type buildings	50mm/s	N/A
Unreinforced or light framed structures Residential or light commercial type buildings	15mm/s	20mm/s (50mm/s at 40Hz and above)

Table 26 indicates the vibration limits presented in DIN 4150-Part 3 to ensure structural damage does not occur.

Table 26: Guideline Value of Vibration Velocity (v_i) for Evaluating the Effects of Short-Term Vibration – DIN 4150-Part 3

Line	Type of Structure	Vibration velocity, v_i, in mm/s			
		Foundation At a frequency of			Plane of floor of uppermost full storey
		Less than 10Hz	10 to 50Hz	50 to 100Hz *	All Frequencies
1	Buildings used for commercial purposes, industrial buildings and buildings of similar design	20	20 to 40	40 to 50	40

2	Dwellings and buildings of similar design and/or use	5	5 to 15	15 to 20	15
3	Structures that, because of their particular 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
*For frequencies above 100Hz, at least the values specified in this column shall be applied.					

There are four (4) types of sensitives receivers that need to be considered during the construction phase of the proposed development. The human comfort criteria can be found in Table 23 which is for the people working in the surround buildings Table 8 outlines the criteria needed for the structure of the surrounding buildings. There is many sensitive equipment located in close proximity and the set criteria can be found in Table 27. KR Building has an animal housing facility with rodent that are sensitive to vibration and to ensure comfort for the rodents, criteria set in Section 6.3.4 should be followed.

7.2.3 Sensitive Equipment

Kid's Research (KR) Building have provided a list of a number of sensitive equipment have been identified within the building. The vibration limits for the sensitive equipment shown in Table 27. The vibration criteria for all the identified equipment has been assessed to the ASHRAE Handbook – Chapter 48, Figure 40 and Table 45 criteria for Human Comfort and Equipment Vibration due to the lack of vibration threshold for all equipment listed. The most suitable criterion has been applied due to the nature of the equipment.

Table 27: Maximum Vibration to Sensitive Equipment

Location	Vibration-sensitive Equipment	Vibration-sensitive Category	Vibration guideline target (magnitude of peak 1/3 octave band, RMS)
Block 3 Level 3 (Surgical Room & Lab)	Faxitron	VC-A Curve	50µm/sec
	Piximus (DEXA)	VC-A Curve	50µm/sec
	Skyscan 1272	VC-A Curve	50µm/sec
	Skyscan 1174	VC-A Curve	50µm/sec
	Microtome	VC-C Curve	12.5µm/sec
Block 4 Level 3 (Human Applications Lab)	Liquid Nitrogen storage tank and dewar	Hospital Operating Rooms & Critical Areas	100µm/sec
	Centrifuges	VC-A Curve	50µm/sec
	Microscope	VC-A Curve	50µm/sec
	HEPA filters	Hospital Operating Rooms & Critical Areas	100µm/sec
	Incubators	VC-A Curve	50µm/sec
Block 4 Level 3 (Tissue Culture Room)	Incubators	VC-A Curve	50µm/sec
Block 4 Level 3 (Microscope Laboratory)	Spot microscope	VC-A Curve	50µm/sec
	DC500 microscpe	VC-A Curve	50µm/sec
	Jenoptik brightfield microscope	VC-A Curve	50µm/sec
	Dissecting microscope	VC-A Curve	50µm/sec
Block 3 Level 3 (Laboratory)	Instron mechanical tester	VC-A Curve	50µm/sec
	Mecmesin torsional mechanical tester	VC-B Curve	25µm/sec
	Form 1+ 3D printer	VC-A Curve	50µm/sec
	Form 2 3D printer	VC-A Curve	50µm/sec
	Mankati FullScale XT (3D Printer)	VC-A Curve	50µm/sec
	Mankati Fullscale (3D Printer)	VC-A Curve	50µm/sec
Block 4 Level 4 (Lab 7)	Virtual Microscopy Suite (Aperio)	VC-A Curve	50µm/sec
	Automatic Coverslipper (DAKO)	VC-A Curve	50µm/sec

Location	Vibration-sensitive Equipment	Vibration-sensitive Category	Vibration guideline target (magnitude of peak 1/3 octave band, RMS)
Block 4 Level 4 (Level 4, microscope/store rm)	Live Cell Imaging Microscopy Suite	VC-D Curve	6µm/sec
	TIRF Fluroescent Microscopy Suite	VC-A Curve	50µm/sec
Block 4 Level 4 (Level 4, TC Room 2)	JULI Stage	VC-C Curve	12.5µm/sec
	4X CO_2 Incubators	VC-A Curve	50µm/sec
Block 4 Level 4 (Level 4, TC Room 1)	4X CO2 Incubators	VC-A Curve	50µm/sec
Block 4 Level 4 (Level 4, Communal Equipment Room 1)	QIACUBE ROBOTIC WORKSTATION FOR AUTO PURIFICATION OF DNA RNA KIT	VC-C Curve	12.5µm/sec
Block 5 Level 1 (Endocrinology Lab)	Analyser (Immulite 1000)	VC-C Curve	12.5µm/sec
	Tandem Mass Spectrometer (TQ-S)	VC-A Curve	50µm/sec
	Tandem Mass Spectrometer (TQ-XS)	VC-A Curve	50µm/sec
	Analyser (iSYS)	VC-C Curve	12.5µm/sec
	Gamma Counter (Wizard 2470)	VC-B Curve	25µm/sec
All	Typical Equipment	Hospital Operating Rooms & Critical Areas	100µm/sec

7.2.4 Animal Facilities

There is an Animal Housing Facility located on Level 1 of Block 3 in the KR Building. The rodents that are housed in the facility are particularly sensitive to vibration, with potential negative side effects should the rodents be exposed to excessive and prolonged vibration. Arup have previously provided a construction vibration criterion in their Construction Vibration Assessment report which outlined a limit for the KR Animal Housing for the Westmead Hospital Redevelopment project. This was based off their previous measurements of the project site and the US guideline National Institutes of Health Guideline "Design requirements manual for NIH Biomedical and Animal Research Facilities" 2010.

Due to the lack of published vibration criteria by Australian code for the care and use of animals for scientific purposes, WGE propose to the same criteria set by ARUP as we see this criterion to be appropriate, which is outlined below:

Table 28: Proposed Animal House Vibration Criteria

Location	Criteria
Animal House	Curve 1 Australia AS2670.2 (3rd octave band RMS Velocity < 0.1mm/s)
	Transient Peak Velocity to be below 1.0mm/s

7.2.5 Project Construction Vibration Limits

Table 29 indicates the vibration criteria for the surrounding sensitive receivers to the proposed development.

Table 29: Project construction vibration limits at each sensitive receiver

Receiver	Period	Human Comfort Vibration Objectives			Building Damage Objectives (mm/s)
		Continuous mm/s^2 (RMS)		Intermittent m/s$^{1.75}$ (VDV)	
		z-axis	x- and y-axis		
R1	Daytime	10 - 20	7 - 14	0.20 - 0.40	5
	Night-time	7 - 14	5 - 10	0.13 - 0.26	5
R2	Daytime	10 - 20	7 - 14	0.20 - 0.40	5
	Night-time	7 - 14	5 - 10	0.13 - 0.26	5
H1	At any time	5 - 10	3.6 – 7.2	0.10 -0.20	5
H2	At any time	5 - 10	3.6 – 7.2	0.10 -0.20	5
H3	At any time	5 - 10	3.6 – 7.2	0.10 -0.20	5
H4	At any time	5 - 10	3.6 – 7.2	0.10 -0.20	5
C1	At any time	20 - 40	14 - 28	0.40 – 0.80	5

Appendix B – Stantec Acoustic Report – Multi-Storey Car Park, The Children's Hospital at Westmead (dated 01/04/2021) Extract of Section 8

Multi-storey Carpark, The Children's Hospital at Westmead

Acoustics Report

State Significant Development Application

Prepared for: Health Infrastructure c/- PwC

Attention: Mary Sakr

Date: 01 April 2021

Prepared by: Mia Strembickyj

Ref: 44311-1

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Revision

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001	13/01/2021	Draft Issue	Mia Strembickyj	Olivier Gaussen
002	25/01/2021	Updated with Comments	Mia Strembickyj	Olivier Gaussen
003	28/01/2021	Updated with Comments	Mia Strembickyj	Olivier Gaussen
004	28/01/2021	Final Issue	Mia Strembickyj	Olivier Gaussen
005	24/03/2021	Updated Construction Hours	Mia Strembickyj	Olivier Gaussen
006	01/04/2021	Minor Amendments	Mia Strembickyj	Olivier Gaussen

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8. Construction Noise and Vibration Criteria

8.1 Construction Noise

8.1.1 External Noise Criteria

We understand the proposed hours of construction are outlined below:

- Mon to Fri: 7am to 6pm
- Saturday: 8am to 5pm

In this report, it is assumed that all works are performed during these proposed hours.

Works are not usually permitted outside of the standard hours outlined in the ICNG, however as per the NSW DEC Interim Construction Noise Guideline Section 2.3 (Construction outside the recommended standard hours), there are five categories of works that might be undertaken outside the recommended standard hours, which are:

- The **delivery of oversized plant or structures** that police or other authorities determine require special arrangements to transport along public roads
- **Emergency works** to avoid the loss of life or damage to property, or to prevent environmental harm
- **Maintenance and repair of public infrastructure** where disruption to essential services and/or considerations of worker safety do not allow work within standard hours
- **Public infrastructure works** that shorten the length of the project and are supported by the affected community
- Works where a proponent demonstrates and justifies **a need to operate outside the recommended standard hours**

In the case of the project, the MSCP can be assimilated to a public infrastructure works further to this the following can be considered as a justification as to why the works could be permitted outside of the recommended standard hours (Saturday 8am-5pm):

- The quantitative results of the noise and vibration impact assessment presented in Section 10 of this report demonstrates that none of the main construction phases of the proposed MSCP exceeds the established noise criteria during standard hours of construction, in fact the results shows that all activities conservatively comply with the established criteria. If we are assuming that outside of standard hours construction have the potential to greater impact the surrounding community or occupants of adjacent buildings to the construction site, the results presented in Section 10.1.5 shows that lower noise levels will be achieved. Indeed, the ICNG recommends a more stringent criteria for construction works conducted outside standard working hours for residential receivers. The nearest external resident receiver (R1) has been assessed in Section 10.1 against both the standard hours and the OOHW and no exceedances are predicted.
- The surrounding residential receivers respectively R1 are located approximately 80m from the construction site. These distances eliminate the risk for any vibration impact. Hoarding has been proposed in Section 12.1 to mitigate noise disturbance to the nearby receiver.

All these factors considered, clearly indicate that the risks for noise and vibration impact associated with conducting construction works outside of standard hours (nominally on Saturdays between 8am and 5pm) on the surrounding community and adjacent occupant of surrounding buildings are minimal.

Further to the above, previous works within the precinct and within close proximity to the MSCP were successfully conducted under the Environmental Planning and Assessment (COVID Development - Construction work days) 2020 Ministerial Order, works are permitted under the outlined following conditions:

> *"(2) The conditions specified for the development are that the development must-*
>
> *(a) Be the subject of a development consent, and*

(b) Comply with all conditions of the consent other than any condition that restricts the hours of work or operation on a Saturday, Sunday or public holidays, and

(i) Comply with the conditions of the consent that restrict the house of work or operation on any other days as if the conditions applied to work or operation on a Saturday, Sunday or public holiday, and

(ii) Not involve the carrying out of rock breaking, rock hammering, sheet piling, pile driving or similar activities during the hours of work or operation that would not be permitted but for this Order, and

(iii) Take all feasible and reasonable measures to minimise noise."

The assessment undertaken in Section 10, demonstrates compliance with the Ministerial Order, following conditions set, and criteria outlined by the ICNG during the out of hours works (OOHW).

The Parramatta Council DCP (2011) also requires a Construction Noise and Vibration Management Plan to be prepared, which will outline the exact procedures and processes required to properly manage the process. This should be prepared prior to the commencement of construction of the proposed development.

The noise criteria associated with construction and its related activities are shown in Table 13, as presented in Section 4.1.1 Table 2 of the ICNG.

Table 13: Construction Noise Criteria at Residences

Time of Day	Management Level $L_{Aeq,15min}$	How to Apply
Recommended Standard Hours:	Noise Affected RBL + 10dB	The noise affected level represents the point above which there may be some community reaction to noise. • Where the predicted or measured $L_{Aeq,15min}$ 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 residences of the nature of works to be carried out, the expected noise levels and duration as well as contact details.
	Highly Noise Affected 75 dB(A)	The highly noise affected level represents the point above which there may be strong community reaction to noise. • Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur in, taking into account: - 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) - If the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.

Time of Day	Management Level $L_{Aeq,15min}$	How to Apply
Outside Recommended Standard Hours	Noise Affected RBL + 5dB	• 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(A) above the noise affected level, the proponent should negotiate with the community. • For guidance on negotiating agreements see Section 7.2.2. of the ICNG

Note: 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 30m away from the residence, the location for measuring or predicting noise levels is at the most noise-affected point within 30m of the residence. Noise levels may be higher at upper floors of the noise affected residence.

Table 14 below (Section 4.1.2 and 4.1.3 of the ICNG) sets out the noise management levels for other land uses, including commercial premises. The external noise levels should be assessed at the most affected point within 50 m of the area boundary for recreation areas and at the most affected occupied point for commercial and industrial uses. In general, the internal criteria can be converted to external criteria by adding 10 dB as advised in the ICNG.

Table 14: Construction Noise Criteria for Other Land Uses

Land Use	Management Level, $L_{Aeq,15min}$ – applies when land use is being utilised
Hospital wards and operating theatres	Internal noise level 45 dB(A)
Offices	External noise level 70 dB(A)
Short-term Accommodation	Internal noise level 35 dB(A)

Based on the criteria in the tables above, the following noise management levels in Table 14 should be applied to all receivers outlined in Section 6.5. Construction during standard hours has been assumed.

Table 15: Project Specific Construction Noise Management Levels

Receiver	Location of Receiver(s)	Management Level, $L_{Aeq,15min}$
Residential	R1	RBL + 10dB = **52 dB(A)**
Short-term accommodation	S1	Internal noise level **35 dB(A)**
Hospital wards and operating theatres (including Labs)	H1	Internal noise level **45 dB(A)**
Mental health wards	H2	Internal noise level **45 dB(A)**
Commercial	C1, C2 Office Spaces of H1 & H2	External noise level **70 dB(A)**

8.2 Construction Vibration

8.2.1 Human Comfort – Continuous and Impulsive Vibration Criteria

Structural vibration in buildings can be detected by occupants and can affect them in many ways including reducing their quality of life and also their working efficiency. Complaint levels from occupants of buildings subject to vibration depend upon their use of the building and the time of the day. The vibration emitted from construction works should be such that it does not exceed the maximum limits set out in the criteria presented in Table 9 to Table 12. The guide on preferred values for human comfort have been extracted from the NSW DEC *Assessing Vibration: A Technical Guideline* (2006). The criteria for continuous and impulsive vibration are summarised in Table 16.

Table 16: Criteria for Exposure to Continuous and Impulsive Vibration

Place	Time	Vibration Acceleration (mm/s^2)			
		Preferred		Maximum	
Continuous Vibration		z axis	x and y axis	z axis	x and y axis
Critical working areas (e.g. hospital operating theatres precision laboratories)	Day or night time	0.005	0.0036	0.010	0.0072
Residences & Short-term Accommodation	Daytime Night time	0.010 0.007	0.0071 0.005	0.020 0.014	0.014 0.010
Offices	Day or night time	0.020	0.014	0.040	0.028
Impulsive Vibration		z axis	x and y axis	z axis	x and y axis
Critical working areas (e.g. hospital operating theatres precision laboratories)	Day or night time	0.005	0.0036	0.010	0.0072
Residences & Short-term Accommodation	Daytime Night time	0.30 0.10	0.21 0.071	0.60 0.20	0.42 0.14
Offices	Day or night time	0.64	0.46	1.28	0.92

Disturbance caused by vibration will depend on its duration and its magnitude. This methodology of assessing intermittent vibration levels involves the calculation of a parameter called the Vibration Dose Value (VDV) which is used to evaluate the cumulative effects of intermittent vibration. The criteria applicable when considering periods of intermittent vibration are presented in Table 17.

Table 17: Acceptable Vibration Dose Values for Intermittent Vibration (1.75 m/s)

Location	Daytime		Night time	
	Preferred Value	Maximum Value	Preferred Value	Maximum Value
Critical areas	0.10	0.20	0.10	0.20
Residences & Short-term Accommodation	0.20	0.40	0.13	0.26
Offices, schools, educational institutions and places of worship	0.40	0.80	0.40	0.80

8.2.2 Structural Damage

Ground vibration criteria are defined in terms of levels of vibration emission from construction activities that will not damage surrounding buildings or structures. It should be noted that human comfort criteria are normally expressed in terms of acceleration whereas structural damage criteria are normally expressed in terms of velocity. The human comfort criteria are also often exceeded before a risk of structural damage.

Structural damage criteria are presented in German Standard DIN 4150-Part 3 *Structural vibration in buildings – Effects on structures* and British Standard BS 7385-2:1993 *Evaluation and Measurement for Vibration in Buildings*. The British Standard BS 7385-2:1993 establishes vibration values for buildings based on the lowest vibration levels above which damage has been credibly demonstrated. These values are evaluated to give a minimum risk of vibration-induced damage, where minimal risk for a named effect is usually taken as 95% probability of no effect. The aforementioned values are summarised in Table 18

Table 18: Transient Vibration Guide Values for Cosmetic Damage – BS 7385-2:1993

Type of Building	Peak component particle velocity in frequency range of predominant pulse	
	4 Hz to 15 Hz	15 Hz and above
Reinforced or framed structures Industrial or light commercial type buildings	50mm/s	N/A
Unreinforced or light framed structures Residential or light commercial type buildings	15mm/s	20mm/s (50mm/s at 40Hz and above)

Table 12 indicates the vibration limits presented in DIN 4150-Part 3 to ensure structural damage does not occur.

Table 19: Guideline Value of Vibration Velocity (v_i) for Evaluating the Effects of Short-Term Vibration – DIN 4150-Part 3

Line	Type of Structure	Vibration velocity, v_i, in mm/s			
		Foundation At a frequency of			Plane of floor of uppermost full storey
		Less than 10Hz	10 to 50Hz	50 to 100Hz *	All Frequencies
1	Buildings used for commercial purposes, industrial buildings and buildings of similar design	20	20 to 40	40 to 50	40
2	Dwellings and buildings of similar design and/or use	5	5 to 15	15 to 20	15
3	Structures that, because of their particular 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
*For frequencies above 100Hz, at least the values specified in this column shall be applied.					

Appendix C – ARUP's proposal for noise and vibration monitor location

Memorandum

ARUP

To	CASB Facilities Manager	Date	22 November 2021
Copies	Mary Sakr; Hannah Urquhart	Reference number	
From	Matt Walden; Grant Cuthbert	File reference	
Subject	CHW Monitoring - CASB		

This memo outlines the proposed vibration monitoring locations and limits within CASB to help ensure disruption from the CHW development is minimised. The locations are preliminary and are to be discussed with CASB. At each of these locations, 240V power and an ethernet data connection is required. Ethernet connections are for outbound data only.

1 Level 2 – MRI Scanner

MRI scanners are considered the most sensitive piece of equipment within the CASB, and as such should be monitored. Figure 1 below shows the proposed location of the vibration monitor, while Table 1 outlines the proposed alert criteria. The proposed criteria is adopted from the Stantec Acoustic Report for the Paediatric Services Building, and from NSW Health Guidelines for vibration for new hospitals.

While there is a CT scanner on the Level 1 floor, this is marginally further away from the construction works, and is considered to be slightly less sensitive than the MRI scanner.

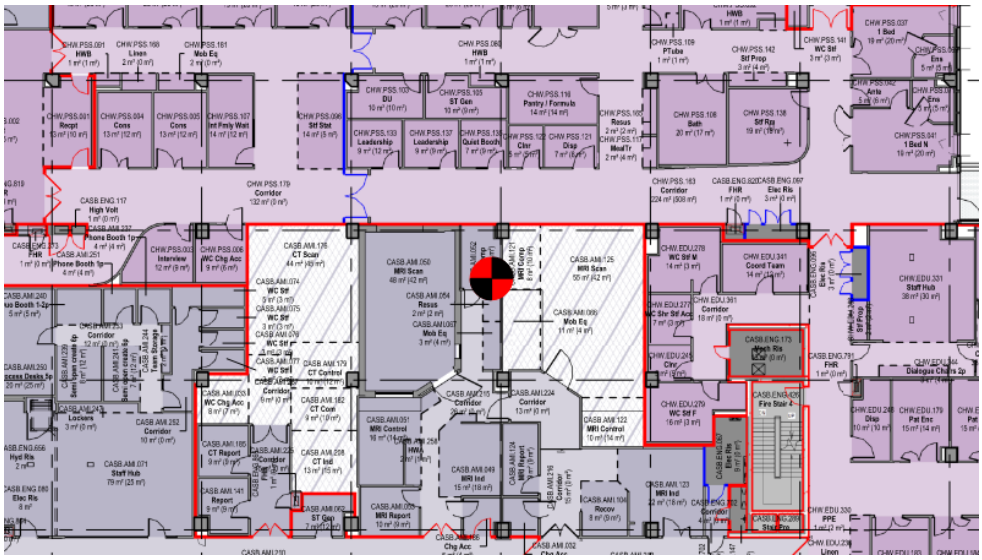


Figure 1: Level 2 MRI vibration monitor location

Table 1: Level 2 MRI vibration monitor criteria (NSW health guidelines for medical imaging)

PPV Criteria	RMS Velocity Criteria
Not applicable	Curve VC-A (1/3rd Octave band V_{RMS} to be below 0.051mm/s)

2 Level 3 – Surgical Suite

The surgical suites are of elevated risk and closest to the PSB site, and as such should be monitored. Figure 2 below shows the proposed location of the vibration monitor, while Table 2 outlines the proposed alert criteria. The proposed criteria is adopted from the Stantec Acoustic Report for the Paediatric Services Building, and from NSW Health Guidelines for vibration for new hospitals. Pod C is chosen and it is understood that Pod B is not yet in use.

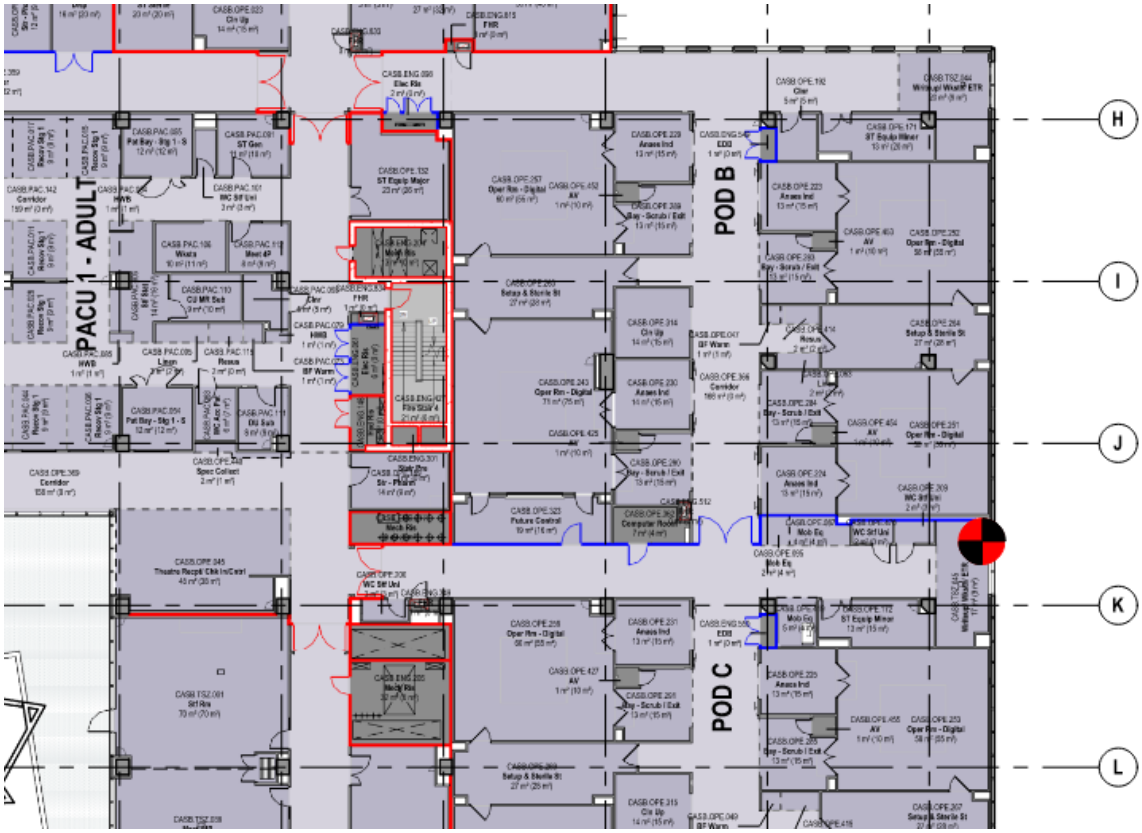


Figure 2: Level 3 surgical suite vibration monitor location

Table 2: Level 2 surgical suite vibration monitor criteria (NSW health guidelines for operating theatres)

PPV Criteria	RMS Velocity Criteria
Not applicable	Curve 1 Australian Standard AS2670.2 (1/3rd Octave band VRMS to be below 0.102mm/s)

3 Vibration Alert Management

The following diagram outlines the vibration alert management procedure. The first step is to confirm that the alert was not caused by someone in the vicinity of the monitor, as this is a common cause of false triggers. This could be accidental knocking of the device or dropping a large object nearby. If this was not the case, the rest of the escalation procedure below will be followed to investigate the source and the impact of vibrations and address as necessary.

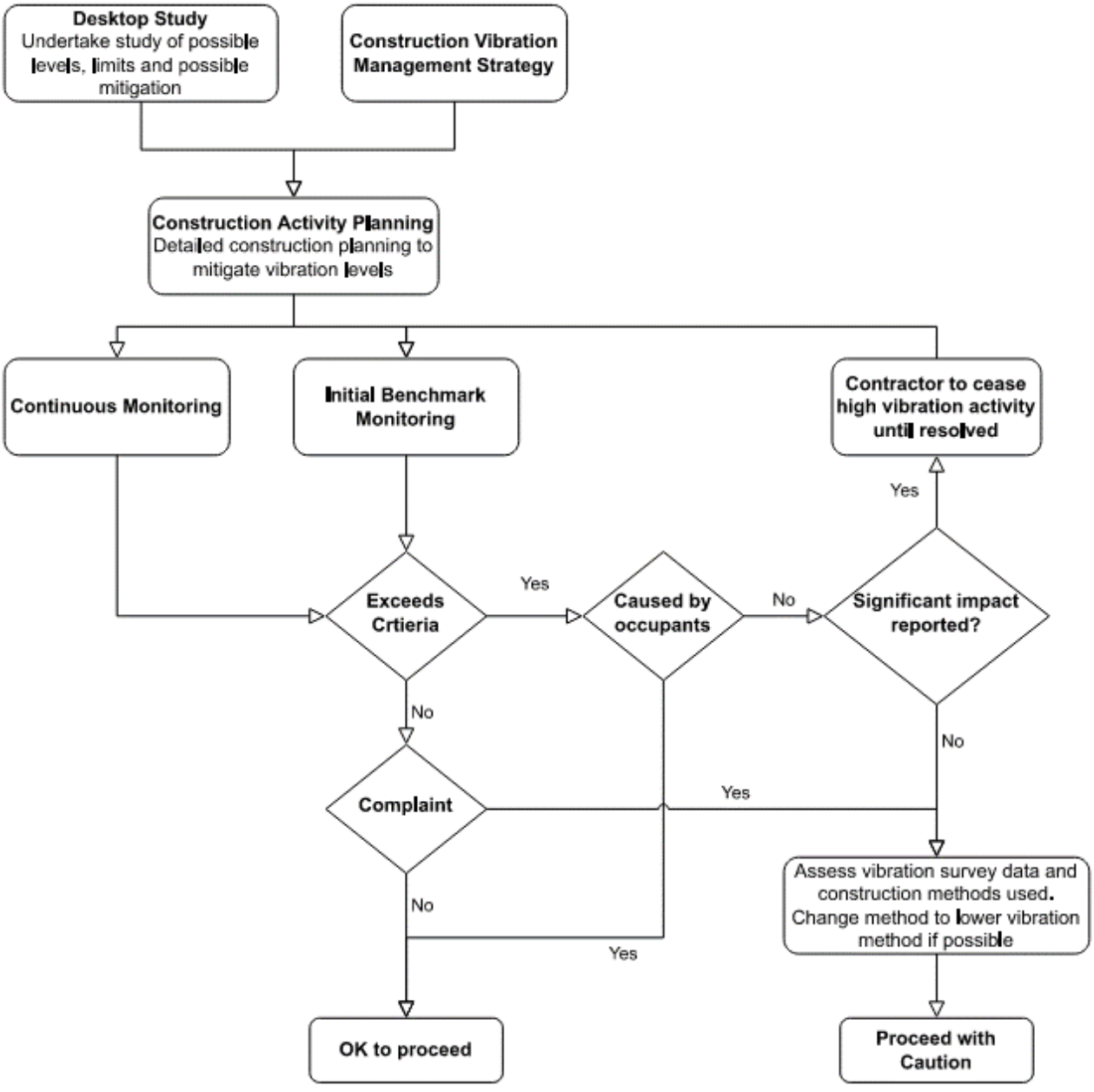


Figure 3: Vibration alert management procedure

Memorandum

ARUP

To	CHW Facilities Manager	Date	22 November 2021
Copies	Mary Sakr; Hannah Urquhart	Reference number	
From	Matt Walden; Grant Cuthbert	File reference	
Subject	CHW Monitoring - CHW		

This memo outlines the proposed vibration monitoring locations and limits within CHW to help ensure disruption from the PSB and MSCP development is minimised. The locations are preliminary and are to be discussed with CHW. At each of these locations, 240V power and an ethernet data connection is required. Ethernet connections are for outbound data only.

Figure 1 below shows the project site (red outline), and the scope area of this memo (yellow outline).

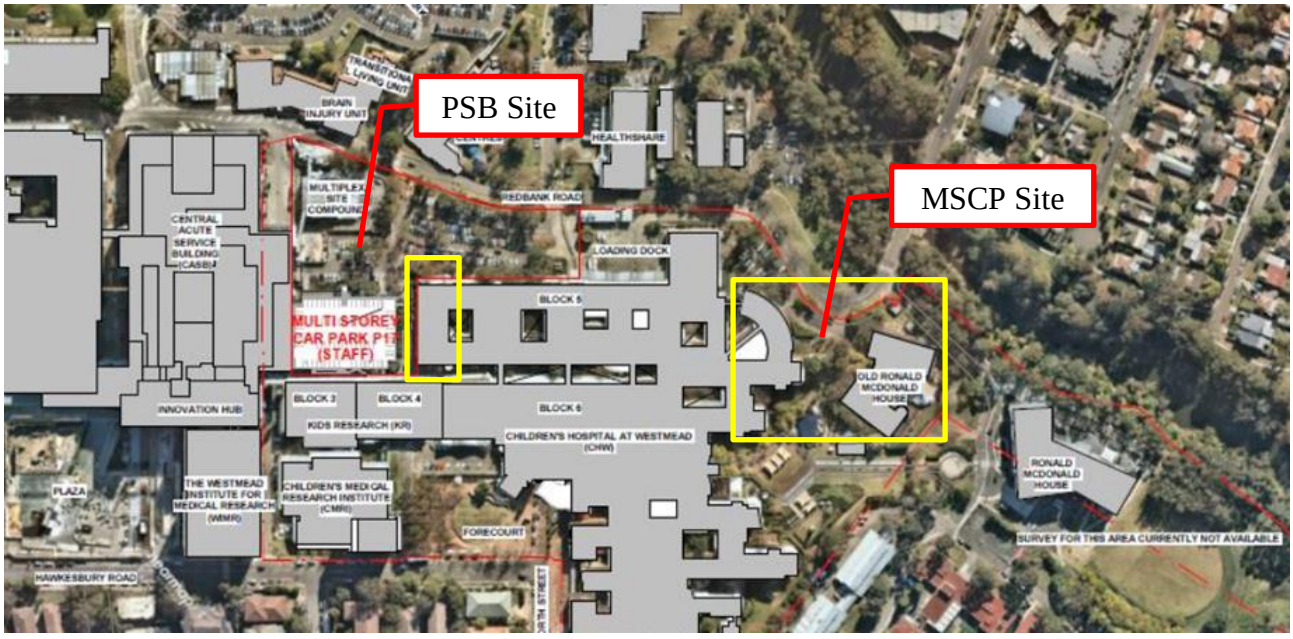


Figure 1 - Site map

1 Level 1 – Laboratories

The Level 1 endocrinology laboratory houses very sensitive and close to the PSB works, and as such should be monitored. This equipment includes:

- Immulite 1000 Analyser

- iSYS Analyser
- Wizard 2470 Gamma Counter
- TQ-S Tandem Mass Spectrometer
- TQ-XS Tandem Mass Spectrometer

Figure 2 below shows the proposed location of the vibration monitor, while Table 1 outlines the proposed alert criteria. The criteria adopted is based on the Stantec Acoustic Report for the Paediatric Services Building, which includes a table of the lab equipment and its specified vibration criteria.

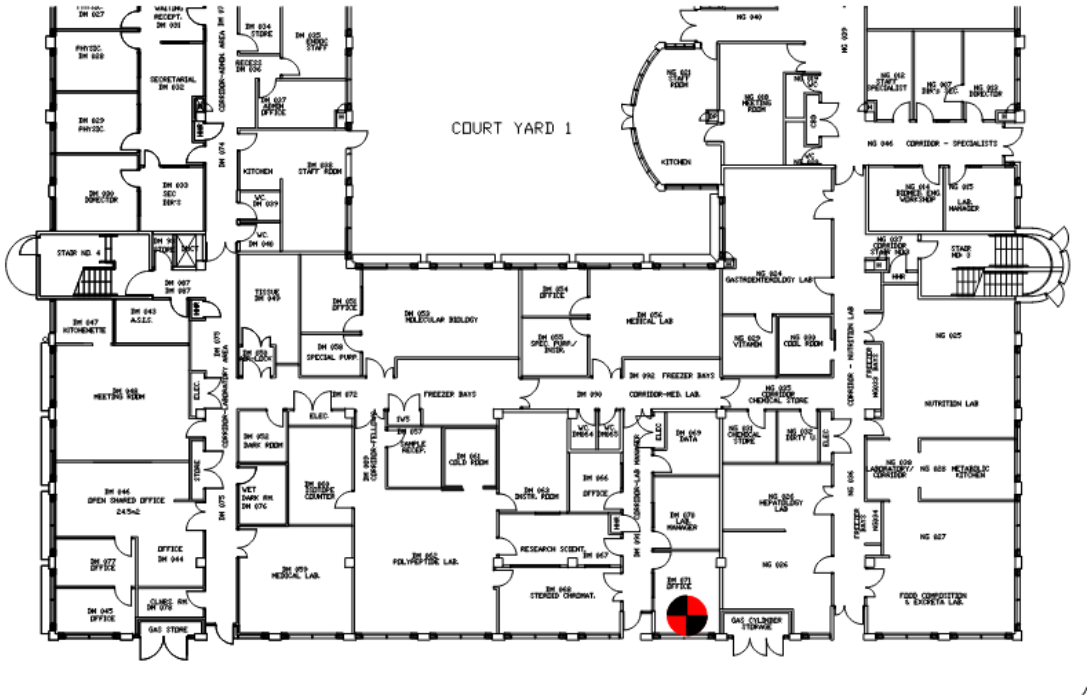


Figure 2: Level 1 Lab vibration monitor location

Table 1: Level 1 Lab vibration monitor criteria

PPV Criteria	RMS Velocity Criteria
Not applicable	Curve VC-C (1/3rd Octave band V_{RMS} to be below 0.0125mm/s), based on the two analysers

2 Level 1 – Mental Health Unit

As the facility closest to the MSCP site, the mental health unit should be monitored. Figure 3 below shows the proposed location of the vibration monitor, while Table 2 outlines the proposed alert criteria. This criteria is based on the Stantec Acoustic Report for the Multi-Storey Car Park and the NSW DEC Assessing Vibration: A Technical Guideline (2006), which prescribe maximum and preferred limits for residences in the daytime. As work is not expected at night time, the more stringent night time limit is not adopted.

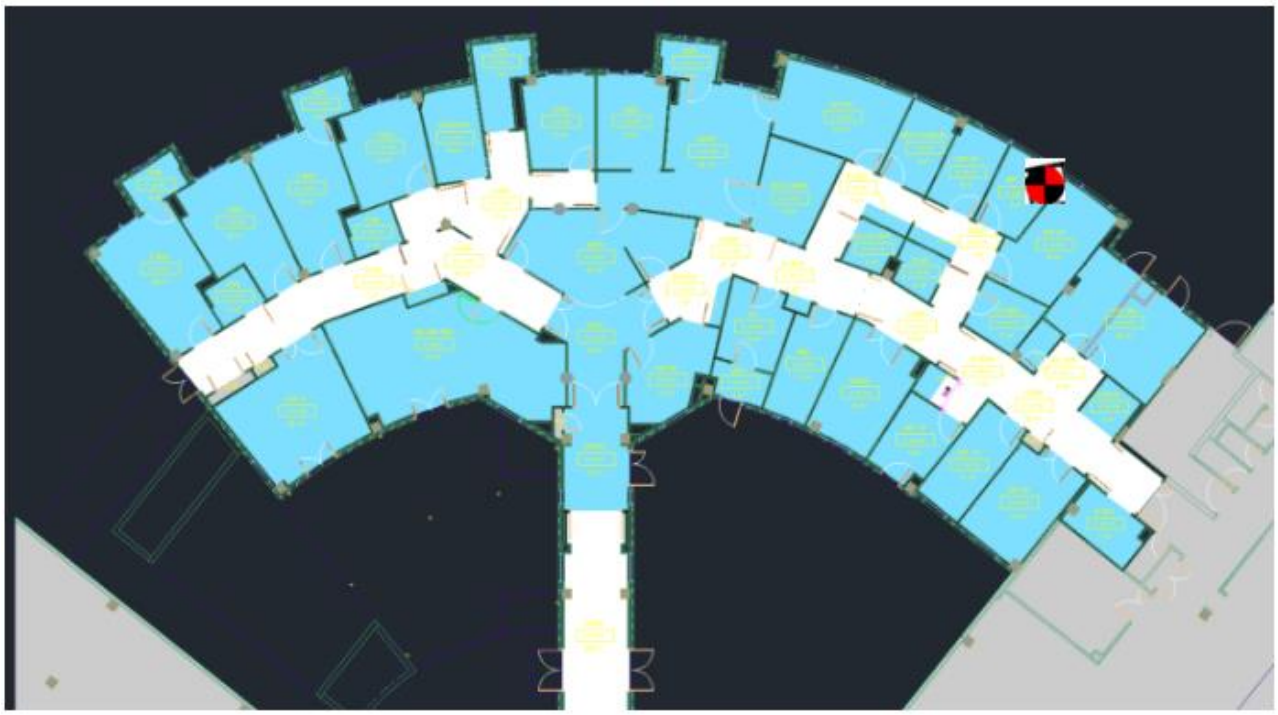


Figure 3: Level 1 mental health unit vibration monitor location

Table 2: Level 1 mental health unit vibration monitor criteria

PPV Criteria	RMS Velocity Criteria
Not applicable	Curve 2 Australian Standard AS2670.2 (1/3rd Octave band V_{RMS} to be below 0.204mm/s), based on daytime residence human comfort limit

3 Ronald McDonald House

Ronald McDonald House is also within the zone of influence of the Multi-Storey Car Park, it is further away from the site than the mental health unit above. It is also of similar usage, being residential housing for patient families. As such it is proposed that vibration levels at Ronald McDonald house are monitored by proxy with the vibration monitor in the mental health unit.

4 Vibration Alert Management

The following diagram outlines the vibration alert management procedure. The first step is to confirm that the alert was not caused by someone in the vicinity of the monitor, as this is a common cause of false triggers. This could be accidental knocking of the device or dropping a large object nearby. If this was not the case, the rest of the escalation procedure below will be followed to investigate the source and the impact of vibrations and address as necessary.

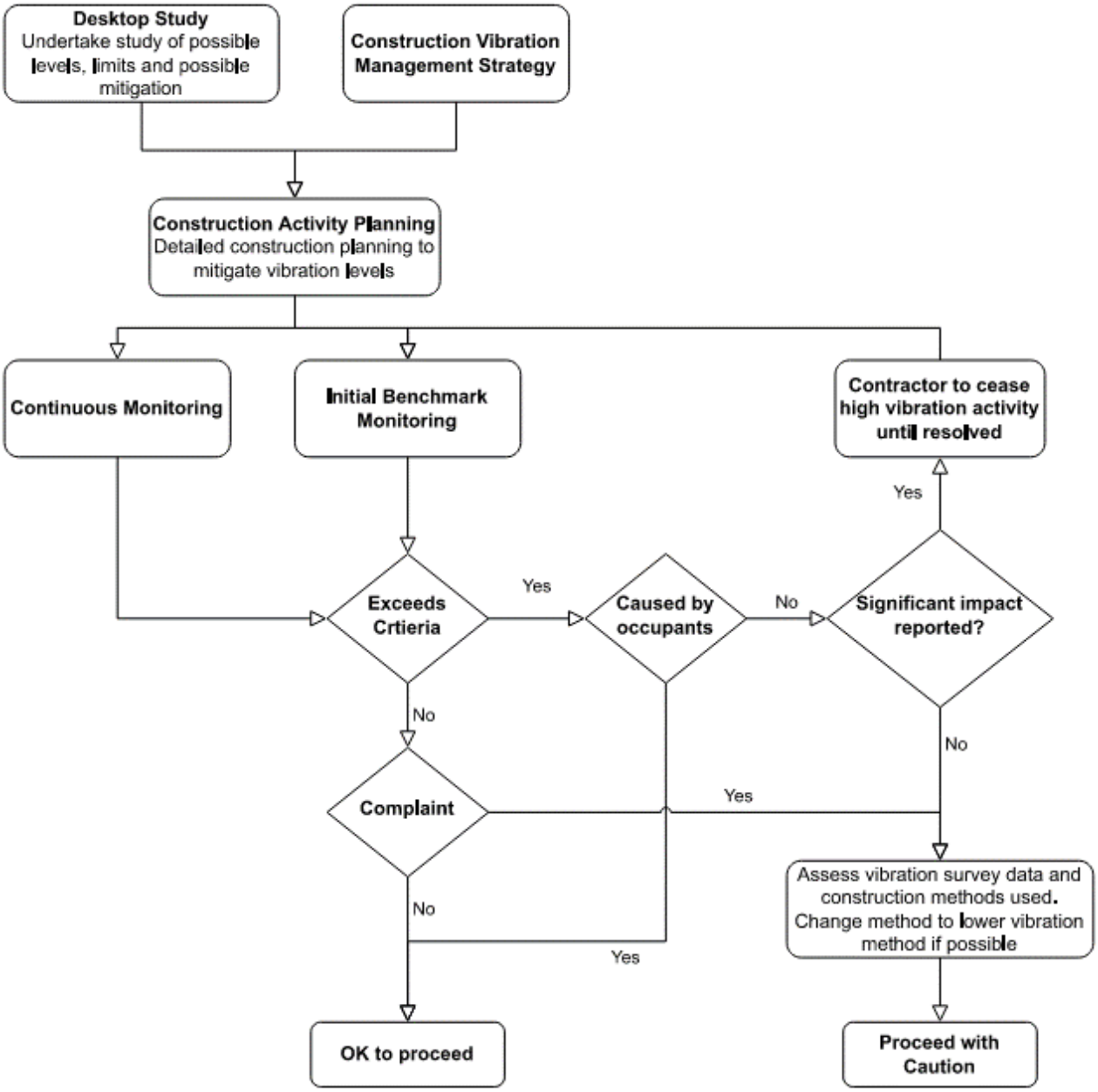


Figure 4: Vibration alert management procedure

Memorandum

ARUP

To	CASB Facilities Manager	Date	22 November 2021
Copies	Mary Sakr; Hannah Urquhart	Reference number	
From	Matt Walden; Grant Cuthbert	File reference	
Subject	CHW Monitoring - KR		

This memo outlines the proposed vibration monitoring locations and limits within KR to help ensure disruption from the CHW development is minimised. The locations are preliminary and are to be discussed with KR. At each of these locations, 240V power and an ethernet data connection is required. Ethernet connections are for outbound data only. 3G modems can be provided to locations where no ethernet is available (i.e. the corridor beside the animal house).

Figure 1 below shows the project site (red outline), and the scope area of this memo (yellow outline).

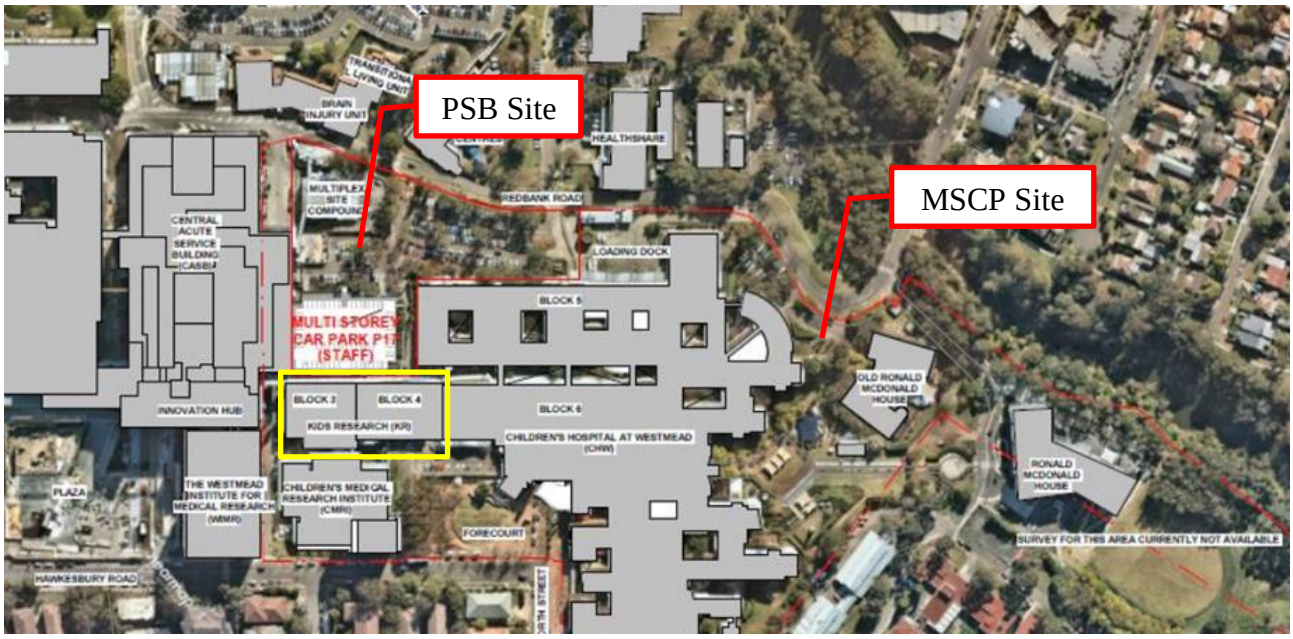


Figure 1 - Site map

Memorandum

1 Level 1 – Animal House

The animal house is considered highly important and is close to the construction site of the PSB, and as such should be monitored. Figure 2 below shows the proposed location of the vibration monitor, while Table 1 outlines the proposed alert criteria. The criteria adopted is based on the Stantec Acoustic Report for the Paediatric Services Building which includes a table outlining the required criteria for animal houses, and is in line with previous monitoring projects at KR.

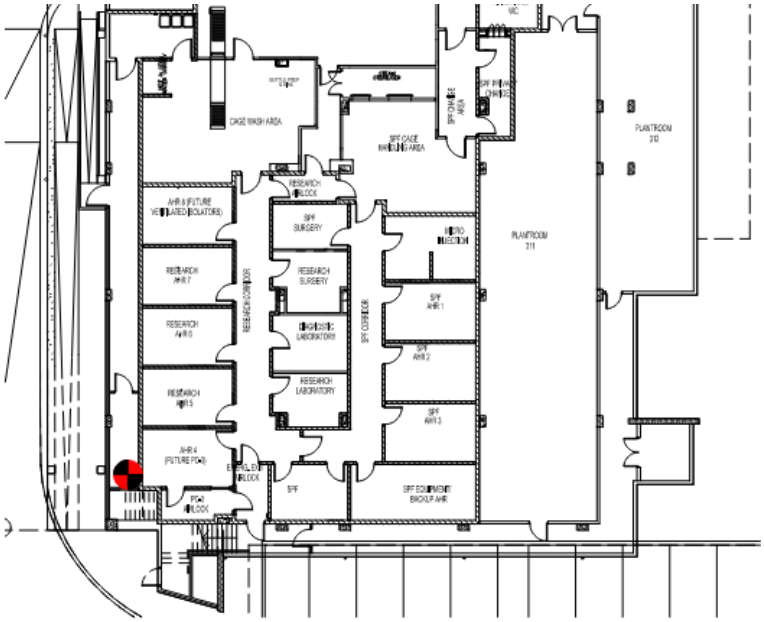


Figure 2: Level 1 Animal House vibration monitor location

Table 1: Level 1 Animal House vibration monitor criteria

PPV Criteria	RMS Velocity Criteria
1.0mm/s	Curve 1 Australian Standard AS2670.2 (1/3rd Octave band V_{RMS} to be below 0.102mm/s)

2 Level 2 – Offices

The offices on level 2 of KR are considered to be the least vibrationally sensitive spaces within KR. This space was monitored during the demolition of the P17 carpark. Data from this monitoring is presented in Figure 3. This shows that the measured levels were generally very low, below both the performance criteria of Curve 4, and below the average threshold of human perception (Curve 1).

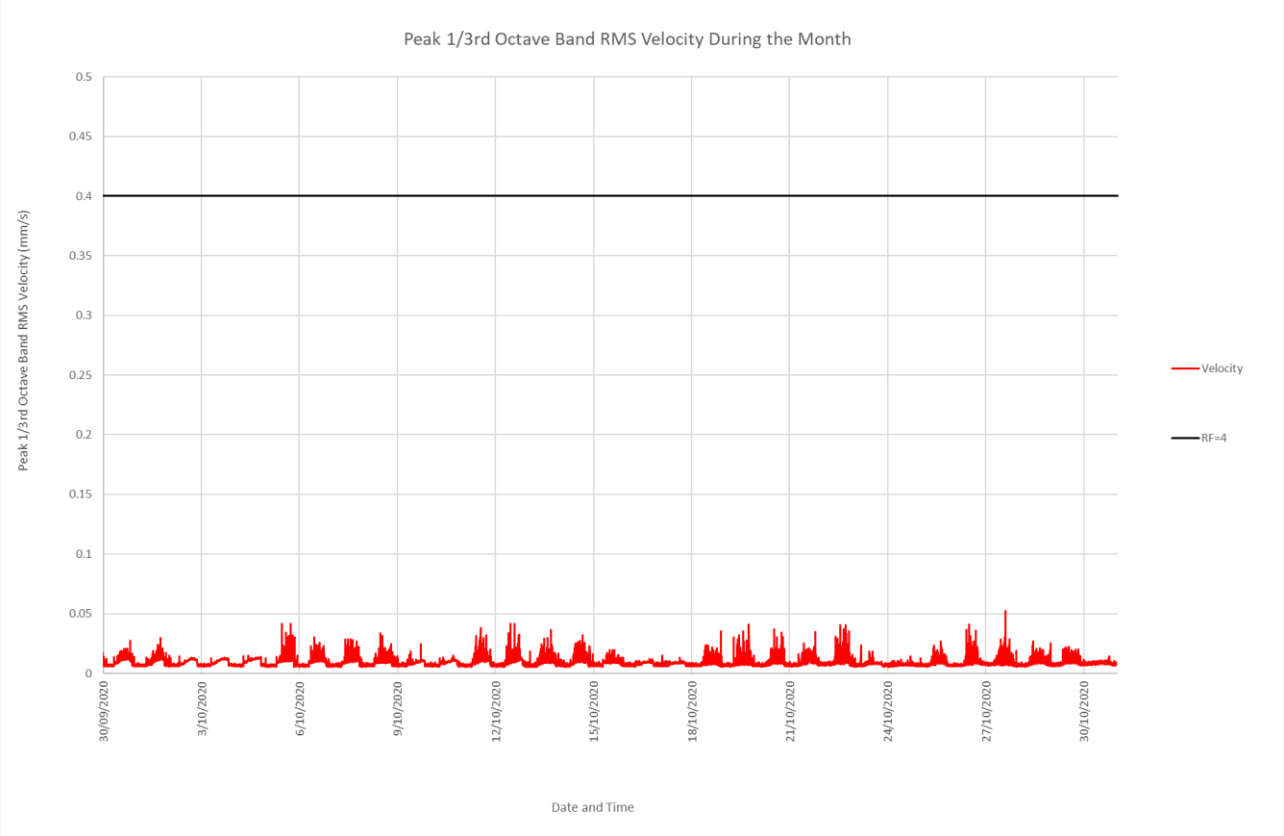


Figure 3: L2 office - P17 demolition monitored levels (1 month)

Based on the sensitivity of the space and historical recorded data, we do not believe that monitoring of this space is warranted.

3 Gait Lab

The gait lab is considered to be partially sensitive due to the equipment in the room. Previous monitoring in the facility (Figure 4) did show some exceedances, however these were not reflected in other monitors across KR and are therefore considered to have been locally generated.

Outside of these occasional exceedances, the recorded levels during the P17 demolition were generally well below the limit. As such, a monitor at this location is not deemed necessary.

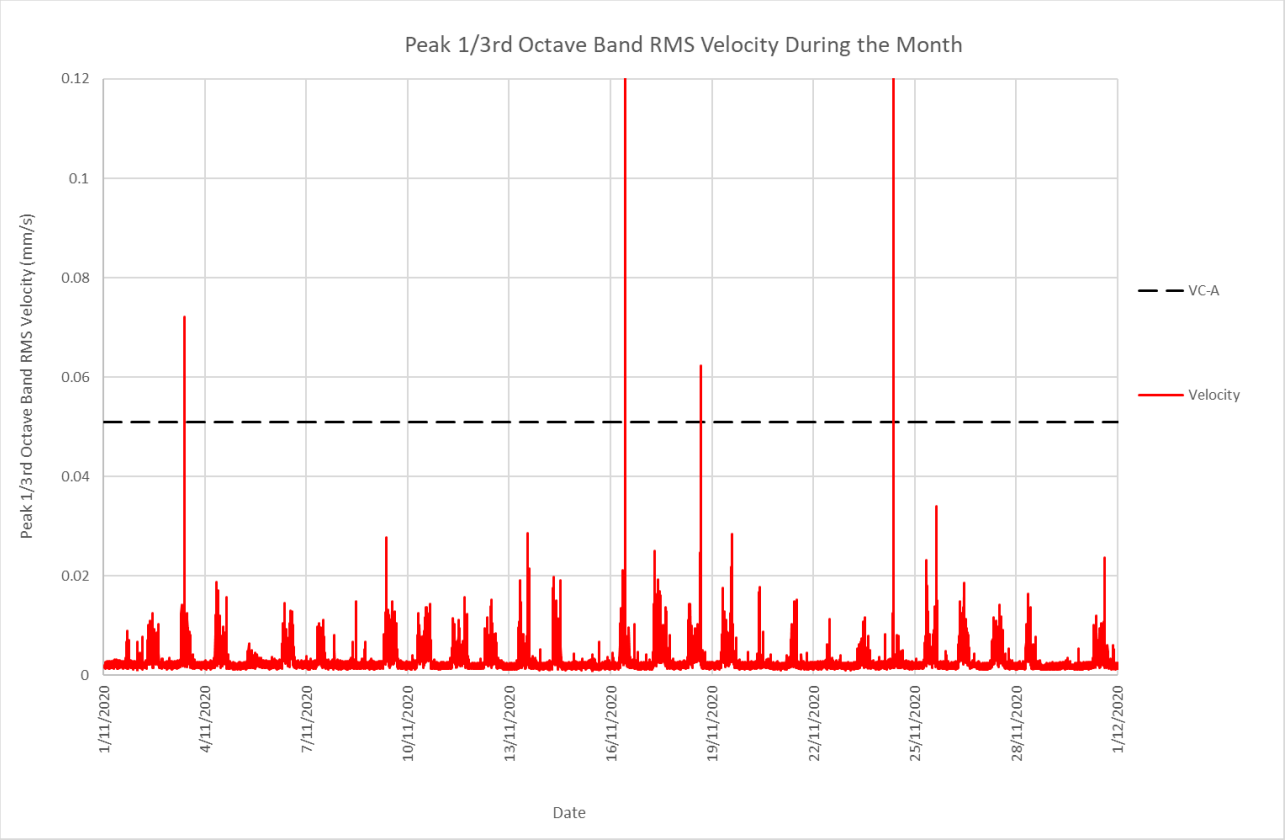


Figure 4: L2 gait lab - P17 demolition monitored levels (month 1)

4 Level 3 Laboratories

The level 3 labs are considered to be somewhat sensitive, and have been monitored as part of both CASB and the P17 demolition. This lab is considered less sensitive than Level 4 Lab 9, as the equipment in the L3 labs have higher vibration limits. This equipment is known to be:

- 3D printers
- Mecmesin torsional mechanical tester
- Faxitron
- Skyskan 1272/1174
- Piximus
- Incubators

Additionally, the recorded data from P17 demolition (Figure 5) shows that the recorded levels did not reach the triggering level.

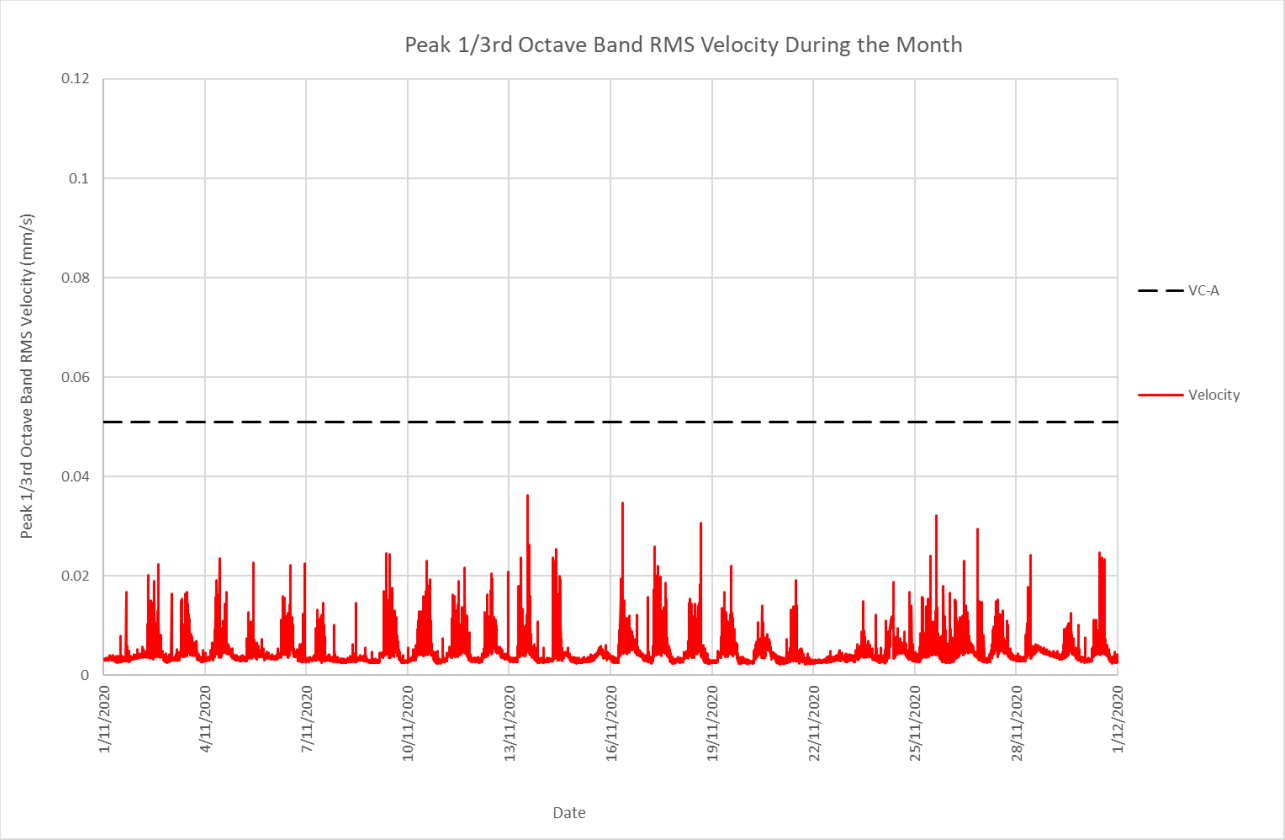


Figure 5: L3 laboratory - P17 demolition monitored levels (month 1)

Based on this lower sensitivity and historical measurement for construction on the PSB site, we do not recommend monitoring at this location.

5 Level 4 – Lab 9

Lab 9 was known to have the most sensitive equipment when works for the P17 demolition took place (VC-D), and as such should be monitored. In this location, actual monitoring prior to the P17 demolition indicated the floor was only able to meet a VC-B performance level. Figure 6 and Figure 7 below show the recorded data during the demolition works, which indicated that the floor is close to performing at VC-B level ordinarily, but the works did result in an increase in the vibration levels and resulted in exceedance.

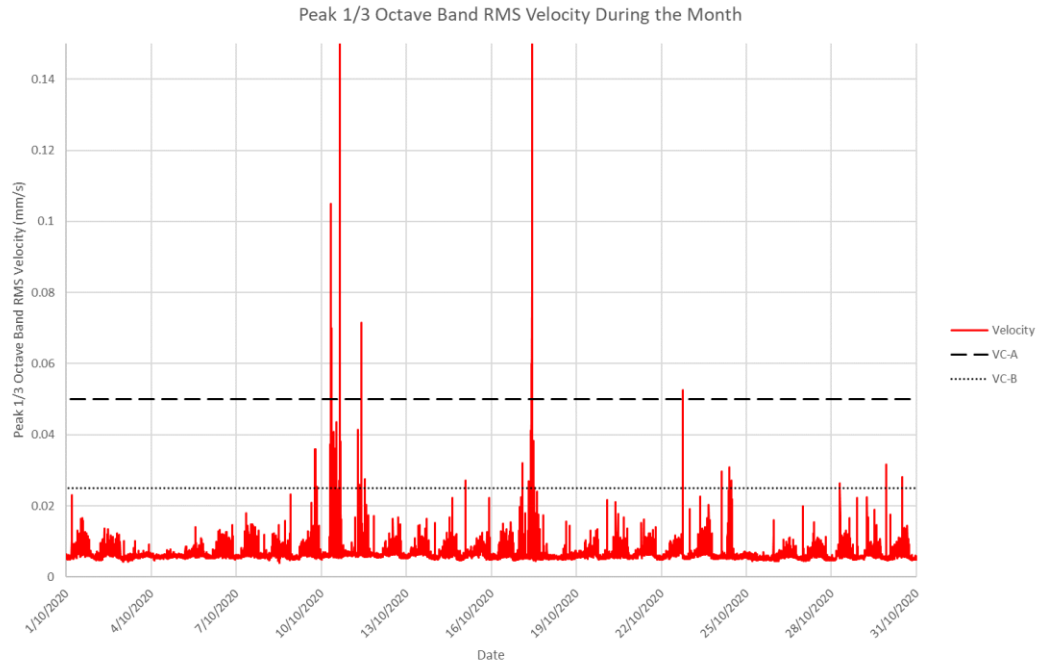


Figure 6: KR Lab 9 - P17 demolition (month 1)

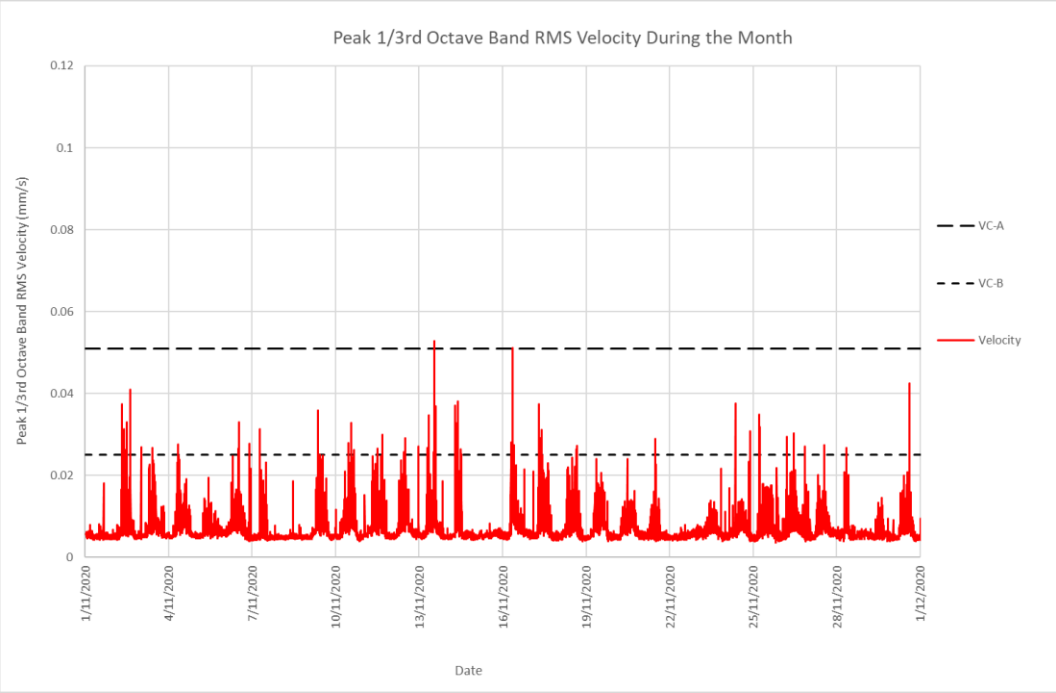


Figure 7: KR Lab 9 - P17 demolition (month 2)

Figure 8 below shows the proposed location of the vibration monitor. Note that we are not 100% sure that the room indicated is correct room, as this floor plan on file is not up to date. Table 2 outlines the proposed alert criteria, however it is anticipated that this location will require review and ongoing discussion regarding impact.

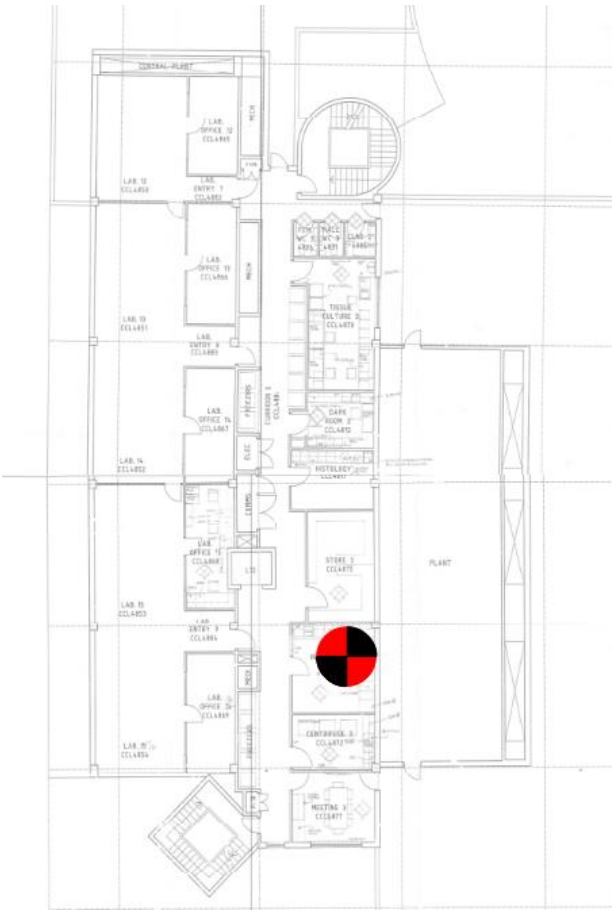


Figure 8: Level 4 Lab 9 vibration monitor location

Table 2: Level 4 Lab 9 vibration monitor criteria

PPV Criteria	RMS Velocity Criteria
Not applicable	Curve VC-B (1/3rd Octave band VRMS to be below 0.025mm/s)

6 Vibration Alert Management

The following diagram outlines the vibration alert management procedure. The first step is to confirm that the alert was not caused by someone in the vicinity of the monitor, as this is a common cause of false triggers. This could be accidental knocking of the device or dropping a large object nearby. If this was not the case, the rest of the escalation procedure below will be followed to investigate the source and the impact of vibrations and address as necessary.

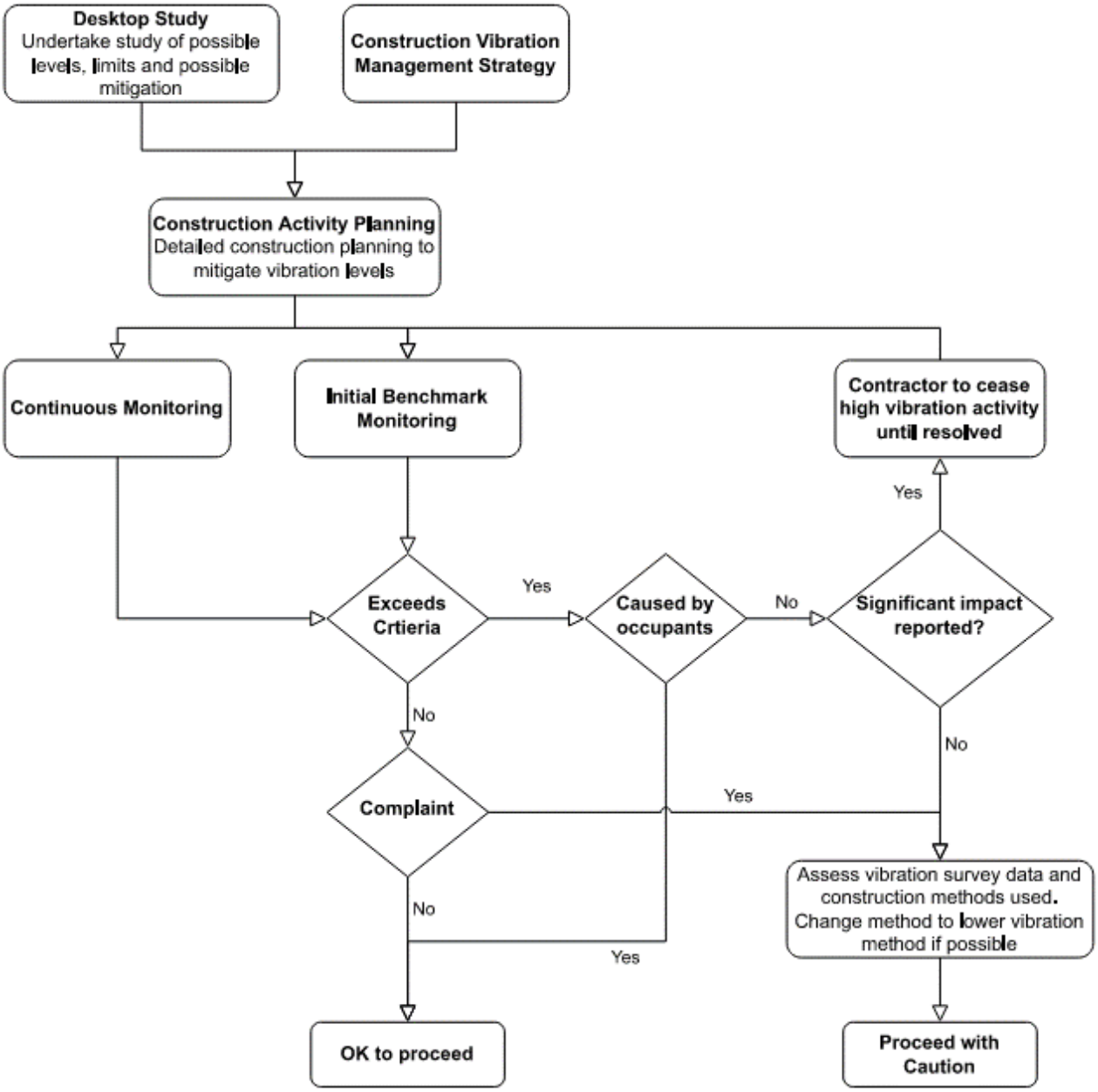


Figure 9: Vibration alert management procedure

ARUP

Subject CHW Stage 2 - Noise monitoring locations

Date 23 November 2021 **Job No/Ref** v3

This document outlines proposed noise logger locations during construction works for the Paediatric Services building (PSB) and Multi Storey Car Park (MSCP), and the requirements at each location to allow for effective noise monitoring. The exact locations will need to be discussed with the surrounding building stakeholders and HI.

1 Noise monitor location requirements

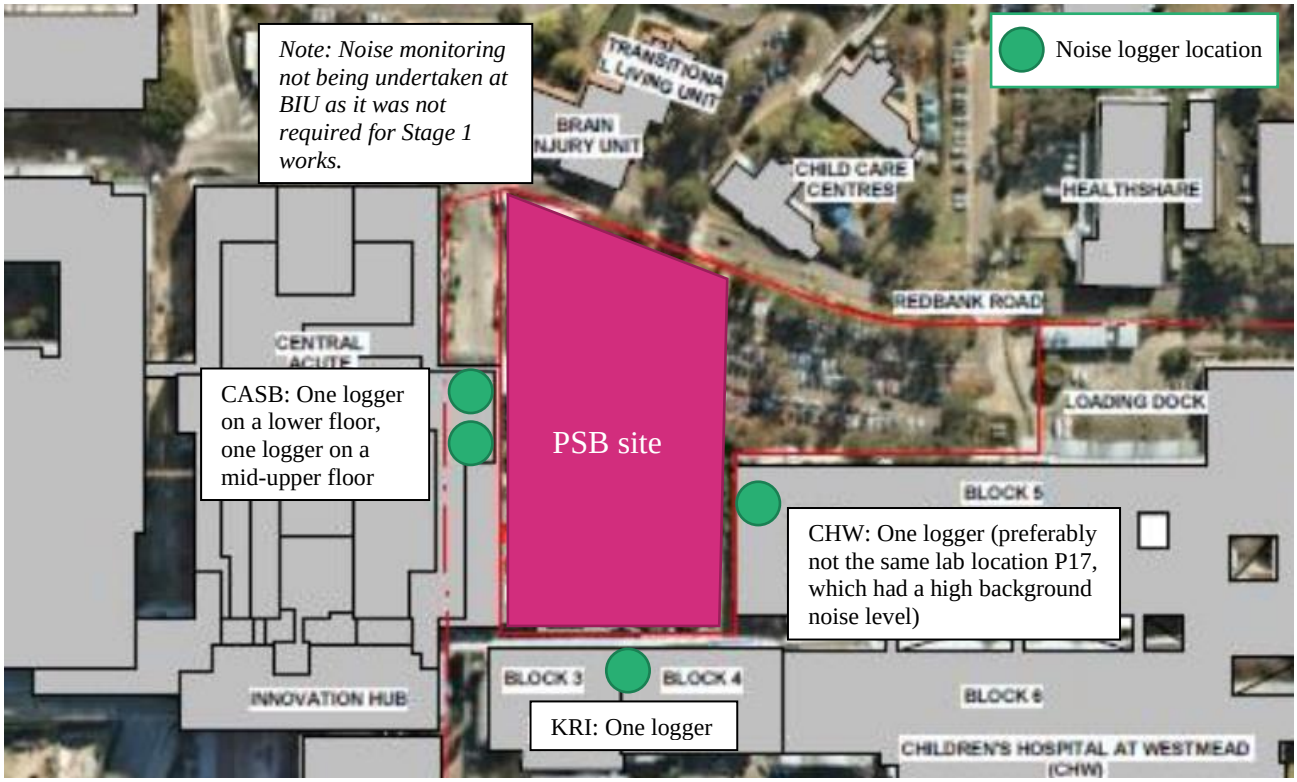
- Minimum requirements:
  - Room adjoining facade facing the site
  - Room needs to be fully enclosed (i.e. has a door)
  - Active mains power
  - No med-high noise equipment/plant in the room
  - Strong/stable mobile network reception (Telstra)
  - Needs to be secure location / no risk of theft or tampering with the noise logger.
- Ideally, the room nominated for the noise logger should be room closed off/unoccupied for the duration of construction. This is to avoid false exceedance alerts being triggered due to noise from occupants rather than construction noise.

  If this isn't possible, the next best would be a cleaner's room or storeroom (i.e. a room that isn't regularly occupied).

  Else, we will look for a quieter room type (e.g. a private office). More busy/active areas are not recommended as it's unlikely the background noise will be low enough to be identify/isolate construction noise.

2 Proposed noise monitor locations (for discussion)

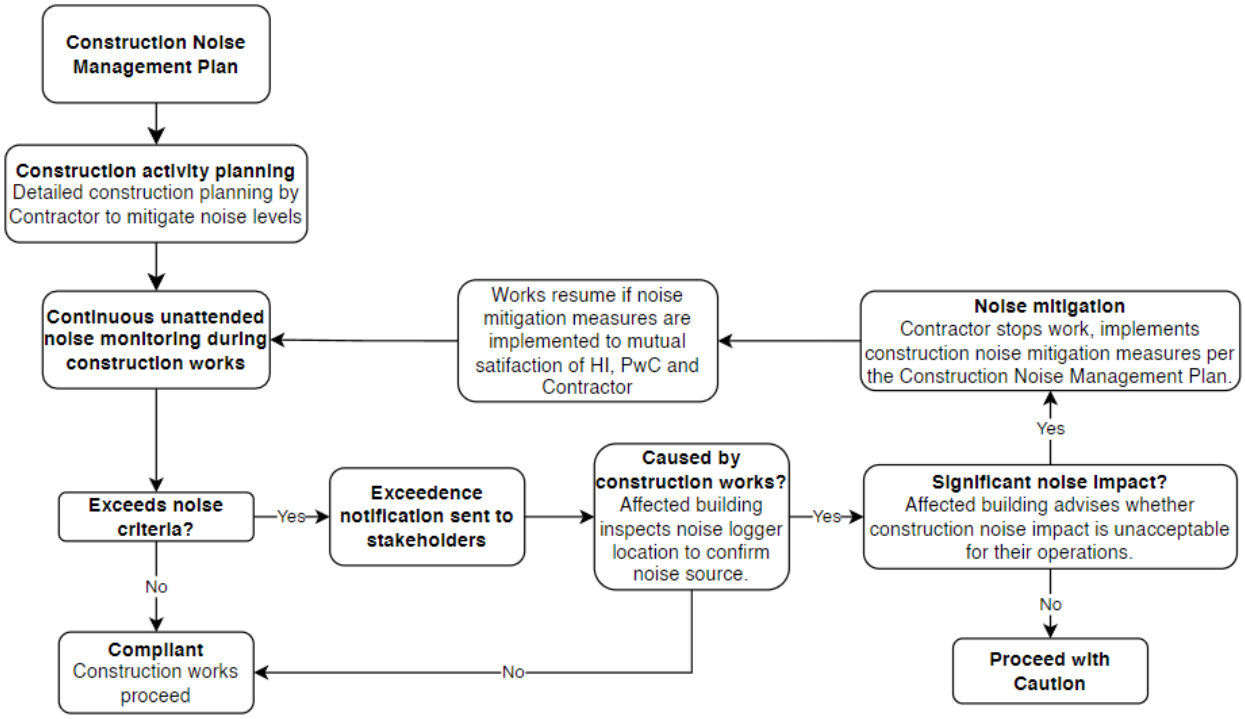
PSB



MSCP

3 Noise exceedance protocol

A summary of the procedure for responding to exceedance notifications sent from the noise loggers is below. The final detailed procedure should be included in the Construction Noise Management Plan.



Appendix D – Community Contacts, Complaints Register

Community/Stakeholder Contacts/Complaints Register

Project Name: CHW Stage 2 Enabling Works - Combined Civils

Ref No.	Date Raised	Type of Contact	Contacted Through	Stakeholder Type	Location	FCC Person Contacted	Contact Description	Immediate Action Taken	Further Action Proposed	Person Responsible	Action Deadline	Action Status	Verification date
1		Complaint	Phone	Resident								More action required	
2		Suggestion	Email	Business								Closed effectively	
3		Notification by FCC	In-Person	Other (specify)								Open	
4		Other (Specify)	Letter Drop										
5			Other (specify)										
6													
7													
8													
9													
10													

Appendix E – Peer Review conducted by SLR Consulting

24 March 2022

630.30342-L01-v1.0-20220324.docx

Ford Civil Contracting Pty Ltd
9 Hattersley Street
Arncliffe NSW 2205

Attention: Danielle Simpson

Dear Danielle

Westmead Children's Hospital Stage 2 Enabling Works Construction Noise & Vibration Management Sub-Plan Peer Review

1 Introduction

SLR Consulting Australia Pty Ltd (SLR) has been engaged by Ford Civil Contracting Pty Ltd (FCC) to undertake an independent peer review of the *Construction Noise & Vibration Management Sub-Plan* Revision C dated 16 March 2022 prepared by FCC (the CNVMSP). The CNVMSP has been prepared to address conditions B17 of SSD-1034952 for the new Paediatric Services Building (PSB) and condition B13 of SSD-10434896 for the construction of the Multi Storey Car Park (MSCP).

It is understood that a peer review from an appropriately qualified and experienced noise expert has been requested as part of agreed certification requirements for the CNVMSP to satisfy B17 a) of SSD-1034952 and B13 a) of SSD-10434896 that the CNVMSP '*be prepared by a suitably qualified experienced noise expert*'.

This peer review has been prepared by Martin Davenport of SLR with CV attached. No potential conflicts of interests arose during the peer review period.

Broadly the objectives of the peer review were as follows:

- Review the current CNVMSP focusing on the requirements of the conditions of consent, application of noise and vibration monitoring and proposed noise and vibration mitigation and management measures.
- Where appropriate, provide comments regarding proposed changes to the CNVMSP.

2 CNVMSP Review

Following review of the CNVMSP the following key changes are recommended.

2.1 Noise Management Levels (Noise Criteria)

Project specific Noise management levels (NMLs) set in accordance with the *Interim Construction Noise Guideline* (ICNG) have not been provided in the CNVMSP.

It is recommended that NMLs (both internal and external) as provided in the relevant noise impact assessments for the PSB (refer to report *Paediatric Services Building, The Children's Hospital at Westmead – Acoustic Report* Revision 12 dated 30 September 2021 prepared by Stantec Australia Pty Ltd) and the MSCP (refer to report *Multi-storey Car Park, The Children's Hospital at Westmead – Acoustics Report* Revision 7 dated 15 June 2021 prepared by Stantec Australia Pty Ltd) be adopted for the Project.

2.2 Consultation

The requirements for consultation with the community to develop mitigation strategies for high noise generating works is provided in B17 d) of SSD-1034952 and B13 d) of SSD-10434896.

In developing the CNVMSP that FCC has conducted consultation with the key receivers within the Westmead Health Precinct.

It is noted that the potential exceedances of NMLs has been predicted at times in the relevant noise impact assessments for the PSB and the MSCP at residential receivers on Redbank Road and Hawkesbury Road. Given the proximity of these receivers to the construction works it is recommended that consultation with these receivers be conducted throughout the construction period to advise residents of potential noise/vibration impacts and relevant contacts for queries or complaints. Similarly clear signage should be incorporated at the construction sites including relevant contact numbers for community enquiries.

2.3 Construction Hours

Additional limits on construction hours for certain activities such as rock breaking, rock hammering, sheet piling, pile driving, and other similar activities should be implemented in accordance with Condition C8 of SSD-1034952.

2.4 Noise Monitoring

The CNVMSP provides for continuous unattended noise monitoring at key strategic locations surrounding both the PSB and MSCP sites with live exceedance notifications and provides a protocol to address any periods of noncompliance.

It is recommended that supplementary attended noise measurements be implemented when required such as on the commencement of any high-impact activities, to demonstrate compliance (or otherwise) with the NMLs at other potentially affected areas such as the adjacent Brain Injury Unit building, Child Care Centre and residential receivers off Redbank Road and Hawkesbury Road.

The supplementary attended noise measurements would provide additional information to inform appropriate noise mitigation and management measures as required.

2.5 Vibration Monitoring

The CNVMSP provides for continuous unattended vibration monitoring at key strategic locations surrounding both the PSB and MSCP sites with live exceedance notifications and provides a protocol to address any periods of noncompliance.

Given the significance of exceedances potentially resulting in significant impacts such as the permanent loss of research data or animals it is recommended that consideration be given to configuring the vibration monitoring system to provide a warning alert when vibration levels approach the adopted vibration limits to enable early intervention and task modification if required.

Consideration should be given to the use of supplementary attended vibration monitoring at the commencement of significant vibration intensive works. Operator attended measurements allow for the movement of the operator between multiple locations during an event to capture relevant vibration levels at the receptor locations. They also allow for a degree of in-field analysis to provide preliminary verbal advice on corresponding vibration levels associated with the construction site and/or other extraneous vibration sources, and if required, any mitigation options.

2.6 Monitoring General

It is recommended Periodic reports of noise and vibration monitoring should be produced and made available to the relevant authority and key stakeholders as required.

The reports would also inform the effectiveness of the proposed noise/vibration noise monitoring in confirming construction noise and vibration levels and inform if any changes to monitoring locations or additional monitoring locations are required.

3 Conclusion

SLR have conducted a peer review of the Construction Noise and Vibration Management Sub-Plan for the construction of the Paediatric Services Building (PSB) and Multi Storey Car Park (MSCP) at the Westmead Children's Hospital.

The peer review provides recommendations that should be incorporated into an updated version of the Construction Noise and Vibration Management Sub-Plan for the proposed works. Of key importance will be the establishment of numerical triggers for the management of noise and vibration.

Yours sincerely

MARTIN DAVENPORT
Principal - Noise and Vibration

Checked/
Authorised by: TT

CURRICULUM VITAE

MARTIN DAVENPORT

PRINCIPAL CONSULTANT

Acoustic and Vibration, Asia Pacific

QUALIFICATIONS

M.Des.SC	2009	Design Science (Acoustics) from University of Sydney
MAAS	2018	Member of the Australian Acoustical Society

EXPERTISE

- Noise and vibration measurement, prediction and assessment for industrial and commercial developments and design of mitigation measures.
- Road noise impact assessments and design of mitigation measures.
- Building acoustics measurement and assessment including sound insulation, impact isolation and reverberation time.
- Investigations of occupational noise exposure.

Martin Davenport has over 10 years' experience in acoustic consulting for SLR in their Newcastle office. Martin has gained experience in a broad range of projects including the measurement, prediction and assessment of noise and vibration from the operation and construction of a range of transport, commercial, extractive and industrial developments. He is experienced in the assessment of noise associated with road systems and on land uses near such systems. Martin has also been involved in building acoustics projects including acoustic design reviews, the measurement and assessment of sound insulation, impact isolation and reverberation time. Martin has experience in the use of noise modelling software such as ENM and SoundPLAN, which are used in the prediction of mining/industrial/commercial noise and road traffic noise.

Martin also has been endorsed as a specialist acoustics and vibration independent auditor for large scale resource developments by the NSW Department of Planning and Environment.

PROJECTS

Mining and Quarries

Karuah Quarry,
Mannering Colliery
Lynwood Quarry
Angus Place Colliery
Springvale Colliery
Bloomfield Colliery
Wilpinjong Mine
Moolarben Mine
Stratford Coal Mine
Duralie Coal Mine

Commercial / Industrial	Newcastle Coal Export Terminal - Newcastle Coal Infrastructure Group Carrington Coal Terminal - Port Waratah Coal Services Kooragang Coal Terminal - Port Waratah Coal Services Narellan Concrete Batching Plant Goulburn Concrete Batching Plant Onesteel Oil and Gas Pipe – Kembla Grange. Maitland / North Rothbury Water Supply Upgrade. Harpers Hill Reservoir Construction Noise Impact Assessment.
Building Acoustics	Cardiff South Public School - New hall acoustics Redhead Public School - New hall acoustics New Lambton Community Centre - General acoustics Hunter Water - Foyer acoustics NSW WorkCover Gosford- Foyer acoustics
Occupational Noise	Boral Transport - noise dose testing, Industrial Galvanizers – Hexham OHS noise assessment and training.
Road / Rail	Southern Sydney Freight Line Project, New Residential Area – Macksville. Hexham Relief Roads Muswellbrook Junction Upgrade
Specialist Acoustic and Vibration Auditor	Chain Valley Coal Mine Malabar Resources Bengalla Coal Mine

7 April 2022

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Ford Civil Contracting Pty Ltd
9 Hattersley Street
Arncliffe NSW 2205

Attention: Danielle Simpson

Dear Danielle

Westmead Children's Hospital Stage 2 Enabling Works
Updated CNVMSP - Revision D

Ford Civil Contracting Pty Ltd (FCC) have provided an updated *Construction Noise & Vibration Management Sub-Plan* Revision D dated 28 March 2022 (the CNVMSP) following SLR's peer review (refer SLR report 630.303242 *Westmead Children's Hospital Stage 2 Enabling Works - Construction Noise & Vibration Management Sub-Plan - Peer Review* dated 24 March 2022).

Upon review of the CNVMSP Revision D document, SLR deem that all recommendations from the peer review have been addressed.

I trust the above and attached meets your current requirements. If you have any questions or require any further information please do not hesitate to contact me on 02 4907 3200 or email mdavenport@slrconsulting.com.

Yours sincerely

MARTIN DAVENPORT
Principal - Noise and Vibration

Checked/
Authorised by: TT

SLR Consulting Australia Pty Ltd 10 Kings Road New Lambton NSW 2305 Australia (PO Box 447 New Lambton NSW 2305)
T: +61 2 4037 3200 **E:** newcastleau@slrconsulting.com
www.slrconsulting.com ABN 29 001 584 612

Appendix F – HI/SCHN Complaints Management Procedure

Complaints process
A Complaints and Enquiries Procedure has been developed.

Health Infrastructure and/or Sydney Children's Hospital Network will acknowledge enquiries and complaints in an appropriate and timely manner (usually within 24 hours) so that stakeholders and the community know their concerns are being considered and mitigated where possible.

This demonstrates our commitment to working with the community to manage the impact of The Children's Hospital at Westmead Stage 2 Redevelopment.

Throughout construction, Health Infrastructure and the Sydney Children's Hospital Network (and its Contractors) will have contact with multiple and varied internal and external stakeholders. Complaints received and responded to will be managed in accordance with complaint guidelines and procedures unless otherwise determined by the Project Director.

There are a number of complaint or information channels available as outlined below. These channels will be used in all footers on external facing communications.

Complaints channels

1. Telephone Contacts
A toll-free information line is to be available from Monday to Friday during construction hours to provide information as well as complaints and feedback. This line is monitored by a suitably staff who refer calls to relevant members as required.

In the case of an emergency, the relevant Contractor's team will be notified immediately 24-hours a day, seven days a week.

Calls that are not directly related to contractor activities will be triaged to HI and other stakeholders where appropriate. If a call is received in error by the relevant contractor, sufficient contact details of the caller should at a minimum, be recorded and emailed through to HI-kids@health.nsw.gov.au for response.

2 Email and written contacts
While contractors may have their own general enquiries, procurement, employment or other email addresses, the Project phone number (xxx) and general email (HI-kids@health.nsw.gov.au) will be published on all external communications. Emails will be acknowledged within 24 hours, and during business hours only.

Health Infrastructure and others may forward community and stakeholder emails, received via their own channels, relating to the contractors' work, through to the nominated email.

3 Project Website
A project website (https://westmeadkidsredevelopment.health.nsw.gov.au) has been established and will provide the community with up-to-date information on construction activities.

Recording complaints in the stakeholder database
All complaints and representations, with any stakeholder will be recorded in a register.

All contact entries will include the following information (where available):

- The nature of the complaint, including the event or activity which is the basis of the complaint
- The response provided to the complainant
- The corrective action or further environmental actions taken.

The complaints register will be made available to the Department when requested.

REMEDIATION
INFRASTRUCTURE
ROADWORKS
BULK EARTHWORKS
ENVIRONMENTAL
LANDSCAPING

FORD CIVIL

APPENDIX C

Construction Waste Management Sub-Plan (CWMSP)

Project	Westmead Children's Hospital Stage 2 Enabling Works
Site Address	Corner of Redbank Rd and Labyrinth Way, Westmead
Client	Health Administration Corporation
Contract no.	H121427
Date	17.02.2022

ABN	24 002 542 814
Address	9 Hattersley Street, Arncliffe NSW 2205
Phone	02 9597 4122
Web	www.fordcivil.com.au
Email	info@fordcivil.com.au

Document issue register

Revision #	Issue date	Update summary	Prepared/ Revised by	Reviewed By	Approved by
A	02.02.2022	Project Document	Danielle Simpson	Lawrence Saliba	Danny Khal
B	17.02.2022	Updated to detail waste disposal locations	Danielle Simpson	Lawrence Saliba	Danny Khal

Distribution

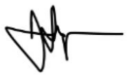
Controlled Copy No.	Issue Holder	Revision	Issue Date
1	1	A	02.02.2022
2	2	B	17.02.2022

Authority

Ford Civil's Chief Operating Officer has authorised 'Danny Khal' as a Project Manager and allocated overall project delivery responsibility for the project to him.

This Project Construction Waste Management Sub-Plan has been prepared for use to manage applicable statutory and regulatory requirements as well as contractual and organisational requirements for the project.

The issue and revision of this Management plan is made under the authority of the Project Manager. This document and its effectiveness will be reviewed and evaluated during project monthly review meetings.

Function	Name	Position	Signature	Date
Prepared by	Danielle Simpson	Project HSEQ Representative		17.02.2022
Reviewed by	Lawrence Saliba	HSEQ Manager		17.02.2022
Approved by	Danny Khal	Project Manager		17.02.2022

Contents

1 Introduction

1.1 Context

This Construction Waste Management Sub-Plan (CWMSP or Plan) forms part of the Construction Environmental Management Plan (CEMP) for the Children's Hospital Westmead - Stage 2 Enabling Works (the Project).

This CWMSP has been prepared to address the requirements of the State Significant Development Applications (SSDA 10434896 and SSDA 10349252) conditions of consent.

1.2 Project & Scope Description

Ford Civil Contracting Pty Ltd (FCC) has been awarded the Contract for the Children's Hospital Westmead - Stage 2 Enabling Works Project.

The enabling works for the Paediatric Services Building (PSB) and the Multi Storey Car Park (MSCP) form part of the Combined Civil's Scope of Work and incorporates the design finalisation and construction of the following elements:

Multi Story Carpark:

- Design finalisation
- Demo of existing lodge building
- Salvage playground equipment
- Clear site (Trees & Pavements)
- Erosion/Sediment/Flooding Control measures through construction
- Earthworks (Approx. 3500m3 C/Fill) up to 'BOC'
    - Including Temporary battering around MSCP structural cores
- Retaining wall & ramp upstand walls
- Retaining Wall piles and capping beam footings
- External Stormwater drainage incl GPTs and filtration units
    - Excluding grated trench drains, which are to be done by Main Works contractor as part of pavement finishes.
- Service trenching for electrical/ comms + conduit install
- Marker layer and temp capping layer to all areas
- Redbank Rd realignment
    - Temporary widening
    - Stormwater drainage
    - Pavement
    - Asphalting
    - Line marking
    - K&G
    - Reinstating existing light poles

Paediatric Services Building development:

- Design finalisation
- Demo pavement and clear trees
- Erosion/Sediment/Flooding Control measures through construction
- Piling for retaining wall, superstructure (column and core piles) and where required pile caps

- Borrow pit excavation (approx. 9500m3) – VENM disposal
- Earthworks cut/fill (approx. 8000m3) up to 'BOC'
    - Main Works responsible for pavement finishes
- Retaining wall and associated footings
- Stormwater drainage incl GPTs & filtration units
    - Excluding grated trench drains, which are to be done by Main Works contractor as part of pavement finishes.
- Services trenching and conduits within building platform
    - Refer to following for services early works packages:
        - Hydraulic Enabling works: OveArup-TRANSMIT-000056
        - Electrical external duress points: PWCAU-GCOR-006957
- Piling platform and marker layer
- Final capping and temp capping (where required) & marker layer to all external areas
- Fire brigade hardstand – Early Works contractor for bulk earthworks up to BOC, Main Works contractor responsible for pavement finishes
- Services include: Hydraulics, electrical, sewer and stormwater. Note sewer is external to the building footprint.

Bike cage construction

1.3 Scope of the Sub-Plan

The Stage 2 Enabling Works will be carried out prior to the Main Infrastructure Works for the MSCP and the PSB. As part of the Stage 2 Enabling Works, it is necessary to realign the section of Redbank Road behind the Children's Hospital Westmead (CHW) between Labyrinth Way and the CHW Loading Dock. These works include demolition, earthworks (cut to fill), the installation/relocation of services, new road and footpath construction.

The scope of this sub plan will address the following:

- The legislative framework specific management of waste
- Procedures that will be implemented to ensure that there are no adverse impacts on the environment
- Procedures for monitoring, checking and implementing corrective actions should there be any foreseen or undesirable impacts

The extent of the proposed works is presented in Figure 1 below.

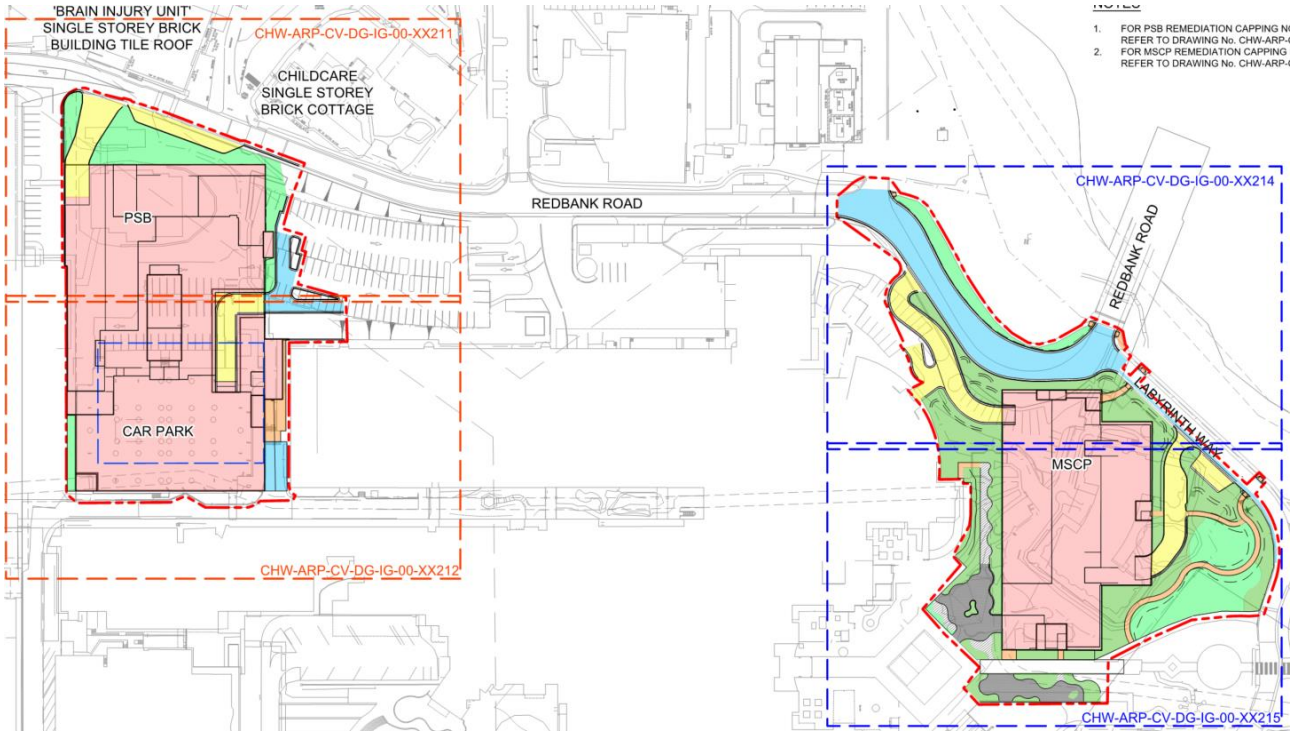


Figure 1: Extent of Works

1.4 Environmental Management Systems Overview

The environmental management system overview is described in section 1.5 of the CEMP.

2 Purpose & Objectives

2.1 Purpose

The purpose of this Construction Waste Management Sub Plan (CWMSP) is to identify all potential wastes likely to be generated on site during the construction phase of the Project, including a description of how waste would be handled, processed and disposed of (or reused/recycled).

2.2 Objectives

The specific objectives of this CWMSP are as follows:

- To encourage the minimisation of waste production and maximisation of resource recovery
- To encourage improved environmental outcomes through waste management.
- To ensure the appropriate management of contaminated or hazardous waste.
- To identify procedures and chain of custody for waste management.
- To ensure the long-term sustainability of resource use through more efficient, cost effective and safe waste collection practices for the life of the development.

Where appropriate, the CWMSP aims to meet the principles of the waste management hierarchy shown in Figure 3 below, by promoting waste as a resource through the following in order of preference:

1. Avoidance: Waste avoidance through prevention or reduction of waste generation. Waste avoidance is best achieved through better design and purchasing choices.
2. Reuse: Waste reuse, without substantially changing the form of waste.
3. Recycle: Waste recycling through the treatment of waste that is no longer usable in its current form to produce new products.
4. Disposal: Waste disposal, in a manner that causes the least harm to the natural environment.

Figure 2: Waste Management Hierarchy

This CWMSP acts as an ancillary plan to the CEMP and its requirements.

3 Environmental Requirements

3.1 Relevant Legislation & Guidelines

3.1.1 Legislation & Regulatory Requirements

The Construction Waste Management Sub-Plan has been prepared in regard to:

- Waste Disposal Act 1970
- Safe work NSW Code of Practice How to manage and control asbestos in the workplace
- Safe Work NSW Code of Practice How to safely remove asbestos
- Environmentally Hazardous Chemicals Act 1985 (NSW)
- Waste Avoidance and RCEMP
- Resource Recovery Act 2001 (NSW)
- Safe Work NSW Guide Managing Asbestos in or on Soil
- NSW EPA Waste Classification Guidelines, Part 1: Classifying Waste, November 2014.
- Protection of the Environment Operations (Waste) Regulation 2005

3.2 SSDA Conditions of Approval

The Conditions of Consent relevant to this CWMSP are listed in Tables 1 and 2 below. A cross reference is also included to indicate where the condition is addressed in this Plan or other Project management documents. All risks were assessed in the Environmental Risk Register, which is included as Section 15.3 (Attachment 3) of the CEMP.

Table 1: MSCP SSDA Conditions of Consent relating to this CWMSP

SSDA No.	Condition of Consent	Document Reference
B11	(d) waste classification (for materials to be removed) and validation (for materials to remain) be undertaken to confirm the contamination status in these areas of the site.	Section 4.2 Section 5
B14	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 management of asbestos; and c) information regarding the recycling and disposal locations.	Section 5
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.	Section 5.2 Section 5.3
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).	Section 5
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.	Section 5
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.	Section 5.1
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.	Section 4.2 Section 5.3.2

Table 2: PSB SSDA Conditions of Consent relating to this CWMSP

SSDA No.	Condition of Consent	Document Reference
B18	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 for materials to remain; 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.	Section 5
C30	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.	Section 5.2 Section 5.3
C31	All waste generated during construction must be assess, classified and managed in accordance with the Waste Classification Guidelines Part 1: Classifying Waste (EPA, 2014).	Section 5

C32	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.	Section 5
C33	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.	Section 5.1
C34	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.	Section 4.2 Section 5.3.2

3.3 Monitoring

Ford Civil Contracting will conduct the following to monitor material to be exported off-site:

- Provide details of the destination of spoil removed from site, including the name/address of company organisation accepting excavated material
- Provide details of the type, waste classification with test results and quantities of excavated material
- Sample stockpiles for waste classification purposes at a rate of 1 per 25m3.
- Monitor and record the volumes of waste and the methods and locations of disposal.
- Provide details of the company used to transport the waste and spoil to the licensed facility.
- Submit waste disposal certificates and/or company certification confirming appropriate, lawful
- Disposal of waste.
- Maintain waste disposal records and make available to the client/environmental consultant upon request.
- Submit a Tracking Register containing the contact details above to the client not less than 10 days before commencing the Works.
- Provide a summary report in the Waste Management Plan prior to Practical Completion that shows the total quantity of waste generated, the total quantity recycled, the total quantity disposed of and the method and location of disposal.

4 Construction Waste

4.1 Waste Generation

The construction of this project will generate the following waste streams (listed below in accordance with the NSW EPA's Waste Classification Guidelines 2005):

- Special waste (i.e. clinical waste including sewage, asbestos waste, waste tyres);
- Liquid waste (i.e. wash down waters, waste oil, solvents, engine oils, fuels, cleaning chemicals, paints etc.);
- Hazardous waste (i.e. used and uncleaned dangerous goods containers, lead-acid or nickel cadmium batteries, explosives, gases, flammable solids, corrosive substances etc.);
- Potentially contaminated waste (i.e. excavation of potentially contaminated materials);
- General solid (putrescible) wastes (litter containing food waste);

and the following general solid (non-putrescible) waste types:

- Green waste from the removal of vegetation;
- Topsoil waste material excavated from the site;
- Waste substrate materials excavated during cut-to-fill operations;
- Road construction waste (e.g. asphalt, concrete);
- Services installation waste (including stormwater pipe over-runs, waste concrete and steel);
- Wood waste (e.g. wood pallets, crates and other packaging);
- Building waste (e.g. scrap metal, plastic packaging materials)
- Drained motor oil containers that do not contain free liquids;
- Employee comingled recycling and paper/card recycling; and,
- Other general construction wastes.

4.2 Asbestos contaminated material

The Westmead Hospital Precinct has been subject to a range of previous investigations that have identified asbestos impacted fill across the site. JBS&G conducted a contamination assessment concluding that bonded Asbestos Containing Material (ACM) and friable fibrous asbestos/asbestos fines concentrations exceeded the site assessment criteria at a number of sample locations across the MSCP and the PSB sites.

To minimise the removal of asbestos contaminated material offsite, the contaminated material will be relocated within the site and capped prior to handing the site over to the Main Works Contractor. The excavation and relocation of the contaminated material will also be tracked in the material tracking register.

Any contaminated spoil that requires disposal will be taken to an approved contaminated waste depot appropriate to the type of contamination.

Further information on asbestos management, control and removal is referenced in the Project Asbestos Removal Control Plan (PARCP).

5 Minimisation and management

Ford Civil should not permit or allow any waste generated outside the site to be received at the site. All waste generated at the premises will be assessed, classified and managed in accordance with the NSW EPA Waste Classification Guidelines Part 1: Classifying Waste, 2014.

The following control measures will be considered for waste management and minimisation throughout the project:

- Limit site disturbance and unnecessary excavation;
- Correct quantities of materials and ordered are used, where possible.
- Planned work staging;
- Reducing packaging waste on-site by purchasing in bulk and using returnable packaging such as pallets and reels;
- Separation of waste with designated bins to prevent cross-contamination of waste and to facilitate reuse, resale or efficient recycling.
- Employees/subcontractors are informed of site waste management processes.
- Removed vegetation including felled trees, shrubs and slashing of undergrowth and grasses to be mulched and re-used on site where appropriate

5.1 Monitoring and tracking

5.1.1 Monitoring

Ford Civil Contracting shall:

- Provide details of the destination of spoil removed from site, including the name/address of company organisation accepting excavated material.
- Provide details of the type, waste classification with test results and quantities of excavated material.
- Sample stockpiles for waste classification purposes at a rate of 1 per 25m3.
- Monitor and record the volumes of waste and the methods and locations of disposal.
- Provide details of the company used to transport the waste and spoil to the licensed facility.
- Submit waste disposal certificates and/or company certification confirming appropriate, lawful disposal of waste.

- Maintain waste disposal records and make available to the client/environmental consultant upon request.

5.1.2 Material Tracking

Daily material tracking forms will be kept to record all imported and exported material. This material tracking form is included as Appendix A.

All materials imported, removed or relocated on site will also be recorded in a tracking register. The tracking register is a live document and will be updated throughout the works.

5.2 Storage

All waste generated on site, when it is not able to be directly deposited into the skip bins, will be placed in designated, appropriately bunded and sign-posted stockpile areas, within the site for transfer to the skip bins by bobcat or other means.

Waste storage areas shall be pre-determined to prevent impacts from potential flood scenarios in the working areas.

All waste placed in skips or bins for disposal or recycling shall be adequately contained and secured to ensure that the waste does not fall, blow, wash or otherwise escape from the site (i.e. appropriate siting of waste stockpile locations should take into account slope and drainage factors to avoid contamination of stormwater drains during rain events).

5.3 Stockpile Management

The following control measures will be considered to manage soil stockpiles so that dust and sediment in run-off is minimised:

- Minimise the number of stockpiles, and the area and the time stockpiles are exposed;
- Locate stockpiles away from drainage lines at least 10m, away from natural waterways and where they should be less susceptible to wind erosion;
- Ensure that stockpiles have slopes no greater than 2:1 (horizontal: vertical);
- Stabilise stockpiles that should remain bare for more than 7 days by covering with anchored fabric or by seeding;
- Establish sediment controls around unstabilised stockpiles;
- Suppress dust generation from stockpiles as circumstance demand;
- Provide screening to adjoining areas as necessary to control the spread of site generated dust;
- Stockpiles should not be located under the drip line of trees or near protected trees;
- Test material in areas of excavation for waste classification prior to commencing excavation works to enable prompt off-site disposal and minimise creation of stockpiles. Frequency of testing will be dependent on volume of material to be disposed;
- Prior to commencing, stockpile areas to be nominated for each stage of the works, subject to waste classification.

All stockpile movements on/off site will be monitored by the Site Team and recorded in the material tracking register. There are two ways in which a stockpile can be identified.

- Soil that has tested and are deemed as not containing contaminated materials.
- Soil that has been tested and have been deemed as having contaminated materials.

5.3.1 Soil without contaminated materials

All soils that have been tested and result in non-contaminated material, will be stored in an area suitable for the works and have the appropriate sediment controls such as silt fencing, hay bales or a combination of both.

The stockpiles will be moved in accordance with the material tracking register. The register will be filled out by the Site Team and the operator of the plant item moving the soil. The stockpile will be numbered to clearly identify it.

5.3.2 Soil with contaminated materials

Soil that has been deemed as contaminated will be stored in the stockpile area as per the Site Layout & Environmental Control Map. All stockpiles will be clearly labelled, identified and be separated according to classification and size.

These stockpiles will be segregated accordingly, and the information recorded in the material tracking register. The register will be completed by the site team and will identify the various contaminates present in the stockpile.

5.4 Recycling & Disposal

Ford Civil will strive to produce minimal waste during construction works. Where possible, materials will be reused on site or on other projects or will be removed from site by a licenced contractor for recycling. All non-recyclable/non-reusable waste will be removed from site by a licenced contractor for disposal at a licenced waste facility.

This will be achieved through the following:

- Materials such as timber, metal, brick and concrete should be recycled by an appropriately licensed recycling facility for processing and re-use.
- All solid waste timber, brick, concrete and rock that cannot be reused or recycled should be taken to an appropriate landfill site and disposed of in an approved manner.
- All waste oil generated during maintenance are to be recycled at a licensed facility.
- All asbestos, hazardous and/or intractable wastes are to be disposed of in accordance with work methodology Workcover Authority and EPA requirements.
- All garbage to be disposed of via a council approved system.
- Concrete delivery trucks (and other equipment/plant/machinery) shall wash down within bunded washdown bay
- Portable, self-contained toilet and washroom facilities shall be provided on site and regularly emptied and serviced by a suitably licensed contractor. Ford Civil will install septic holding systems at construction site offices as required and arrange for licenced contractors to pump them out regularly

Some recycling facilities that will be used throughout the works include:

- Sims Metal (scrap metal)
  EPL No. 2207
  Ph: 02 8113 1600
  Address: 43 Ashford Ave, Milperra NSW 2214
- Concrete Recyclers (concrete & asphalt waste)
  EPL No. 6664
  Ph: 02 8832 7400

Address: 14 Thackeray St, Camellia NSW 2142

- Boral Recycling (concrete & asphalt waste)
  EPL No. 11815
  Ph: 1300 723 999
  Address: 39a Widemere Rd, Wetherill Park NSW 2164
- Bingo industries (general recycling)
  EPL No. 20847
  Ph: 1300 424 646
  Address: 35 Wentworth St, Greenacre NSW 2190

5.5 Relocation

If waste is required to be transported from site, the waste should be:

- Transported by a company authorised to transport the relevant waste classification; and
- To a place that can lawfully accept that waste;
- Recorded in a waste disposal register, including details of type, quantity and destination;
- The body of any vehicle or trailer, used to transport waste or excavation spoil from the site, is covered before leaving the site to prevent any spill or escape of any dust, waste, or spoil from the vehicle or trailer; and
- Mud, splatter, dust and other material likely to fall from or be cast off the wheels, underside or body of any vehicle, trailer or motorised plant leaving the site, is removed before the vehicle, trailer or motorised plant leaves site.

6 Compliance management

6.1 Roles and responsibilities

FCC's Project Team's organisational structure and overall roles and responsibilities are outlined in Section 2.3 of the CEMP.

6.2 Training

FCC and its subcontractors will undergo site induction training which will include information relating to waste management issues. The induction training will address elements related to waste management including:

- Existence and requirements of this sub-plan
- Relevant legislation
- Roles and responsibilities for waste management
- Requirement of ESCPs for each project site
- Procedure to be implemented in the event of an unexpected discovery of contaminated land/PASS
- Erosion and sediment control maintenance
- Waste tracking
- Waste storage locations
- Separation of wastes

Targeted training in the form of toolbox talks or specific training will also be provided to personnel with a key role in soil and water management. This will include:

- Stockpile locations and management
- Updates to waste management procedures
- Lessons learnt from incidents and other event e.g. high rainfall / flooding
- Contaminated/Hazardous material storage requirements
- Identification of potentially contaminated spoil and fill material.

6.3 Monitoring and inspection

Regular monitoring and inspections will be undertaken prior to, during and following construction. The following monitoring and inspections will be undertaken by the Project Team:

- Daily and weekly inspections at active, exposed work sites to monitor condition of stockpiles. analyse environmental risk of erosion
- Daily material tracking sheet
- Maintaining an up to date waste tracking (import/export/reuse) register
- Inspections would also be undertaken of stockpiles and Erosion and Sediment Controls prior to any shut down of greater than 48 hours.

Requirements and responsibilities in relation to inspections are documented in Section 10 of the CEMP.

6.4 Incident Reporting

6.4.1 Project Reporting

Incident reporting will be completed as per Section 6 of the CEMP.

The following requirements as outlined in Section 6 – Environmental Emergency and Incident Management shall be adhered to and / or included as part of this Construction Waste Management Sub Plan:

- Notify the Client Representative of any notifiable incident
- Provide a written report to the Client within twenty-four hours after the incident, giving details of the incident

6.4.2 Authorities Notification

Where the depositing of waste causes or threatens material harm to the environment, a number of authorities must be notified. Names of the relevant authorities are included in Table 3 below.

Table 3: Environmental Authorities

Pollution type or source	Organisation responsible	Contact
Fertilisers, pesticides, herbicides	EPA	131 555
Dumped cars	Local councils Police Assistance Line	Find your local council 131 444
Grease, oil and odours on beaches	EPA	131 555
Contaminated sites	EPA	131 555
Aviation fuel dumping	Air Services Australia	1800 802 584
Odour from landfill or waste depot	EPA	131 555
Rubbish and litter		
Littering from vehicles	EPA	Report online or use Report to EPA from your mobile.
Litter falling or blown from uncovered vehicle load	EPA	Report online or use Report to EPA from your mobile.
Roadside rubbish on major roads and highways	Roads & Maritime Services	131 700
Roadside rubbish on local roads	Local councils	Find your local council
Illegal dumping		
Illegal dumping of waste	EPA	Report online or use Report to EPA from your mobile. Phone environment line on 131 555
	Local councils	Find your local council
	Local police	131 444 View a list of local police stations
	Crimestoppers	1 800 333 000 Online form
Illegal dumping in National and State Parks, historic sites and nature reserves	EPA	131 555
Illegal dumping in council parks	Local councils Park trustee	Find your local council
Illegal dumping on vacant Crown land	EPA	131 555
Illegal dumping on beaches	Local councils	Find your local council
Illegal dumping in state forests	EPA	131 555
Illegal dumping on private property	Local councils	Find your local council

6.5 Auditing and reporting

Environmental Inspections will be undertaken in accordance with Section 10 of the CEMP. These will be undertaken daily and weekly as well as prior to and following rainfall. Action lists generated in these inspections will be distributed to relevant site personnel.

Internal audits will be undertaken to assess the effectiveness of environmental measures, compliance with this sub plan, conditions of consent and other relevant approvals, licences and guidelines.

7 Review and improvement

7.1 Continuous improvement

Continuous improvement of this plan will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement.

The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement for waste management
- Determine the cause or causes of non-conformances and deficiencies
- Develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies
- Verify the effectiveness of the corrective and preventative actions
- Document any changes in procedures resulting from processes improvement
- Make comparisons with objectives and targets

7.2 CSWMSP update and amendment

As this CSWMSP is a living document, if changes to the construction staging or process are required this document will be updated to encompass the changes.

Only the Project Manager (in consultation with the HSEQ Manager) can amend this CSWMSP.

A copy of the updated plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure.

Appendix A – Daily Material Tracking Form

Daily Material Tracking Sheet (Haulage & Delivery Record)

If different material type or different location nominated, a new sheet must be completed

Date: .....

Project Name: ..... **Project No.:** ..... **Sheet No.:** .....

Loading Location: ..... **FCC Supervisor Name:** ..... **Material Type:** .....

Discharge Location: ..... **Signature:** ..... **Classification:** .....

Write Clearly & Be Accurate

Truck Registration	Type of Truck (B/TD/D)	Number of Loads													Total No. of Loads	Remarks
		1	2	3	4	5	6	7	8	9	10	11	12	13		

- This sheet must be signed off daily and returned to project office.
- Loads converted to volumes by agreed density of material & bulking factor by all parties.

Type of Truck: B = Bogie, TD = Truck & Dog, D=Materials Delivery/Pickup

Total

Mnaterial Types:
1.Soil, 2.Demolition, 3.Others

Material Classification: Demolition Materials: 1.Concrete, Brick, 2.Mixed, 3.Asphalt, 4.Other Demo Material, 5.Bins
Soil: 1.VENM, 2.ENM, 3.GSW(CTI-Recyc), 4.GSW(Non-Recyc), 5.GSW(Asbestos), 6.RSW(Restricted Solid Waste), 7.Asb Sheeting/ Bins.

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REMEDIATION
INFRASTRUCTURE
ROADWORKS
BULK EARTHWORKS
ENVIRONMENTAL
LANDSCAPING

FORD CIVIL

APPENDIX D

Soil & Water Management Sub-Plan (CSWMSP)

Project	Westmead Children's Hospital Stage 2 Enabling Works
Site Address	Corner of Redbank Rd and Labyrinth Way, Westmead
Client	Health Administration Corporation
Contract no.	H121427
Date	24.06.2022

ABN	24 002 542 814
Address	9 Hattersley Street, Arncliffe NSW 2205
Phone	02 9597 4122
Web	www.fordcivil.com.au
Email	info@fordcivil.com.au

Document issue register

Revision #	Issue date	Update summary	Prepared/ Revised by	Reviewed By	Approved by
A	01.02.2022	Project Document	Danielle Simpson	Lawrence Saliba	Danny Khal
B	28-02-22	Updated to reflect DPE commentary	Lawrence Saliba	Lawrence Saliba	Danny Khal
C	22.03.2022	Updated to reflect DPE commentary for MSCP	Danielle Simpson	Lawrence Saliba	Danny Khal
D	9.04.2022	Updated to reflect Northrop's peer review comments	Danielle Simpson	Lawrence Saliba	Danny Khal
E	3.05.2022	Updated Environmental Control Plans	Danielle Simpson	Lawrence Saliba	Danny Khal
F	24.06.2022	Updated to include close out response from peer reviewer	Danielle Simpson	Lawrence Saliba	Danny Khal

Distribution

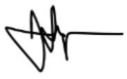
Controlled Copy No.	Issue Holder	Revision	Issue Date
1	1	F	24.06.2022

Authority

Ford Civil's Chief Operating Officer has authorised 'Danny Khal' as a Project Manager and allocated overall project delivery responsibility for the project to him.

This Project Environmental Management Plan has been prepared for use to manage applicable statutory and regulatory requirements as well as contractual and organisational requirements for the project.

The issue and revision of this Management plan is made under the authority of the Project Manager. This document and its effectiveness will be reviewed and evaluated during project monthly review meetings.

Function	Name	Position	Signature	Date
Prepared by	Danielle Simpson	Project HSEQ Representative		3.05.2022
Reviewed by	Lawrence Saliba	HSEQ Manager		3.05.2022
Approved by	Danny Khal	Project Manager		3.05.2022

Contents

1 Introduction

1.1 Context

This Construction Soil and Water Management Sub-Plan (CSWMSP or Plan) forms part of the Construction Environmental Management Plan (CEMP) for the Children's Hospital Westmead - Stage 2 Enabling Works (the Project).

This CSWMSP has been prepared to address the requirements of the State Significant Development Applications (SSDA 10434896 and SSDA 10349252) conditions of consent.

1.2 Project & Scope Description

Ford Civil Contracting Pty Ltd (FCC) has been awarded the Contract for the Children's Hospital Westmead - Stage 2 Enabling Works Project.

The enabling works for the Paediatric Services Building (PSB) and the Multi Storey Car Park (MSCP) form part of the Combined Civil's Scope of Work and incorporates the design finalisation and construction of the following elements:

Multi Story Carpark:

- Demo of existing lodge building
- Salvage playground equipment
- Clear site (Trees & Pavements)
- Earthworks (Approx. 3500m3 Cut to Fill) up to Bottom of Capping layer
- Retaining wall & ramp upstand walls
- Wall piles and capping beam footings
- Stormwater drainage incl GPTs and filtration units
- Service trenching for electrical/ comms + conduit install
- Marker layer and temp capping layer to all areas
- Redbank Rd realignment
    - Temporary widening
    - Stormwater drainage
    - Pavement
    - Asphalting
    - Line marking
    - K&G
    - Reinstating existing light poles
- HV trenching

Paediatric Services Building development:

- Demo pavement and clear trees
- Piling for retaining wall
- Borrow pit excavation (approx. 9500m3) – VENM disposal
- Earthworks cut to fill (approx. 8000m3)
- Retaining wall and associated footings
- Stormwater drainage incl GPTs & filtration units
- Services trenching and conduits within building platform (electrical & hydraulic)

- External building hydraulics (private hospital feeds) – potable water connection, sewer (including under bore), dry fire & natural gas
- Piling platform and marker layer
- Temp capping layer & marker layer to all external areas

Bike cage construction

1.3 Scope of the Sub-Plan

The Stage 2 Enabling Works will be carried out prior to the Main Infrastructure Works for the MSCP and the PSB. As part of the Stage 2 Enabling Works, it is necessary to realign the section of Redbank Road behind the Children's Hospital Westmead (CHW) between Labyrinth Way and the CHW Loading Dock. These works include the installation/relocation of services, new road and footpath construction.

The scope of this sub plan will address the following:

- The legislative framework specific to soil and water related issues
- Procedures that will be implemented to ensure that there are no adverse impacts on the environment, in particular to soil and water
- Procedures for monitoring, checking and implementing corrective actions should there be any foreseen or undesirable impacts

The extent of the proposed works is presented in Figure 1 below.

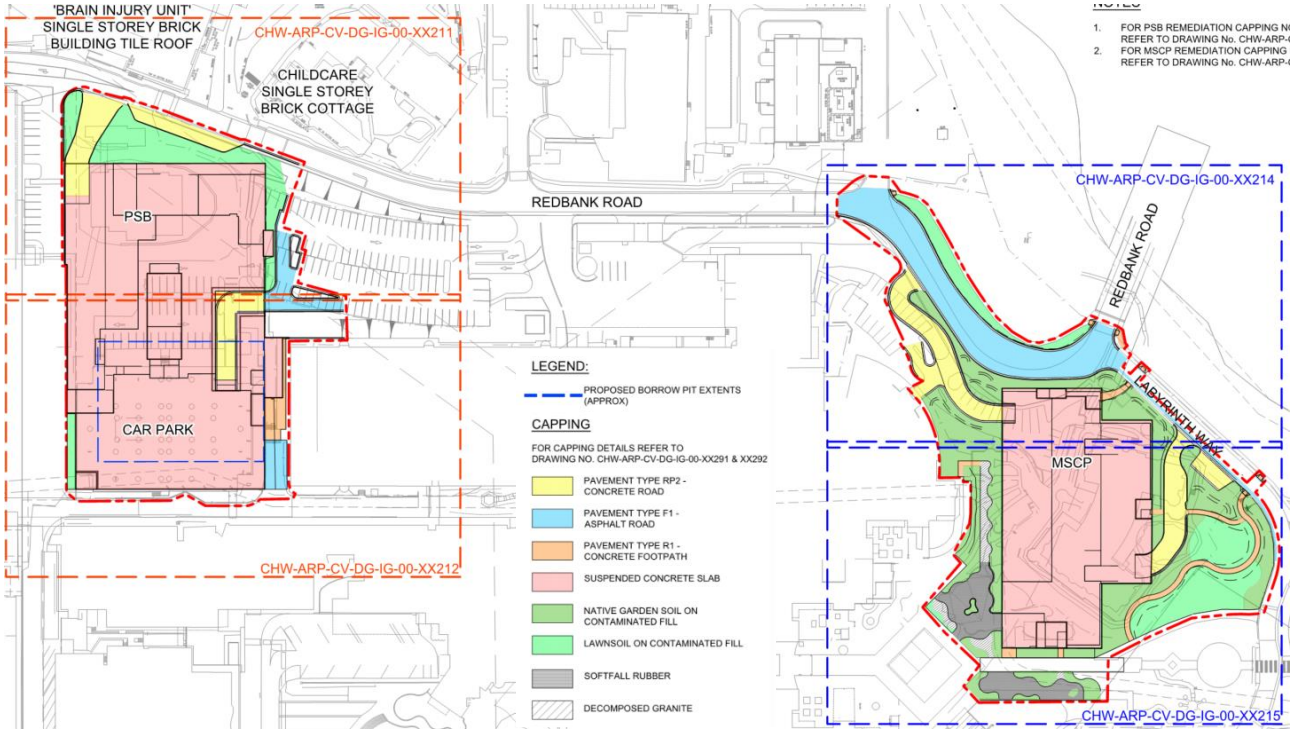


Figure 1: Extent of Works

1.4 Environmental Management Systems Overview

The environmental management system overview is described in section 1.5 of the CEMP.

2 Purpose & Objections

2.1 Purpose

The purpose of this CSWMSP is to describe how impacts on soil and water will be minimised and managed during the construction of the Project.

2.2 Objectives

The key objective of the CSWMSP is to ensure that soil and water impacts during the construction of the Project are minimised and are within the scope permitted by the planning approval.

To achieve these objectives, Ford Civil Contracting Pty Ltd will undertake the following:

- Ensure full compliance with relevant legislative requirements and Conditions of Consent
- Meet environmental protection licence water quality discharge parameters for all planned basin discharges (i.e., those within design capacity)
- Manage downstream water quality impacts attributable to the project (i.e. maintain water waterway health by avoiding the introduction of nutrients, sediment and chemicals outside of that permitted by the environmental protection licence and/or ANZECC guidelines)
- No impact on public roads from mud/soil particles being tracked from the construction site
- Spoil stockpiles appropriately managed and positioned away from watercourses/drainage lines/stormwater drains
- Reuse and recycle water to achieve water savings
- Management of known and unanticipated contaminated material in accordance with the CEMP
- Appropriate management and storage of fuels, chemicals and hazardous liquids to prevent accidental spills/leaks
- Water material not suitable for reuse and recycling to be managed in accordance with the CEMP
- Ensure training on best practice soil and water management is provided to all construction personnel through site inductions

3 Environmental Requirements

3.1 Relevant Legislation & Guidelines

3.1.1 Legislation & Regulatory Requirements

Identified regulatory requirements are:

- Protection of the Environment Operations Act (NSW 1997)
- Protection of the Environment Operations (General) Regulation (NSW 2009)
- Protection of the Environment Operations (Waste) Regulation (NSW 2005)
- Contaminated Land Management Act (NSW Department of Environment and Climate Change (DECC) (NSW 1997)
- Environmentally hazardous chemicals Act (NSW 1985)
- Soil Conservation Act, (DWE) (NSW 1938)

3.1.2 Guidelines

The main guidelines, specifications and policy documents relevant to this Plan include:

- Acid Sulfate Soil Manual (ASSMAC 1998)
- Acid Sulfate Soil and Rock – Victorian Environmental Protection Authority Publication 655.1 – July 2009
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC and ARMCANZ 2000)
- Department of Environmental and Conservation (DEC): Bunding & Spill Management. Insert to the Environment Protection Manual for Authorised Officers – Technical section "Bu" November 1997
- Managing Urban Stormwater: Soils and Construction. Landcom, (4th Edition) March 2004 (reprinted 2006) (the "Blue Book"). Volume 1 and Volume 2
- Volume 2A Installation of Services (DECCW 2008)
- Volume 2C Unsealed Road (DECCW 2008)
- Volume 2D Main Roads Construction (DECCW 2008)
- Fairfull, S. and Witheridge, G. (2003) Why do Fish Need to Cross the Road? Fill Passage Requirements for Waterway Crossings. NSW Fisheries
- Policy Guidelines for Fish Habitat Conservation and Management (2013 Update), NSW Department of Primary Industries (DPI) Fisheries
- Transport for NSW's Water Discharge and Reuse Guideline (7TP-SD-024/3.0)
- Transport for NSW's Guide to Environmental Control Map (3TP-SD-015/8.0)
- Environmental Best Management Practice Guideline for Concreting Contractors (DEC, 2004)

3.2 SSDA Conditions of Approval

The Conditions of Consent relevant to this CSWMSP are listed in Tables 1 and 2 below. A cross reference is also included to indicate where the condition is addressed in this Plan or other Project management documents. All risks were assessed in the Environmental Risk Register, which is included as Section 15.3 (Attachment 3) of the CEMP.

Table 1: MSCP SSDA Conditions of Consent relating to this CSWMSP

SSDA No.	Condition of Consent	Document Reference
B15	The 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 and 1 in 100-year ARI.	Section 4 Section 5 Section 6 Section 7 CEMP Section 9
B18	Prior to the commencement of construction, the Applicant must install erosion and sediment controls on the site to manage wet weather events.	

B19	Prior to the commencement of construction, erosion and sediment controls must be installed and maintained, as a minimum, in accordance with the publication Managing Urban Stormwater: Soils & Construction (4th edition, Landcom 2004) commonly referred to as the 'Blue Book'.	Appendix A
C22	All erosion and sediment control measures must be effectively implemented and maintained at or above design capacity for the duration of the construction works and until such time as all ground disturbed by the works have been stabilised and rehabilitated so that it no longer acts as a source of sediment. Erosion and sediment control techniques, as a minimum, are to be in accordance with the publication Managing Urban Stormwater: Soils & Construction (4th edition, Landcom, 2004) commonly referred to as the 'Blue Book'.	

Table 2: PSB SSDA Conditions of Consent relating to this CSWMSP

SSDA No.	Condition of Consent	Document Reference
B19	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) include an acid Sulfate Soils Management Plan, if required, including measures for management, handling, treatment and disposal of Acid Sulfate Soils, including monitoring water quality at acid sulfate soils treatment areas; e) direct all sediment laden water in overland flow away from the leachate management system and prevent cross-contamination of clean and sediment or leachate laden water; f) 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); g) detail all off-site flows from the site; and h) 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 and 1 in 100-year ARI	Section 4 Section 5 Section 6 Section 7 CEMP Section 9

4 Consultation

The following section summaries the consultation undertaken as part of developing the CSWMSP.

4.1 Consultation Requirements under the SSDA Conditions

MSCP Condition B15 and PSB Condition B19 states that the Plan should be prepared in consultation with the relevant government organisations and surrounding stakeholders. These include:

- City of Parramatta Council;
- NSW Health
    - Western Sydney Local Health District (WSLHD) and Westmead Adult's Hospital;
    - Sydney Children's Hospital Network (SCHN) and Children's Hospital Westmead (CHW);

5 Existing Environment

5.1 Topography and soil characteristics

The project lies within the Parramatta River catchment which encompasses an area of approximately 297 square kilometres. Figure 2 depicts the waterways within the project area. The Parramatta River Catchment is made up of 29 sub-catchments, and is largely referred to as the Upper and Lower Parramatta River. The Upper Parramatta River refers to the freshwater section of the river, and is controlled by a series of weirs including Kiosk Weir and Upstream Weir in Parramatta Park, Marsden Weir and Charles Street Weir in the Paramatta CBD which defines the tidal boundary with the lower Paramatta River. The headwaters of the Paramatta River are formed in the upper catchment by the confluence of Toongabbie Creek and Darling Mills Creek. The Lower Parramatta River, which refers to the river downstream of the weir is tidally influenced and drains to Sydney Harbour approximately 30 kilometres downstream of Charles Street.

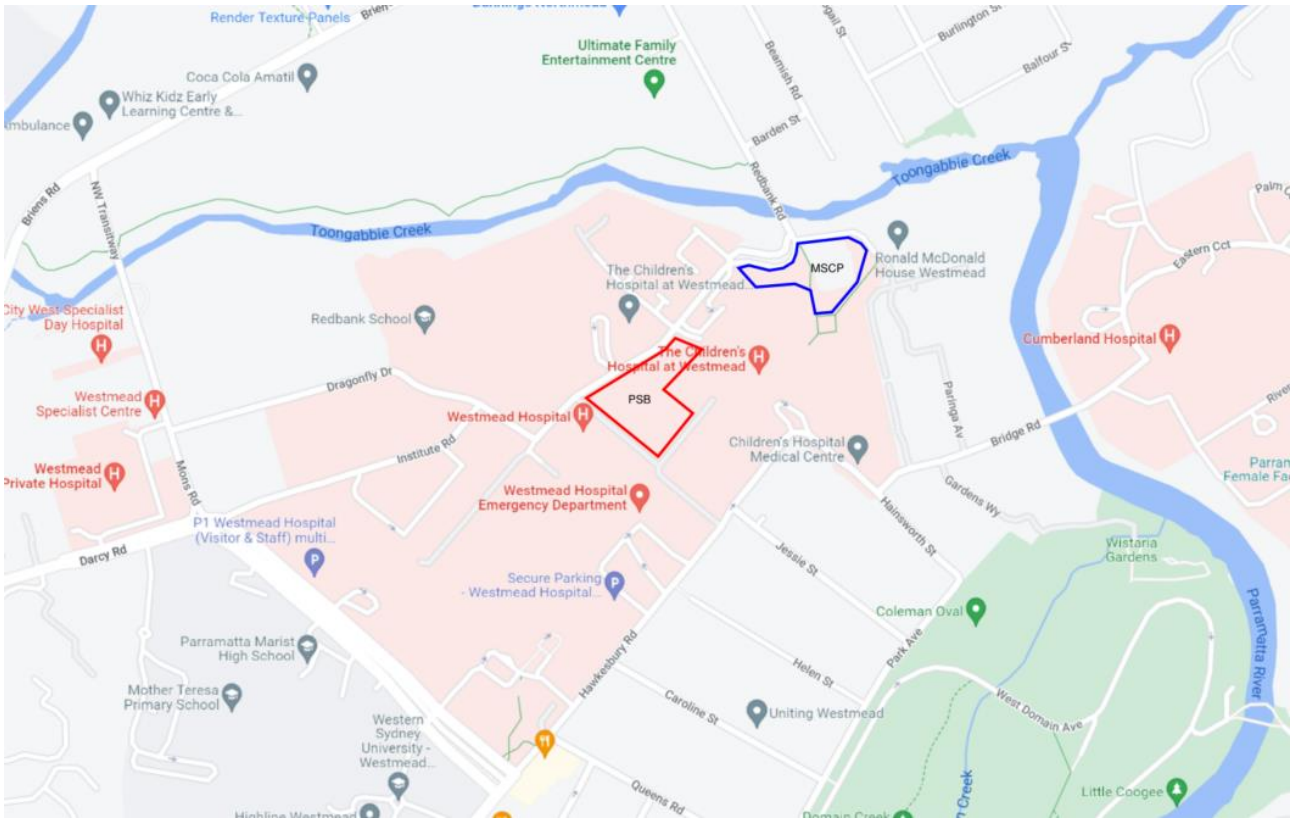


Figure 2: Waterways within project area

5.1.1 Regional Geology

The Penrith 1:100,000 Geological Series Sheet 9030 indicates that the site is underlain by Hawkesbury Sandstone, but close to a geological contact with the overlying Ashfield Shale to the south-west.

Noting that this profile does not account for any filling or in-situ weathering that has occurred at the site.

5.1.2 Acid Sulfate Soils (ASS)

The Australian Soil Resource Information System (ASRIS, 2017) provides online access to publicly available information on soil and land resources across Australia. ASRIS provides a national map of available ASS mapping that is classified with a nationally consistent legend that includes risk assessment criteria and correlations between Australian and International Soil Classification Systems.

The ASRIS ASS map was consulted to determine the presence and risk of ASS in the Project area. The probability of ASS within the project area was classified as Low Probability of occurrence. A review of the Parramatta LEP indicates that the site is located on the western boundary of ASS risk Class 5 area.

The site has also been assessed and no indicators of ASS or potential ASS (PASS) were observed in any of the sample locations. Regardless, the site will be managed for any acid sulfate soil (ASS) and potential acid sulfate soil (PASS), in accordance with the 1998 Acid Sulfate Soils Manual.

5.1.3 Contaminated Land

Contamination is defined as the presence of a substance, at a concentration above which the substance is normally present and poses a risk to human health or the environment. A Remediation Action Plan (RAP) was prepared by JBS&G for each site prior to the commencement of construction *('The Multi-storey Car Park at The Children's Hospital at Westmead Stage 2 Redevelopment RAP, 56200/131434 (Rev 0), dated 16 June 2021' and 'The Children's Hospital at Westmead Stage 2 Redevelopment, Paediatric Services Building, 56200/133598 (Rev 0), dated 29 July 2021')* If required, additional pre-classification of material in excavation areas not covered by this RAP will occur prior to construction.

Given the findings of the RAP and the history of the site, it is assumed that contaminated material / land may also be encountered during excavation in areas not previously identified during the pre-classification as being contaminated and will be managed as per the procedure in the Asbestos Remediation Control Plan (ARCP).

Contaminated material will be taken directly from site to appropriately licensed landfill sites. A record of waste disposal is to be obtained to record proper safe disposal of the material where possible.

5.1.4 Soil Salinity

Surface water and groundwater can dissolve and mobilise salts and cause their accumulation in other areas. Excessive concentrations of salt in such areas can affect plant growth, soil chemistry and cause weakening and degradation of construction materials such as masonry, concrete and bitumen. The assessment of salinity potential along the area was carried out using the map of the salinity potential in western Sydney (NSW Department of Infrastructure, Planning and Natural Resources 2002). The majority of the alignment occurs in areas of moderate salinity potential. Salinity is not expected to impact the enabling works so no further assessment will be completed at this stage.

5.2 Surface Water

The Parramatta River catchment has undergone significant development, comprising of a variety of land uses including residential, commercial, industrial, environmental protection, education, open space and recreation services, transport and communications (Cardno, 2008). Once heavily industrialised, the catchment is known to contain contaminated sediments, with high concentrations typically associated with point sources (e.g., former industrial sites at Homebush Bay) or where creeks and stormwater outlets enter the estuary in the upper reaches of embayment's (Cardno, 2008).

Toongabbie Creek is a third order stream, that is part of the Parramatta River Catchment. Toongabbie creek flows east reaching its confluence with the Darling Mills Creek to form the Parramatta River. The course of the creek is 9km long. It has been subject to significant urbanisation and modification. The PSB site is within 200m and the MSCP is within 50m of Toongabbie Creek.

5.2.1 Surface Water Quality Monitoring

The project involves improvements to road infrastructure within the hospital network, particularly between the new MSCP and PSB sites. This includes improvements to the stormwater drainage at both sites.

Surface water (run off) is currently collected by inlet pits which convey flows into in-ground drainage pipes. During construction additional sediment controls will be installed at these inlet pits to ensure any run off following a rain event is filtered prior to entering the drainage system.

As the majority of the works will be below grade, the excavation will likely collect rainfall and overland flow rather than allowing its release. Stormwater captured within the site during small rain events will be stored and re-used on site by first pumping the water into a sediment tank, treating it and then pumping it into a water cart for use as dust suppression. However, during larger rain events where re-use may not be an option, it will either be removed from site using a sucker truck and disposed of at a licensed facility or it will be pumped into a sediment tank, treated and tested prior to discharging it into the stormwater system.

Stormwater runoff will occur from other disturbed areas of the site and these will be managed through erosion and sediment control and other mitigation measures outlined in this CSWMSP.

Construction activities will be subject to ongoing review. Progressive Erosion and Sediment Control Plans will be implemented and regularly checked as part of the inspection process by the Project Team to mitigate the impacts of forecasted weather events. Inclement weather is likely to impact the site works as well as placing increased pressure on construction water quality control measures.

Due to its scale and approach proposed to manage stormwater discharge and runoff from the site, this Project is not likely to have measurable impacts on Toongabbie Creek or the downstream Parramatta River.

Overland flow of clean water that enters the site from external sources and has not been further contaminated within the property or water that has originated from the site that cannot be further treated will, where practical, be carried through the site without becoming contaminated. Sediment controls will be installed around the perimeter of site to ensure that upstream (i.e. clean) surface water is diverted around the site.

FCC will ensure that any clean water/runoff does not come into contact with any possible leachate.

Leachate is a widely used term in the environmental sciences where it has the specific meaning of a liquid that has dissolved or entrained environmentally harmful substances that may then enter the environment. It is most commonly used in the context of land-filling of putrescible or industrial waste.

Any water stored on site will be pumped into a sediment tank, this will allow the sediment to drop out of the water column or be treated with a flocculant. Once treated it will be tested for:

- Measuring the turbidity, a NTU reading of 1 or less
- Ph levels required between 6.5 to 8.5
- Total Suspended Solids to greater than 50mg/L[2]

Once the water has met the defined criteria, it must sit for at least 1hr prior to discharge. All testing and discharge results must be recorded.

Stored ‘dirty water’ where practical will be pumped on site and used as dust suppression in lieu of discharge into the stormwater system.

5.3 Ground Water

It is expected that two groundwater systems exist within the project area including a shallow groundwater system located in the alluvial, fill and shallow weathered sandstone and shale units. The second regional groundwater unit is expected to exist within the deeper confined Hawkesbury Sandstone.

5.3.1 Groundwater Controls

Groundwater seepage was encountered during the geotechnical investigations. It was measured within the wells below the base of any such excavations and is not expected to be an issue for these sites. However,

some perched water may be encountered trapped within the fill, but if that is the case it should drain quickly and be able to be controlled using gravity drainage.

As such, it is not expected that specific controls for groundwater would be required as excavations associated with both the MSCP and the PSB site are expected to be too shallow to intercept the groundwater table. Therefore, Water Access Licences will not be required.

Piling works are not anticipated to intercept the regional groundwater table, however some groundwater seepage may occur into the bored piers. To mitigate any issues resulting from this the piles are to be drilled, inspected, and poured with minimal delay. Where seepage does occur it should be pumped from the pier holes prior to pouring of concrete and all concrete poured using tremie techniques, which should be used anyway given the expected depth of the piles

5.4 Rainfall

The annual rainfall and monthly distribution for Parramatta in 2021 is provided in Table 3 below. January through to March were identified as the wettest months.

Table 3 – Annual Rainfall Data for Parramatta

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean rainfall (mm)	101	126	117	87	67	91	46	56	50	69	84	73	968.3
Decile 5 (median) rainfall (mm)	88.8	106	94	51	45	63	34	32	36	47	69	65	969.6
Mean number of days of rain ≥ 1 mm	9.1	9.2	9.9	7	6.8	7.6	5.4	5.2	5.8	7.5	8.7	7.7	89.9

5.5 Flooding

Flood risk to the main project areas is classified as low – medium by the City of Parramatta flood modelling, due to the existing topography and stormwater drainage systems. Riverine flooding from the catchment area may occur at localised low points identified in figure 3.

The City of Parramatta flood modelling indicates that the work area for the MSCP is low risk area and the PSB is not expected to be influenced by a significant rain event due to its elevation based on the 1% AEP (1:100) up to the Probable Maximum Flood.

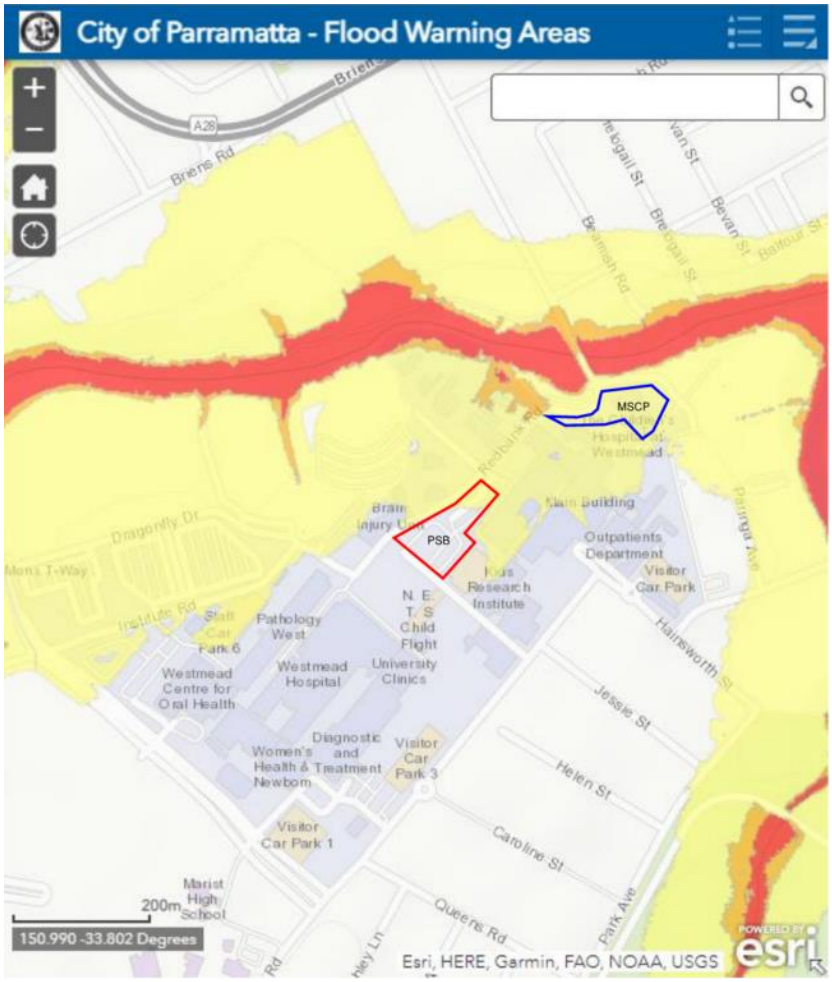


Figure 3: Extract from City Parramatta website to illustrate flooding extents at 1:100 years

Flood risk areas explained (Back to top)

Risk area	Common description	Technical description
High risk area	• Frequent flooding is common • Near the main river and creeks where water flows during a flood, including overflow from drainage • This area will see the fastest flowing and deepest water and cause a significant risk to life	High hazard flood area within the 1% annual exceedance probability (AEP) (1:100)
Medium risk area	• Frequent flooding will be rare • Where the flood water goes once the creek/river areas overflow • In rare floods these areas have the potential for deep and fast flowing water	Medium and low hazard area in the 1% AEP (1:100)
Low risk area	• Flooding is extremely rare • Generally, away from the river or creek and higher up • If a flood affects these areas it will cover a large area with dangerous water in many places	Area from the 1% AEP (1:100) up to the Probable Maximum Flood
Everywhere else	Not expected to flood but there still could be local incidents water running off the land and of street drainage not coping with rainfall amounts.	Area outside the Probable Maximum Flood. There may still be isolated impacts from local overland flow.

Figure 4: Extract from City Parramatta website definitions

The main works in this contract are the PSB and MSCP civil foundation works. This includes, but is not limited to, the removal of hardstand and structures and working on brownfield areas.

The MSCP mitigation for both low and high leaving flooding across the site will consist of a number of controls starting with;

- Leaving as much vegetation on site;
- Sediment fencing;
- Grading of the works to create a berm to hold back low-level site flooding prior to reaching sediment fencing, noting that this water will be directed into site sediment basins;
- Once work has commenced for the structures, there will be the excavation of a borrow and detention pits. In the event of this becoming flooded the underlying soils will allow the water to permeate out as initial proof coring investigation indicated non compacted fill within the work zones. At the same time sediment tanks/basins will be on site to allow water to pump from these areas and be treated prior to disposal after testing.
- With any predicted weather event FCC will be ensuring all controls are robust to withstand the rigours. In the event of a significant event personnel will be assigned to monitor the controls through the event and to adjust if required to protect the environment.
- Dewatering as required during the works for any ground water inflow to ensure the site is always dry in anticipation of a significant rainfall event.

At all times during the works the weather forecast will be monitored to ensure the site is capable of withstanding the impacts of high intensity and prolonged rainfall events.

The realignment works along Redbank Road are within an area defined as medium by the City of Parramatta flood modelling. The works include the construction of the new pavement further towards Toongabbie Creek (within existing verge) to accommodate the footprint of the new Multi Storey Car Park. However, as a result of existing services and the subsequent redesign of pavement alignment and levels, Redbank Rd has also been raised.

This area, as modelled by the City of Parramatta, is known as having a medium risk of flooding from Toongabbie Creek with a medium hazard flood area in the 1% annual exceedance probability (AEP) (1:100).

As such, the main controls for the works will be as follows:

- Initially, sediment controls will be installed to the extent of works (at existing ground levels) to minimise run-off in the event of inclement weather. However, as the 1:100 year flood levels are higher than the existing road levels (refer to Figures 3 and 4 above) works will also be timed to occur during the drier periods to minimise the risks associated with this.
- The existing stormwater pits along the road will be protected both by the use of geofabric and coir logs. This will be inspected each day as part of the environmental checklist requirements for suitability, damage etc.
- More robust controls, like earth berms, will be constructed to protect the works from the possible rising waters and subsequent water flows until such time that the road is raised. Noting that the pavement works are one of the first activities to be completed.

As the new road pavement levels will be raised, the impact of a large-scale event (post pavement construction) will subsequently be reduced.

Regardless of the construction progress, the weather forecast will be monitored regularly to ensure the site is capable of withstanding the impacts of high intensity and prolonged rainfall events.

5.5.1 Preparation of the site for wet-weather events

In preparation for wet weather events, FCC will undertake the following measures to minimise the impact of any flooding/ponding to the Works and to the wider public:

- Ensure any stockpiles are sealed/covered and surrounded by sediment fences.
- Locate any plant and equipment to high ground, clear of known areas of flooding/ponding
- Cover any open trench excavations in the roadway with suitably sized steel plates
- Inspect and repair any damaged sections of sediment controls or flood diversion barriers
- Where feasible, place flood diversion barriers or construct bunds to protect any open excavations
- Inspect existing surface water inlet pits and remove any materials that could result in a blockage

Should it also be anticipated that the wet weather could lead to a flood event, FCC will also implement the following measures:

- Turn-off electricity, secure generators and gas cylinders
- Ensure any stockpiles are located above the 1 in 20 year flood level
- Secure any chemicals/fuels and re-located to areas outside of the 1% AEP or areas of known ponding/overland flow
- Transport amenities wastewater offsite to a licensed disposal facility

For additional information on the preparation and management of flood events, reference should be made to the Flood Emergency Response Sub Plan submitted as an appendix to the CEMP.

6 Environmental aspects and impacts

6.1 Construction activities

Key aspects of the Project that may result in adverse impacts to soils and water include:

- Demolition
- Earthworks including excavation, site clearance and tree removal
- Movement of heavy vehicles on unstable ground
- Construction in areas of erodible soils
- Construction in contaminated land
- Piling
- Stormwater drainage
- Service trenching
- Water use
- Compound operations including fuel and chemical storage and handling
- Noxious weed treatment including herbicide spraying

All risks are also assessed in the Environmental Risk Register, which is included as Section 15.3 (Attachment 3) of the CEMP.

6.2 Impacts

The potential for impacts on soil and water will depend on a number of factors. Primarily impacts will be dependent on the nature, extent and magnitude of construction activities and their interaction with the natural environment. Potential impacts attributable to construction might include:

- Exposure of soils during vegetation clearing and earthworks, creating the potential for mobilisation and off-site movement of eroded sediments and pollutants
- Decline in water quality and visual amenity, and generation of turbidity following rainfall events
- Damage to ancillary facilities (including flood damage) that could result in an export of pollutants to receiving waters
- Disturbance of contaminants from excavations.
- Contamination of soils, and surface and groundwater from accidental spills or oil leaks that could pollute receiving waterbodies.
- Soil loss from the stockpiling of spoil and topsoil due to the effects of wind or water in the absence of suitable stabilisation and management measures.

All impacts are also assessed in the Environmental Risk Register, which is included as Section 15.3 (Attachment 3) of the CEMP.

6.3 Controls

6.3.1 Erosion and sediment controls

Soil and water management works include all measures to control erosion and sediment installed to prevent pollution of water ways. This includes sediment filters, drains, ponds, basins, stormwater run-off and run-off controls, site stabilisation works, temporary water crossings and vehicular access controls.

The following control measures will be considered to minimise erosion. This is further detailed in Section 9.1 of the CEMP.

- Land clearance should be kept to a minimum;
- Clearing areas of highly erodible soils and steep slopes which are prone to water and wind erosion should be avoided wherever possible;
- The interval between clearing and re-vegetation should be kept to an absolute minimum. Re-vegetate progressively as each section of works is completed;
- Keep vehicles to well-marked and graded access roads;
- Wheel washes/cattle grids to be installed at vehicle exit points where applicable;
- Divert clean storm water by small levees away from those parts of site where the soil is exposed;
- Storm water drainage is to exit the site via a sedimentation control installation such as silt fencing or sedimentation basins/tanks/ponds. When sedimentation traps are up to 1/3 full of silt, the silt should be removed;
- Timber, logs and rubbish should be removed from site so soil removal and re spreading should not be interfered with;
- All excavated material should be temporarily stockpiled on the high side of the trench for periods less than 1 month;
- Where practicable, all trenches should be backfilled at the end of the working day;
- Areas should be rehabilitated progressively to reduce the potential for sediments to flow into waterways;
- Machine activity to be kept away from drainage lines unless absolutely necessary and then machine activity is to be kept to an absolute minimum;
- All works being undertaken will be carried out within the confines of the approved Site boundaries (EPL were defined by client);
- Construction plant and machinery is to remain within the construction site for the duration of the contract thus limiting the transfer of mud from the site and also the transportation of weeds;
- All drainage channels carrying storm water runoff are to be stabilised;
- Earth berms constructed in front of silt fences to reduce velocity of water striking fences

6.3.2 Water quality management

Various controls that will be implemented around the construction site in order to maintain water quality are as follows:

- Proper receptacles provided for waste oils and emergency clean up materials at hand. Fuel storage areas imperviously bunded to 110% of the largest drum's storage volume;
- All fuel and oil storage areas are bunded;
- Plant and equipment inspected daily through Daily Plant Inspections to ensure there are no leakages of fuel, oil and hydraulic fluid;
- Re-fuelling will not occur in the vicinity of waterways (unless absolutely necessary e.g. piling equipment);
- When concrete is delivered to the site, cleaning out of concrete truck agitators will be conducted at designated areas. These areas will be cleaned up on completion of the works, and the concrete will be incorporated in the fill or disposed of at an inert waste landfill site.

6.3.3 Dewatering of Work Sites

The following control measures will be considered to ensure that dewatering operations do not result in turbid water entering natural waterways.

- Re-use of rain water for site activities i.e., dust mitigation, wheel wash

- De-water by pumping water, wherever practicable on to vegetated areas of sufficient width to remove suspended soil or to sediment control devices.

7 Compliance management

7.1 Roles and responsibilities

FCC's Project Team's organisational structure and overall roles and responsibilities are outlined in Section 2.3 of the CEMP.

Noting that this document is to be peer reviewed by a suitably qualified expert, in consultation with Council prior to the commencement of earthworks.

7.2 Training

FCC and its subcontractors will undergo site induction training which will include information relating to soil and water management issues. The induction training will address elements related to soil and water management including:

- Existence and requirements of this sub-plan
- Relevant legislation
- Roles and responsibilities for soil and water management
- Requirement of ESCPs for each project site
- Water quality management and protection measures
- Groundwater seepage issues
- Procedure to be implemented in the event of an unexpected discovery of contaminated
- land/PASS
- Erosion and sediment control maintenance
- Dust suppression
- Prevention of sediment tracking

Targeted training in the form of toolbox talks or specific training will also be provided to personnel with a key role in soil and water management. This will include:

- Erosion and sediment control installation methodology
- Dewatering procedures and considerations
- Preparedness for high rainfall events
- Emergency response measures in high rainfall events
- Lessons learnt from incidents and other event e.g. high rainfall / flooding
- Spill incident response and reporting
- Hazardous material storage requirements
- Identification of potentially contaminated spoil and fill material.

7.3 Monitoring and inspection

Regular monitoring and inspections will be undertaken prior to, during and following construction. The following monitoring and inspections will be undertaken by the Project Team:

- Daily and weekly inspections at active, exposed work sites to analyse environmental risk of erosion, sedimentation and water quality issues and to evaluate the effectiveness of erosion and sediment controls measures
- Rainfall inspections will be conducted after receiving >10mm over a 24hr period at active, exposed work sites to evaluate the effectiveness of erosion and sediment controls measures in accordance with Section 9.1 of the CEMP.
- Inspections would also be undertaken of Erosion and Sediment Controls prior to any shut down of greater than 48 hours.

Requirements and responsibilities in relation to inspections are documented in Section 10 of the CEMP.

7.4 Auditing and reporting

Environmental Inspections will be undertaken in accordance with Section 10 of the CEMP. These will be undertaken daily and weekly as well as prior to and following rainfall. Action lists generated in these inspections will be distributed to relevant site personnel.

Internal audits will be undertaken to assess the effectiveness of environmental measures, compliance with this sub plan, conditions of consent and other relevant approvals, licences and guidelines.

8 Review and improvement

8.1 Continuous improvement

Continuous improvement of this plan will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement.

The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of soil and water management
- Determine the cause or causes of non-conformances and deficiencies
- Develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies
- Verify the effectiveness of the corrective and preventative actions
- Document any changes in procedures resulting from processes improvement
- Make comparisons with objectives and targets

8.2 CSWMSP update and amendment

As this CSWMSP is a living document, if changes to the construction staging or process are required this document will be updated to encompass the changes.

Only the Project Manager (in consultation with the HSEQ Manager) can amend this CSWMSP.

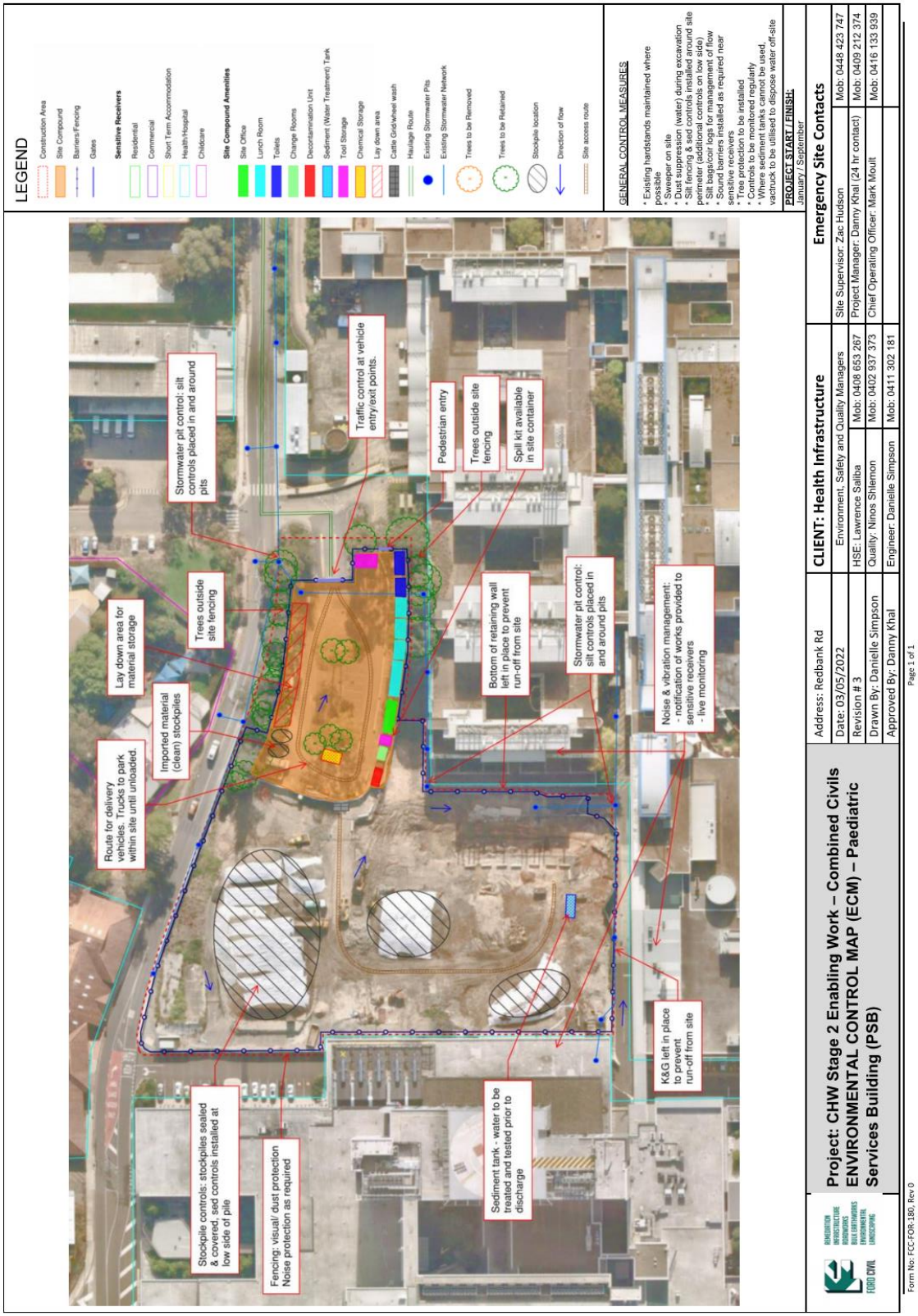
A copy of the updated plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure.

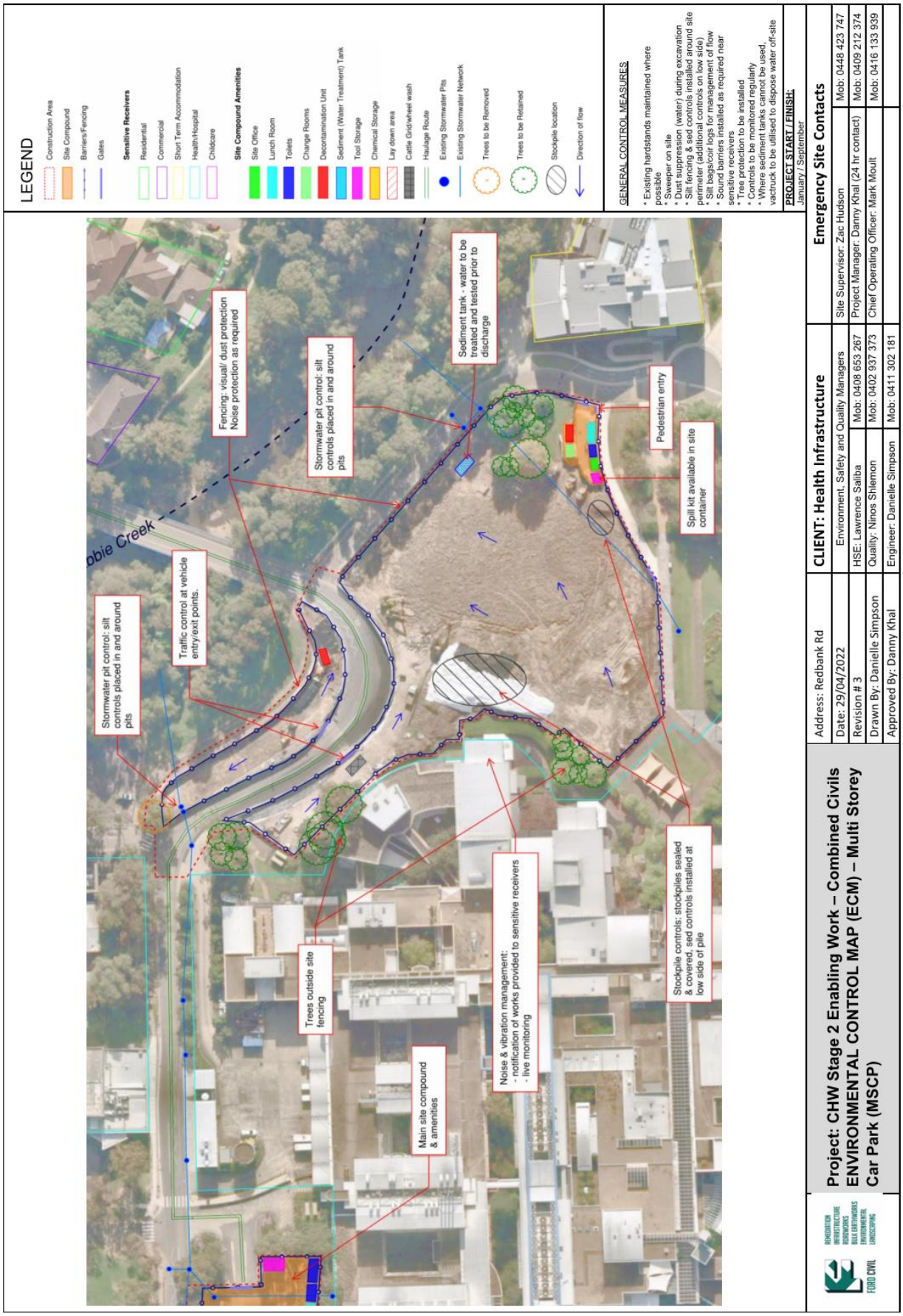
8.3 CSWMSP peer review

The CSWMSP is a living document, as such the initial document has been peer reviewed by a suitably qualified and experienced soil and water expert. A copy of this review and subsequent endorsement have been included as Appendix B.

Appendix A – Environmental Control Maps

Erosion and Sediment Controls are outlined in site specific environmental control maps. Each Environmental Control Map (ECM) to be updated as/if site conditions change.




LEGEND
Construction Area
Site Compound
Barriers/Fencing
Gates
Sensitive Receivers
Residential
Commercial
Short Term Accommodation
Health/Hospital
Childcare
Site Compound Amenities
Site Office
Lunch Room
Toilets
Change Rooms
Decontamination Unit
Sediment (Water Treatment) Tank
Tool Storage
Chemical Storage
Lay down area
Cattle Grid/wheel wash
Haulage Route
Existing Stormwater Pits
Existing Stormwater Network
Trees to be Removed
Trees to be Retained
Stockpile location
Direction of flow
GENERAL CONTROL MEASURES
* Existing hardstands maintained where possible
* Sweeper on site
* Dust suppression (water) during excavation
* Silt fencing & sed controls installed around site perimeter (additional controls on low side)
* Silt bags/coir logs for management of flow
* Sound barriers installed as required near sensitive receivers
* Tree protection to be installed
* Controls to be monitored regularly
* Where sediment tanks cannot be used, vactruck to be utilised to dispose water off-site
PROJECT START / FINISH:
January / September
Fencing: visual/ dust protection Noise protection as required
Stormwater pit control: silt controls placed in and around pits
Sediment tank - water to be treated and tested prior to discharge
Pedestrian entry
Spill kit available in site container
Traffic control at vehicle entry/exit points.
Stormwater pit control: silt controls placed in and around pits
Trees outside site fencing
Noise & vibration management: - notification of works provided to sensitive receivers - live monitoring
Stockpile controls: stockpiles sealed & covered, sed controls installed at low side of pile
Main site compound & amenities
Project: CHW Stage 2 Enabling Work – Combined Civils ENVIRONMENTAL CONTROL MAP (ECM) – Multi Storey Car Park (MSCP)
Address: Redbank Rd
Date: 29/04/2022
Revision # 3
Drawn By: Danielle Simpson
Approved By: Danny Khal
CLIENT: Health Infrastructure
Environment, Safety and Quality Managers
HSE: Lawrence Saliba Mob: 0408 653 267
Quality: Ninos Shiemon Mob: 0402 937 373
Engineer: Danielle Simpson Mob: 0411 302 181
Emergency Site Contacts
Site Supervisor: Zac Hudson Mob: 0448 423 747
Project Manager: Danny Khal (24 hr contact) Mob: 0409 212 374
Chief Operating Officer: Mark Moult Mob: 0416 133 939
Form No: FCC-FOR-180, Rev 0
Page 1 of 1

Appendix B – Peer review conducted by Northrop

Plan updated as per Northrop's comments (revision D). Once acceptance from Northrop is received, the plan will be updated to include correspondence.

Danielle.Simpson

From: Benjamin Lawrence <BLawrence@northrop.com.au>
Sent: Thursday, 23 June 2022 4:32 PM
To: Danielle.Simpson; Mathew Richards
Cc: Danny.Khal; Angus Brien
Subject: RE: CHW Stage 2 Enabling Works - Peer Review of Environmental Plans

Hi Danielle,

Thanks for the below, confirming all previous comments have been addressed and I am satisfied that the Conditions of Approval have been met.

Kind regards,

Benjamin Lawrence
Senior Civil and Environmental Engineer | Team Leader

Northrop Consulting Engineers Pty Ltd
T 02 9241 4188 **M** 0466 426 735
D 02 9156 3139
E BLawrence@northrop.com.au
L11, 345 George Street Sydney NSW 2000
www.northrop.com.au

NORTHROP Follow us on LinkedIn

From: Danielle.Simpson <danielle.simpson@fordcivil.com.au>
Sent: Tuesday, 3 May 2022 5:10 PM
To: Benjamin Lawrence <BLawrence@northrop.com.au>; Mathew Richards <MRichards@northrop.com.au>
Cc: Danny.Khal <Danny.Khal@fordcivil.com.au>; Angus Brien <ABrien@northrop.com.au>
Subject: RE: CHW Stage 2 Enabling Works - Peer Review of Environmental Plans

Hi Benjamin,

Thanks for reviewing the Construction Soil and Water Management Sub Plan.

I have amended the plan as per the comments provided. Please see attached word document with track changes.

Once reviewed, could you please confirm that all comments have been addressed and that the Conditions of Approval have been met?

Please let me know if you have any other queries.

Thanks,

1

DANIELLE SIMPSON

M 0411 302 181
E danielle.simpson@fordcivil.com.au
P 02 9597 4122
F 02 9597 4966
A 9 Hattersley Street, Arncliffe NSW, 2205
PO BOX 26, Arncliffe NSW, 2205
fordcivil.com.au

REMEDIATION BULK I
INFRASTRUCTURE ENVIRI

Ford Civil Contracting Pty Ltd
Experience You Can Trust

From: Benjamin Lawrence <BLawrence@northrop.com.au>
Sent: Tuesday, 5 April 2022 5:49 PM
To: Mathew Richards <MRichards@northrop.com.au>; Danielle.Simpson <danielle.simpson@fordcivil.com.au>
Cc: Danny.Khal <Danny.Khal@fordcivil.com.au>; Miguel Canas <Miguel.Canas@fordcivil.com.au>; Angus Brien <ABrien@northrop.com.au>
Subject: RE: CHW Stage 2 Enabling Works - Peer Review of Environmental Plans

Hi All,

Please find attached preliminary review / mark-up of the Construction Soil and Water Management Sub Plan as promised below.

Let me know of any issues / comments you may have.

Feel free to call me on my mobile 0466 426 735 should you wish to discuss.

Kind regards,

Benjamin Lawrence
Senior Civil and Environmental Engineer | Team Leader

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FORD CIVIL

REMEDIATION
INFRASTRUCTURE
ROADWORKS
BULK EARTHWORKS
ENVIRONMENTAL
LANDSCAPING

APPENDIX E

Flood Emergency Response Sub Plan (FERSP)

Project	Westmead Children's Hospital Stage 2 Enabling Works
Site Address	Corner of Redbank Rd and Labyrinth Way, Westmead
Client	Health Administration Corporation
Contract no.	H121427
Date	22.06.2022

ABN	24 002 542 814
Address	9 Hattersley Street, Arncliffe NSW 2205
Phone	02 9597 4122
Web	www.fordcivil.com.au
Email	info@fordcivil.com.au

Document issue register

Revision #	Issue date	Update summary	Prepared/ Revised by	Reviewed By	Approved by
A	02.02.2022	Project Document	Danielle Simpson	Lawrence Saliba	Danny Khal
B	18.02.2022	Updated reference to Flood Impact Assessments	Danielle Simpson	Lawrence Saliba	Danny Khal
C	22.06.2022	Updated as per Northrop peer review comments	Danielle Simpson	Lawrence Saliba	Danny Khal
D	12.07.2022	Updated as per Northrop peer review comments for consideration 11.07.2022	Danielle Simpson	Lawrence Saliba	Danny Khal

Distribution

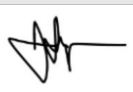
Controlled Copy No.	Issue Holder	Revision	Issue Date
1	1	D	12.07.2022

Authority

Ford Civil's Chief Operating Officer has authorised 'Danny Khal' as a Project Manager and allocated overall project delivery responsibility for the project to him.

This Project Construction Flood Emergency Response Sub Plan has been prepared for use to manage applicable statutory and regulatory requirements as well as contractual and organisational requirements for the project.

The issue and revision of this Management plan is made under the authority of the Project Manager. This document and its effectiveness will be reviewed and evaluated during project monthly review meetings.

Function	Name	Position	Signature	Date
Prepared by	Danielle Simpson	Project HSEQ Representative		12.07.2022
Reviewed by	Lawrence Saliba	HSEQ Manager		12.07.2022
Approved by	Danny Khal	Project Manager		12.07.2022

Contents

1 Introduction

1.1 Context

This Flood Emergency Response Sub Plan (CWMSP or Plan) forms part of the Construction Environmental Management Plan (CEMP) for the Children's Hospital Westmead - Stage 2 Enabling Works (the Project).

1.2 Project & Scope Description

Ford Civil Contracting Pty Ltd (FCC) has been awarded the Contract for the Children's Hospital Westmead - Stage 2 Enabling Works Project.

The enabling works for the Paediatric Services Building (PSB) and the Multi Storey Car Park (MSCP) form part of the Combined Civil's Scope of Work and incorporates the design finalisation and construction of the following elements:

Multi Story Carpark:

- Design finalisation
- Demo of existing lodge building
- Salvage playground equipment
- Clear site (Trees & Pavements)
- Erosion/Sediment/Flooding Control measures through construction
- Earthworks (Approx. 3500m3 C/Fill) up to 'BOC'
    - Including Temporary battering around MSCP structural cores
- Retaining wall & ramp upstand walls
- Retaining Wall piles and capping beam footings
- External Stormwater drainage incl GPTs and filtration units
    - Excluding grated trench drains, which are to be done by Main Works contractor as part of pavement finishes.
- Service trenching for electrical/ comms + conduit install
- Marker layer and temp capping layer to all areas
- Redbank Rd realignment
    - Temporary widening
    - Stormwater drainage
    - Pavement
    - Asphalting
    - Line marking
    - K&G
    - Reinstating existing light poles

Paediatric Services Building development:

- Design finalisation
- Demo pavement and clear trees
- Erosion/Sediment/Flooding Control measures through construction
- Piling for retaining wall, superstructure (column and core piles) and where required pile caps
- Borrow pit excavation (approx. 9500m3) – VENM disposal
- Earthworks cut/fill (approx. 8000m3) up to 'BOC'
    - Main Works responsible for pavement finishes
- Retaining wall and associated footings

- Stormwater drainage incl GPTs & filtration units
    - Excluding grated trench drains, which are to be done by Main Works contractor as part of pavement finishes.
- Services trenching and conduits within building platform
    - Refer to following for services early works packages:
        - Hydraulic Enabling works: OveArup-TRANSMIT-000056
        - Electrical external duress points: PWCAU-GCOR-006957
- Piling platform and marker layer
- Final capping and temp capping (where required) & marker layer to all external areas
- Fire brigade hardstand – Early Works contractor for bulk earthworks up to BOC, Main Works contractor responsible for pavement finishes
- Services include: Hydraulics, electrical, sewer and stormwater. Note sewer is external to the building footprint.

Bike cage construction

1.3 Scope of the Sub-Plan

The Stage 2 Enabling Works will be carried out prior to the Main Infrastructure Works for the MSCP and the PSB. As part of the Stage 2 Enabling Works. This Flood Emergency Response Sub Plan (FERSP) has been developed to manage flood impacts and emergency response measures during the construction stage.

The scope of this sub plan will address the following:

- Provisions of the Floodplain Risk Management Guidelines (EESG)
- Procedures that will be implemented for flood warning and notifications
- Procedures for monitoring, checking and implementing corrective actions should there be any

The extent of the proposed works is presented in Figure 1 below.

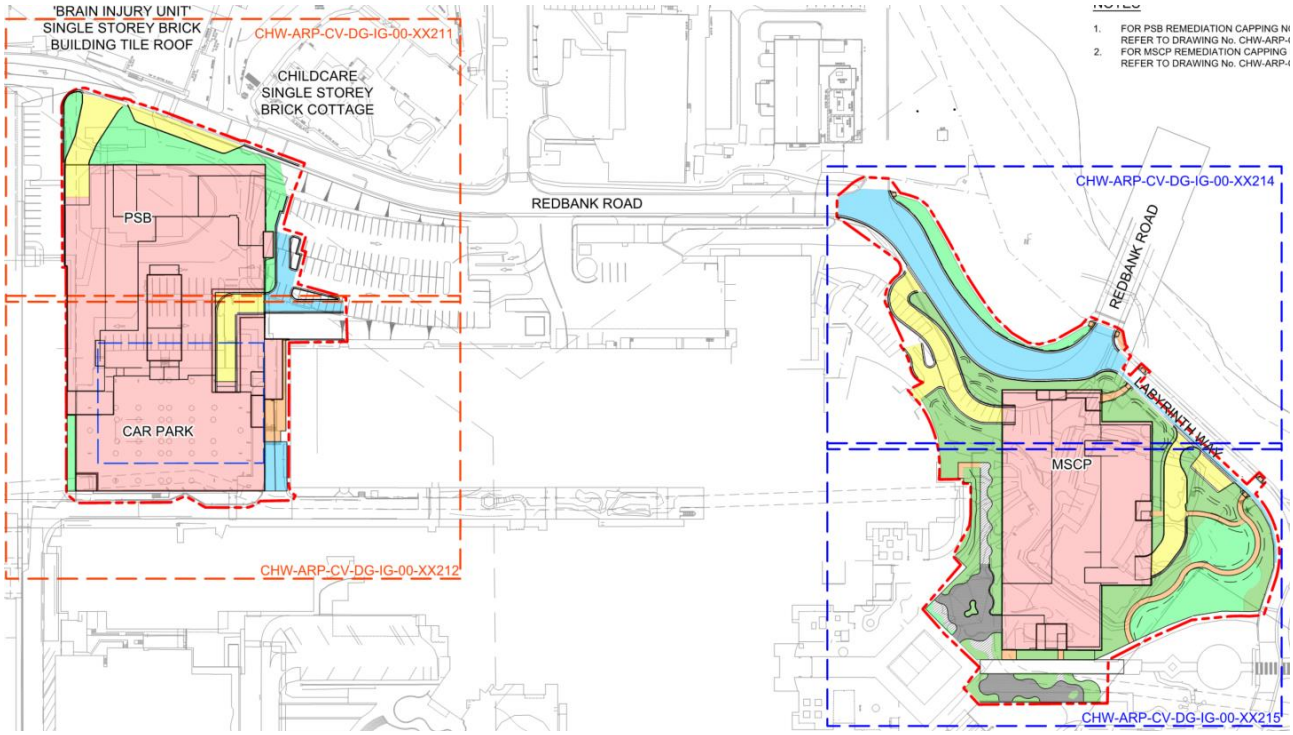


Figure 1: Extent of Works

1.4 Environmental Management Systems Overview

The environmental management system overview is described in section 1.5 of the CEMP.

2 Purpose & Objectives

The purpose of this Plan is to address potential flood risks at the PSB and MSCP sites and address the emergency response for the construction phase of the Project.

2.1 Objectives

The following targets have been established for the management of flooding and hydrology impacts during construction of the project:

- Ensure full compliance with the relevant legislative requirements, SSDA conditions and environmental mitigation measures addressed in this plan
- Follow correct procedures for monitoring, preparation and evacuation of construction areas prior to a flood event
- Minimise and manage construction impacts on flooding to avoid significant impacts to people and property adjacent to or on PSB/MSCP sites
- Minimise and manage construction impacts on hydrology and flooding from works within its Floodplain

3 Environmental Requirements

3.1 Relevant Legislation & Guidelines

3.1.1 Legislation & Regulatory Requirements

The Flood Emergency Response Sub-Plan has been prepared in regard to:

- EP&A Act;
- Protection of the Environment Operations Act 1997 (POEO Act);
- Water Management Act 2000 (WM Act); and
- Water Act 1912 (Water Act).
- State Emergency and Rescue Management Act 1989 (SERM Act). The Act is relevant to the project as flooding poses a risk / threat to property and the environment.
- State Emergency Service Act 1989. The Act relates to the protection of persons from dangers to their safety and health, and to protect property from destruction or damage, arising from floods, storms and tsunamis.

3.1.2 Guidelines

The main guidelines, specifications and policy documents relevant to this Plan include:

- Floodplain Risk Management Guidelines (EESG)
- Australian Rainfall & Runoff (AR&R2019 Guidelines)
- Flood Emergency Management Strategy for Westmead Health Precinct by SCHN

3.2 SSDA Conditions of Approval

The Conditions of Consent relevant to this FERSP are listed in Tables 1 and 2 below. A cross reference is also included to indicate where the condition is addressed in this Plan or other Project management documents. All risks were assessed in the Environmental Risk Register, which is included as Section 15.3 (Attachment 3) of the CEMP.

Table 1: MSCP SSDA Conditions of Consent relating to this FERSP

SSDA No.	Condition of Consent	Document Reference
B20	Prior to the commencement of construction, the Applicant must prepare and implement for the duration of construction: (a) flood warning and notification procedures for construction workers on site; and (b) evacuation and refuge protocols.	Section 5

Table 2: PSB SSDA Conditions of Consent relating to this FERSP

SSDA No.	Condition of Consent	Document Reference
B20	The Flood Emergency Response Sub-Plan (FERSP) must address, but not be limited to, the following: (a) be prepared by a suitably qualified and experienced person(s) (b) address the provisions of the Floodplain Risk Management Guidelines (EESG) (c) include details of: (i) the flood emergency responses for both construction phases of the development; (ii) predicted flood levels; (iii) flood warning time and flood notification; (iv) assembly points and evacuation routes; (v) evacuation and refuge protocols; and (vi) awareness training for employees and contractors, and users/visitors.	Section 4 Section 5

4 Flooding Conditions

The following section describes the existing flood regime within the project areas and are based on the information contained in ''CHW-ARP-CV-RP-PS-91-XX012 PSB Flood Impact Assessment'' & '' CHW-ARP-CV-RP-MP-91-XX013 MSCP Flood Impact Assessment''.

4.1 Paediatrics Services Building (PSB)

The PSB site is mainly impacted by overland flow flood events, with the exception of the PMF whereby the site is impacted by both riverine flooding from Toongabbie Creek and overland flow flooding. Mapping of these flood events are included in Appendix A and B for reference.

The following provides a summary of the existing flood behaviours and subsequent hazards.

Table 3: Summary of existing flood behaviour and hazards.

	10% AEP	1% AEP	PMF
Flood Depth (m)	0.1 – 0.16	0.1 – 0.2	Overland: 0.2 – 0.75 River: 1 - 4
Flood level (m AHD)	Varies between 13.63 (PSB carpark access) and 22.91 (CMRI threshold)	Varies between 13.63 (PSB carpark access) and 22.91 (CMRI threshold)	River: 18 – 18.02
Time to peak flood levels	Overland: 30 mins	Overland: 30 mins	Overland: 30 mins River: 3 hours
Hazard category based on AR&R2019 Guidelines	H1 - safe flow conditions for people and vehicles	H1 - safe flow conditions for people and vehicles	H5 – H6 9 (river) - flow conditions are unsafe for people and vehicles, and buildings are vulnerable to structural damage and possible failure

Table 4: Existing sites relationship to flood levels.

Location	Relationship to flood levels
Redbank Rd	Above 1% AEP, partially below PMF overland (flood depth of 0.05-0.3m) and below PMF river
Existing Car Park	Above 1% AEP, above PMF overland and partially below PMF river
KR Lane	Partially below 1% AEP (flood depth of 0.05-0.15m), below PMF overland and below PMF river

4.2 Multi-Story Car Park (MSCP)

The MSCP site is impacted by both riverine and overland flood events. Mapping of these flood events are included in Appendix C and D for reference.

The following provides a summary of the existing flood behaviours and subsequent hazards.

Table 5: Summary of existing flood behaviour and hazards.

	10% AEP	1% AEP	PMF
Flood Depth (m)	Overland: 0.12 – 0.22 River: Generally flood free	Overland: 0.14 – 0.25 River: 0.3 – 0.4	Overland: 0.04 - 1 River: 0.9m – 5m
Flood level (m AHD)	River: Generally flood free	Varies between 12.87 (Labyrinth Way Low Point) and 17.31 (MSCP new ramp and CHW walkway).	17.92 – 17.99
Time to peak flood levels	Overland: <30 mins	Overland: <30 mins	Overland: 30 mins River: 3 hours
Hazard category based on AR&R2019 Guidelines	Overland: H1- safe flow conditions for people and vehicles	Overland: H1- safe flow conditions for people and vehicles River: H2 – unsafe for small vehicles on Labyrinth Way; H3 - unsafe for vehicles, children and the elderly on west side of Redbank Rd	Overland: H1 and H2 hazard for the overland flow flooding for the Lodge site and its surrounds, but up to H3 hazard at the Labyrinth Way low point and the west side of Redbank Road

Table 6: Existing sites relationship to flood levels.

Location	Relationship to flood levels
Redbank Rd	Above 1% AEP overland, partially below 1% AEP river (flood depth of 0.05-0.3), below PMF overland (flood depth 0.05 – 0.5), below PMF river (flood depth >1)
Labyrinth Way	Above 1% AEP overland, partially below 1% AEP river (flood depth of 0.05-0.3), below PMF overland (flood depth 0.05-0.3), below PMF river (flood depth >1)
Existing On-grade Car Park	Above 1% AEP overland and river, below PMF overland (flood depth 0.05-0.1), below PMF river (flood depth >1)
Existing Lodge	Above 1% AEP overland and river, above PMF overland, below PMF river (flood depth >1)
CHW Building (North frontage)	Above 1% AEP overland and river, below PMF overland (flood depth 0.05-0.3), below PMF river (flood depth 0.5-1)

5 Emergency response and evacuation

There is a flood emergency management strategy in place for the Westmead Health Precinct by the SCHN which is coordinated with other relevant authorities including (and not limited to) NSW Health, NSW Police, Transport NSW, State Emergency Service (SES) and the Bureau of Meteorology (BoM).

There is also a Parramatta Local Emergency Plan (EMPLAN), dated September 2018, which covers the whole of the City of Parramatta. The EMPLAN identifies the SES as the Combat Agency for flooding – the agency identified to control the response to flood emergencies.

The current emergency response strategy outlined in the EMPLAN shall be retained during construction. However, pending the severity of the forecast, the site will be shut down in anticipation of flooding.

The following process, as detailed in Sections 5.1 – 5.4 and is summarised in Figure 2 below, should be followed in the event heavy rainfall is forecasted.

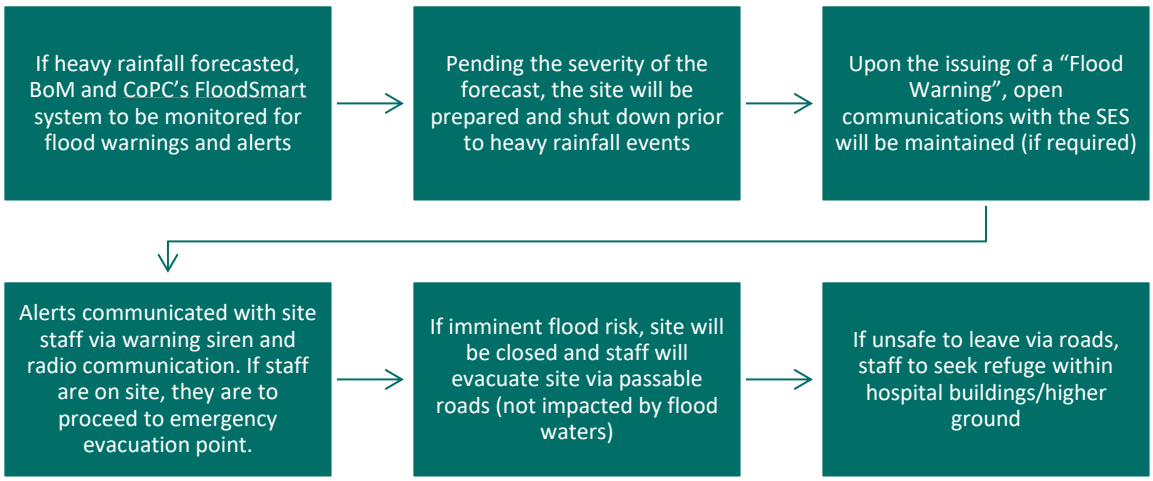


Figure 2: Flood Warning and Emergency Response

5.1 Measures to be implemented prior to a flooding event

5.1.1 Monitor flood warning services

FCC shall monitor BoM forecast heavy rainfall events in order to allow sufficient time to vacate and prepare the site prior to the commencement of heavy rainfall.

Monitoring shall be undertaken at regular intervals with increased frequency in the lead up to and during periods of heavy rainfall.

FCC will also sign up to Council's FloodSmart system in order to receive notification warnings of impending flooding of the CBD and upstream catchment areas to the west of the CBD.

5.1.2 Preparation of the site

In preparing for an anticipated flood event, FCC will undertake the following measures to minimise the impact of any flooding/ponding water to the Works and to the wider public:

- Turn-off electricity, secure generators and gas cylinders
- Ensure any stockpiles are located above the 5% AEP, are covered and surrounded by sediment fences.
- Secure any chemicals/fuels and re-located to areas outside of the 1% AEP or areas of known ponding/overland flow
- Locate any plant and equipment to high ground, clear of known areas of flooding/ponding
- Cover any open trench excavations in the roadway with suitably sized steel plates
- Inspect and repair any damaged sections of flood diversion barriers
- Where feasible, place flood diversion barriers to protect any open excavations
- Transport amenities wastewater offsite to a licensed disposal facility
- Inspect existing surface water inlet pits and remove any materials that could result in a blockage.

Should a flood warning be in place for the region, FCC management will conduct a risk assessment as to whether the site should remain open or be closed for the safety of their staff.

5.2 Measures to be implemented during a flooding event

The SES is the designated agency for dealing with floods and is responsible for coordinating the evacuation and welfare of affected communities (SES Act 1989; EMPLAN, 2018). In response to a flood event, SES will operate a 24 hours a day, 7 days a week "Operations Centre" to manage the Emergency Assistance telephone number (132 500) and co-ordinate their activities.

Upon the issuing of a "Flood Warning", FCC senior management (Project Manager, HSEQ Manager and Site Manager) will continuously monitor BoM Flood Warning Service and maintain open communications with the SES (if required).

FCC will then communicate the flood potential to the construction staff.

Where FCC senior management deem there to be an immediate flood risk, or when SES and BOM declare an imminent flood the site shall be closed. FCC will communicate the site closure via warning siren and verbal communications to the staff. Construction staff shall evacuate the site to safe areas; areas known to be clear of the 1% AEP, via passable roads. These are shown in Appendix B and D of this plan and will be communicated to staff on the Emergency Evacuation Plan.

No attempt should be made to enter or cross any flood waters. If it is deemed unsafe to leave via roads, staff to seek refuge within hospital buildings/higher ground.

FCC shall maintain open communication with SES during flood event (if required). They may attend site and assume control at their discretion. Only once Health Infrastructure, SCHN and FCC deem it safe to return, shall the site be declared reopen. Once staff return, flood damage shall be assessed and remediated.

5.3 Flood Recovery

A flood event during the construction phase could cause considerable damage to property and the environment. If the site is properly prepared for the flood event, then damage could be minimised.

The following list of actions should be considered when returning to site:

- Wait until authorities have declared the area safe before entering
- Access roads to site may have been damaged during the flood event so drive carefully and approach the site safely
- Check power boxes and electrical equipment on site. These may have been inundated and require a qualified electrician to check for damage
- Do not turn power back on until all electrical equipment on site has been checked and certified by a qualified electrician
- Check the structural integrity of all buildings on site by a suitably qualified professional.
- Buildings on site will be of a temporary nature so may not be designed to withstand extreme flood flows and depths. Even if floodwaters have not entered the buildings check foundations for erosion
- Check to see if any equipment has been moved by flood waters and relocate equipment back to a safe position/location
- Check material stockpiles for erosion and losses
- Inspect existing stormwater drainage systems removing any debris that may have collected in inlet pits or along the kerb and gutter line. Any sediment shall be removed from site and not deposited into the stormwater system
- Check water and waste water systems on site. Water systems may need to be flushed or repaired following the flood event. Clean up any ponded water around site to prevent the spread of waterborne disease
- Prepare an incident report on the flood event. Include information on how the site was evacuated and document the resulting flood depths and damage to the site
- FCC Project Manager to re-open site only when it is deemed safe to continue work.
- Check the structural integrity of all trenches that were inundated with flood water. Do not enter or dewater any trenches before the trench is deemed safe.

5.4 Communication and notification

Timely and accurate warning information is vital during emergencies and is integral to minimising panic and ensuring suitable actions can be taken to minimise risk to life and property.

Communication and the distribution of information to site personnel leading up to, and throughout a flood event, must be implemented. The timing and responsibility of these actions is summarised in Table 3 below.

Following any decision to evacuate, site personnel and emergencies services will be notified of the following:

- The decision to evacuate
- Type of evacuation (full, partial or shelter in place)
- The stages of withdrawal (if applicable)
- Evacuation routes and any heavy or oversized equipment to be removed from site;
- Location of any open excavations and details of preparation works undertaken;
- Location of any potential hazardous materials and how these have been secured or protected.

Table 3: Flood Response Actions Summary

When	What	By Who
Prior to Flooding	Assemble Emergency Kit (incl. first aid) & conduct monthly checks of supplies	Site Safety Advisor (Caitlyn Butchart)
	Coordinate Excavation Drills (every 3 months)	Site Supervisor (Zac Hudson) Site Safety Advisor (Caitlyn Butchart)
	Sign up to and monitor City of Parramatta Council FloodSmart system	Project Engineer (Danielle Simpson)
	Monitor weather situation at 4pm every afternoon	Site Supervisor (Zac Hudson)
	Consideration of site closure pending severity of forecast	Project Manager (Danny Khal) Site Supervisor (Zac Hudson) HSEQ Manager (Lawrence Saliba)
	Inductions for new staff to include flood risk associated with the subject site and evacuation procedure	Site Safety Advisor (Caitlyn Butchart)
Evacuation	Consideration of evacuation following text from FloodSmart and/or warning from BoM	Project Manager (Danny Khal) Site Supervisor (Zac Hudson) HSEQ Manager (Lawrence Saliba)
	Make decision to evacuate and notify client (HI) and Police/SES if required	Project Manager (Danny Khal)
	Communicate decision to evacuate and proceed to emergency assembly point	Site Supervisor (Zac Hudson) and Site Foreman
	Contact Westmead Children's Hospital to confirm they can accept all persons on site	Project Manager (Danny Khal)
	Leave signage notifying responders attending site that evacuation has been undertaken	Site Safety Advisor (Caitlyn Butchart)
	If possible, return home and wait out the storm	All
	If unsafe to return home, evacuate to Westmead Children's Hospital where Shelter-in-Place policy is adopted	All
On Site Refuge	Communicate decision to remain on-site and organise seating and lighting. Maintain regular communication with staff and facility users.	Project Manager (Danny Khal) Site Supervisor (Zac Hudson)
	Notify Police/SES of decision to seek refuge on site	Project Manager (Danny Khal)
	Wait it out at nominated refuge point	All
	If stranded on-site and water inundates floor level, call 000 immediately	All
After a Flood	Check all services, stability of excavations and structural stability of buildings and amenities	Project Manager (Danny Khal) Site Supervisor (Zac Hudson) Qualified personnel
	Communicate decision to return to operation	Site Supervisor (Zac Hudson) and Site Foreman

When heavy rainfall is being experienced and throughout the implementation of this FERSP, communication and consultation with FCC senior management and the organisations stipulated in Table 4 must be undertaken as required.

Table 4: External Flood Emergency Contacts

Organisation Contact	Number	Website
Bureau of Meteorology (BOM)	1300 659 218	www.bom.gov.au/nsw/warnings
State Emergency Services (SES)	132 500	www.ses.nsw.gov.au
NSW Police (Parramatta Station) NSW Police (Wentworthville Station)	02 9633 0799 02 9688 8499	www.police.nsw.gov.au
NSW Fire and Rescue (Parramatta Station) NSW Fire and Rescue (Wentworthville Station)	02 9895 4620 000 (In emergency) 02 9631 0908	www.fire.nsw.gov.au
Westmead Hospital Emergency Department	02 8890 5555 000 (In emergency)	www.westmeademergency.org
City of Parramatta Council	02 9806 5050	www.parracity.nsw.gov.au
Ford Civil Contracting Danny Khal (Project Manager) Zac Hudson (Site Manager) Lawrence Saliba (HSEQ Manager) Caitlyn Butchart (Site Safety Advisor) Danielle Simpson (Project Engineer)	02 9597 4122 0409 212 374 0448 423 747 0408 653 267 0476 773 474 0411 302 181	www.fordcivil.com.au

6 Compliance management

6.1 Roles and responsibilities

FCC's Project Team's organisational structure and overall roles and responsibilities are outlined in Section 2.3 of the CEMP.

6.2 Training

FCC and its subcontractors will undergo site induction training which will include information relating to flooding and emergency response. Emergency response procedures and measures will also be communicated to visitors on their arrival (visitors induction). The induction training will address elements related to flood management including:

- Detailing the warning system that will be implemented in the event of a flood event
- Defining evacuation routes at each stage of the construction works

Targeted training in the form of toolbox talks or specific training will also be provided to personnel with a key role in flood management. This will include:

- Flood control measures/devices
- Preparedness for high rainfall events
- Emergency response measures in high rainfall events including protecting open excavations and relocating plant and equipment
- Lessons learnt from incidents and other event e.g. high rainfall / flooding

6.3 Monitoring and inspection

Regular monitoring and inspections will be undertaken prior to, during and following construction. The following monitoring and inspections will be undertaken by the Project Team:

- Rainfall inspections will be conducted after receiving >10mm over a 24hr period at active, exposed work sites to evaluate controls and the readiness for potential flood events.
- In the event of predicted heavy rainfall, FCC shall monitor BoM and SES sources of information
- Effectiveness of project team's response to be audited and reviewed by senior management following flood event.

Requirements and responsibilities in relation to inspections are documented in Section 10 of the CEMP.

6.4 Auditing and reporting

Environmental Inspections will be undertaken in accordance with Section 10 of the CEMP. These will be undertaken daily and weekly as well as prior to and following rainfall. Action lists generated in these inspections will be distributed to relevant site personnel.

Internal audits will be undertaken to assess the effectiveness of environmental measures, compliance with this sub plan, conditions of consent and other relevant approvals, licences and guidelines.

7 Review and improvement

7.1 Continuous improvement

Continuous improvement of this plan will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement.

The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of flood management and emergency preparedness
- Determine the cause or causes of non-conformances and deficiencies
- Develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies
- Verify the effectiveness of the corrective and preventative actions
- Document any changes in procedures resulting from processes improvement
- Make comparisons with objectives and targets

7.2 FERSP update and amendment

As this FERSP is a living document, if changes to the construction staging or process are required this document will be updated to encompass the changes.

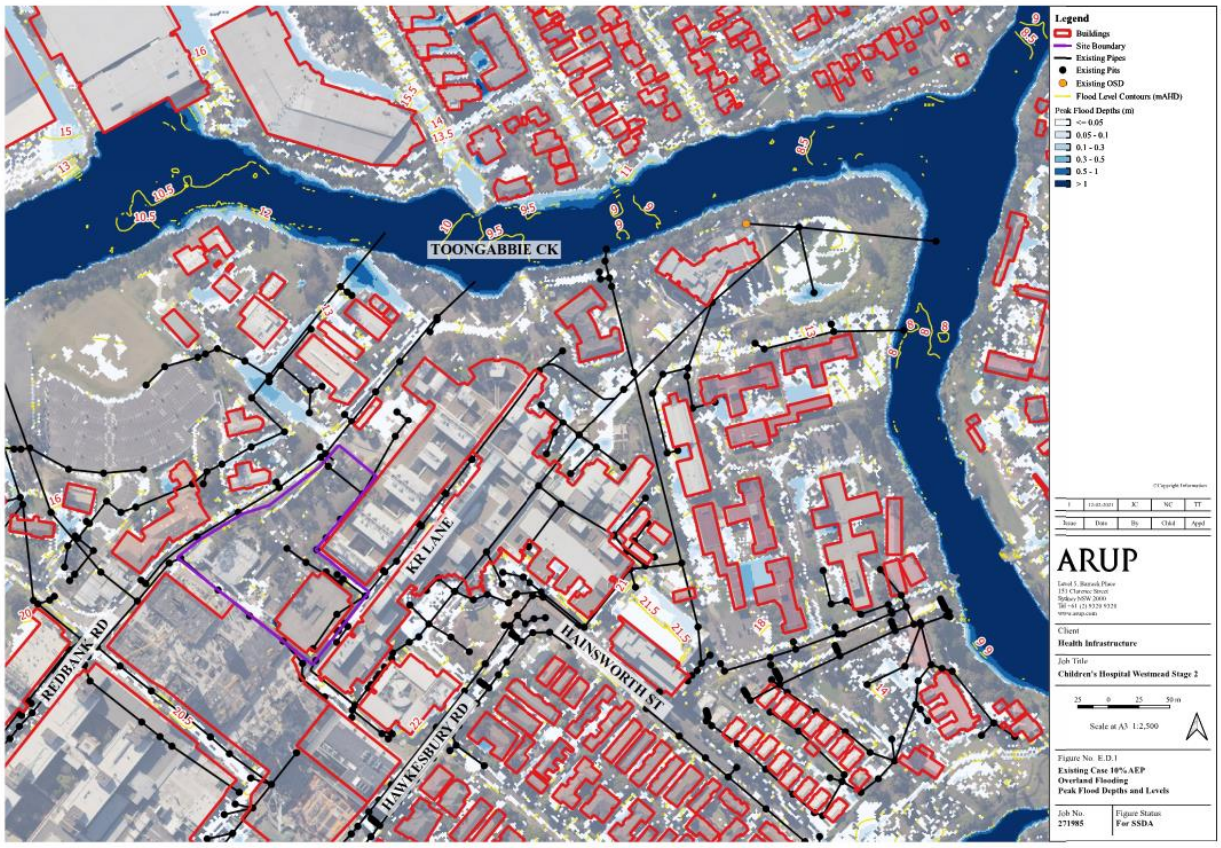
Only the Project Manager (in consultation with the HSEQ Manager) can amend this FERSP.

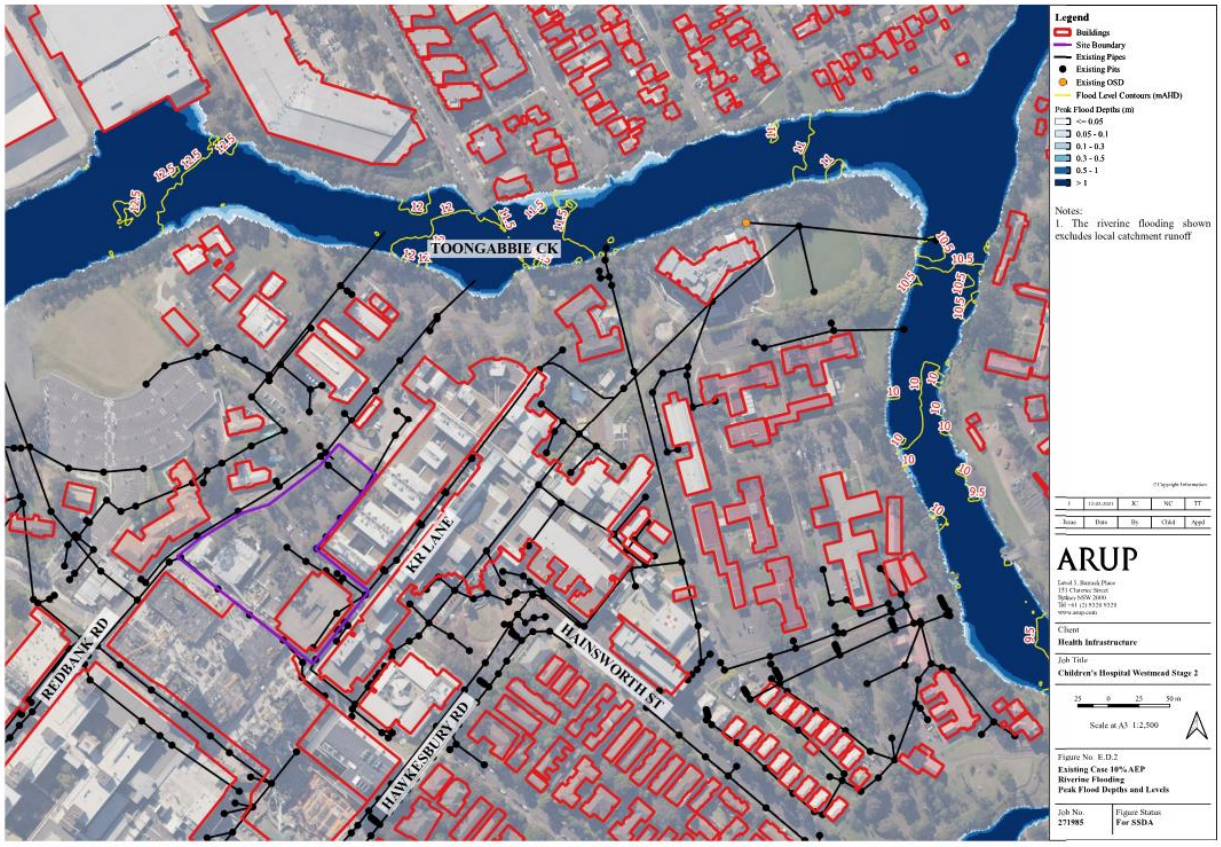
A copy of the updated plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure.

7.3 FERSP peer review

The CNVMSP is a living document, as such the initial document has been peer reviewed by a suitable qualified and experienced flood expert. A copy of this review and subsequent endorsement have been included as Appendix E.

Appendix A – PSB Peak Flood Depths & Levels (10% AEP, 1% AEP and PMF Flood Cases)


TOONGABBIE CK
KR LANE
HAINSWORTH ST
REDBANK RD
HAWKESBURY RD
Legend
Buildings
Site Boundary
Existing Pipes
Existing Pits
Existing OSD
Flood Level Contours (mAHD)
Peak Flood Depths (m)
<= 0.05
0.05 - 0.1
0.1 - 0.3
0.3 - 0.5
0.5 - 1
> 1
ARUP
Client
Health Infrastructure
Job Title
Children's Hospital Westmead Stage 2
Scale at A3 1:2,500
Figure No. E.D.1
Existing Case 10% AEP
Overland Flooding
Peak Flood Depths and Levels
Job No.
271985
Figure Status
For SSDA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Legend
Buildings
Site Boundary
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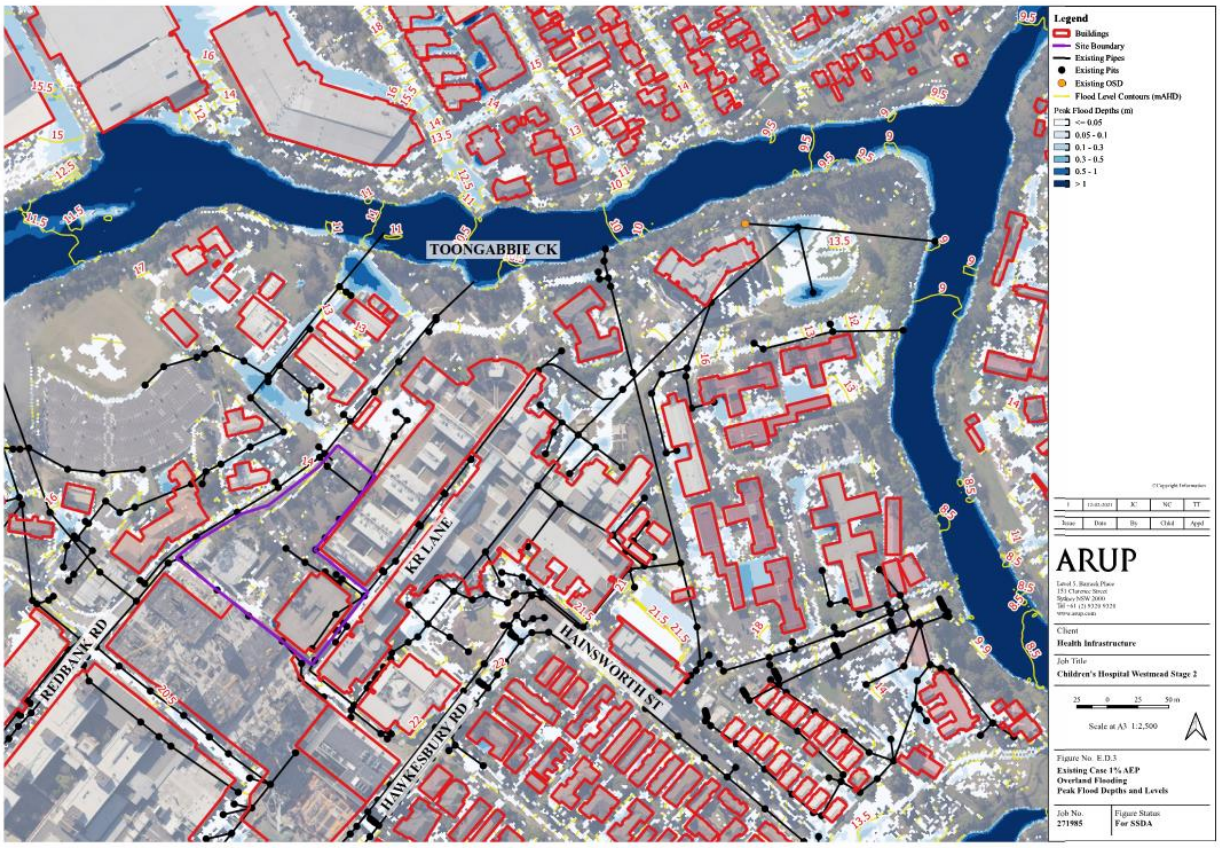
Existing Pits
Existing OSD
Flood Level Contours (mAHD)
Peak Flood Depths (m)
<= 0.05
0.05 - 0.1
0.1 - 0.3
0.3 - 0.5
0.5 - 1
> 1
Notes:
1. The riverine flooding shown excludes local catchment runoff
ARUP
Client
Health Infrastructure
Job Title
Children's Hospital Westmead Stage 2
Scale at A3 1:2,500
Figure No. E.D.2
Existing Case 10% AEP
Riverine Flooding
Peak Flood Depths and Levels
Job No.
271985
Figure Status
For SSDA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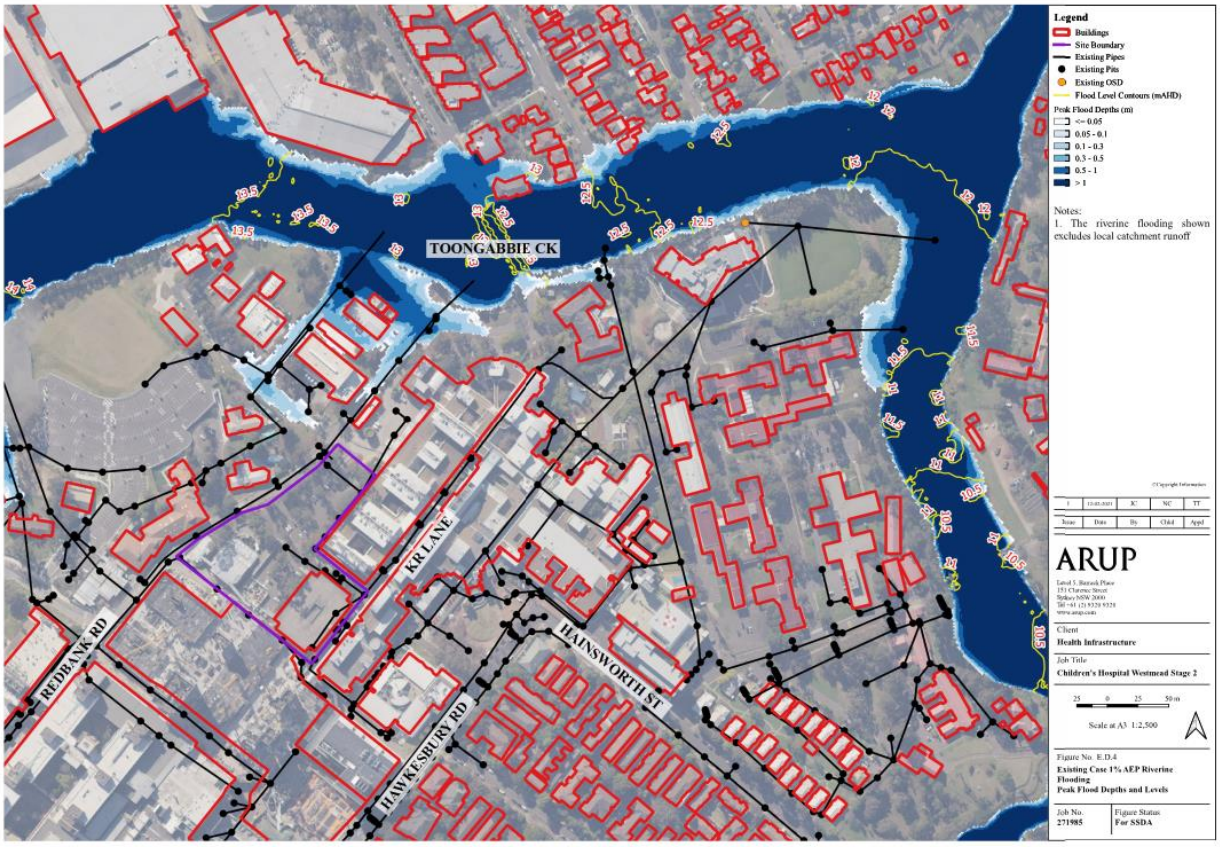
Legend
Buildings
Site Boundary
Existing Pipes
Existing Pits
Existing OSD
Flood Level Contours (mAHD)
Peak Flood Depths (m)
<= 0.05
0.05 - 0.1
0.1 - 0.3
0.3 - 0.5
0.5 - 1
> 1
ARUP
Client
Health Infrastructure
Job Title
Children's Hospital Westmead Stage 2
Scale at A3 1:2,500
Figure No. E.D.3
Existing Case 1% AEP
Overland Flooding
Peak Flood Depths and Levels
Job No.
271985
Figure Status
For SSDA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KR LANE
HAINSWORTH ST
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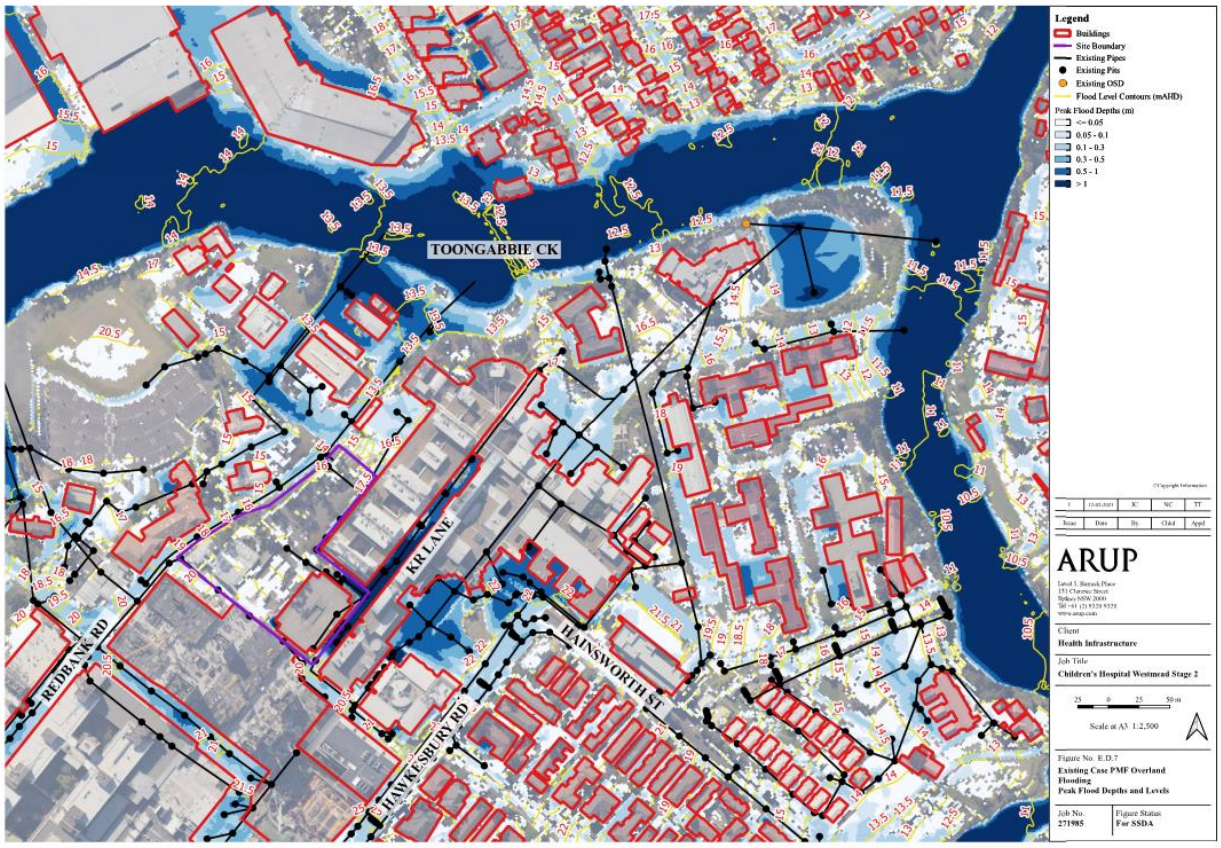
HAWKESBURY RD
Legend
Buildings
Site Boundary
Existing Pipes
Existing Pits
Existing OSD
Flood Level Contours (mAHD)
Peak Flood Depths (m)
<= 0.05
0.05 - 0.1
0.1 - 0.3
0.3 - 0.5
0.5 - 1
> 1
Notes:
1. The riverine flooding shown excludes local catchment runoff
ARUP
Client
Health Infrastructure
Job Title
Children's Hospital Westmead Stage 2
Scale at A3 1:2,500
Figure No. E.D.4
Existing Case 1% AEP Riverine Flooding
Peak Flood Depths and Levels
Job No.
271985
Figure Status
For SSDA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HAWKESBURY RD
Legend
Buildings
Site Boundary
Existing Pipes
Existing Pits
Existing OSD
Flood Level Contours (mAHD)
Peak Flood Depths (m)
<= 0.05
0.05 - 0.1
0.1 - 0.3
0.3 - 0.5
0.5 - 1
> 1
ARUP
Client
Health Infrastructure
Job Title
Children's Hospital Westmead Stage 2
Scale at A3 1:2,500
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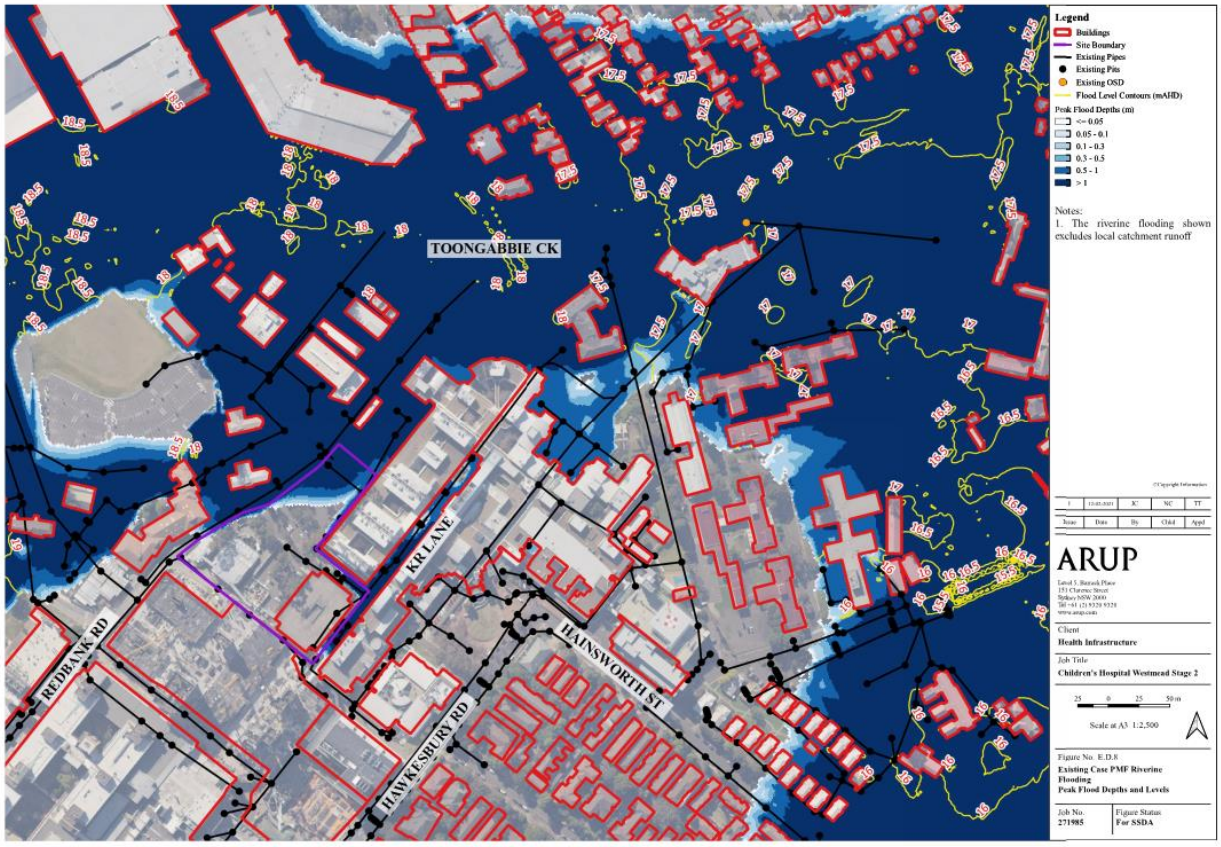
Existing Case PMF Overland Flooding
Peak Flood Depths and Levels
Job No.
271985
Figure Status
For SSDA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Site Boundary
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Existing Pits
Existing OSD
Flood Level Contours (mAHD)
Peak Flood Depths (m)
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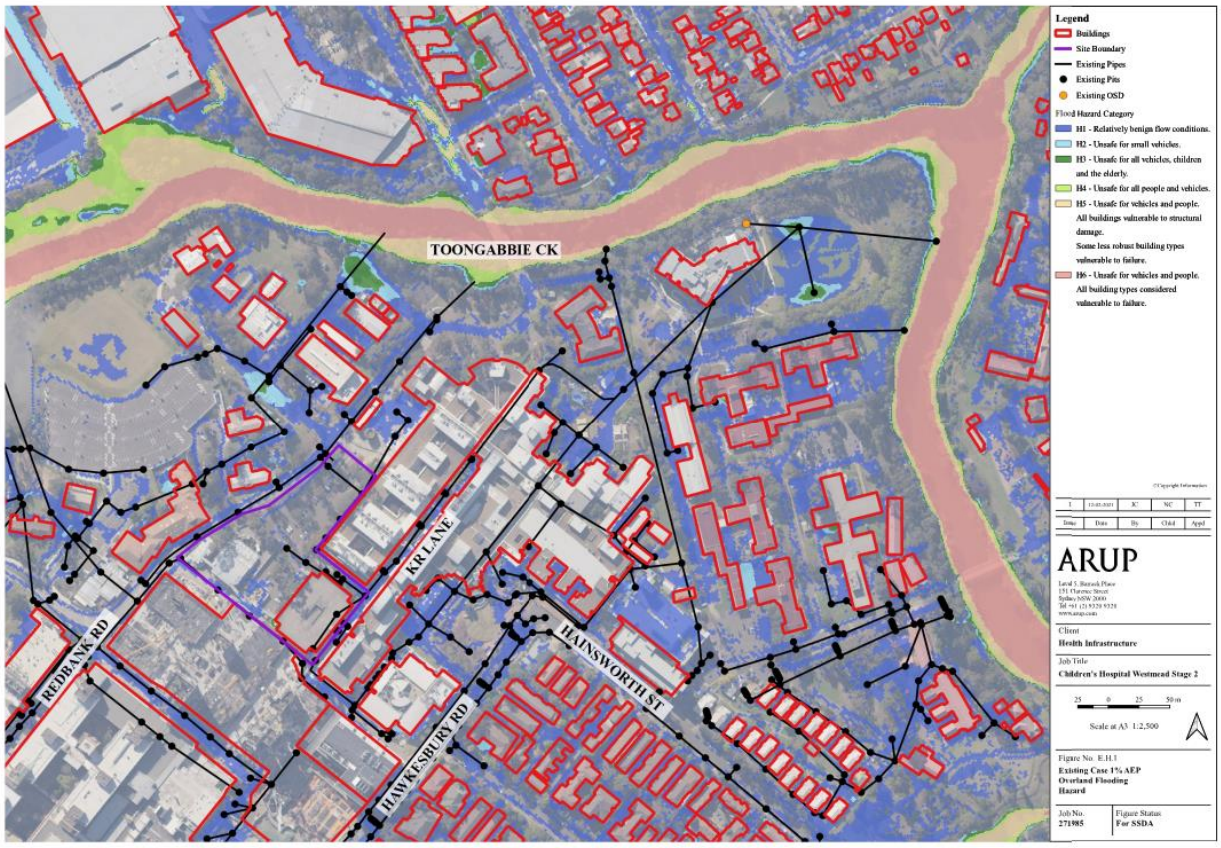
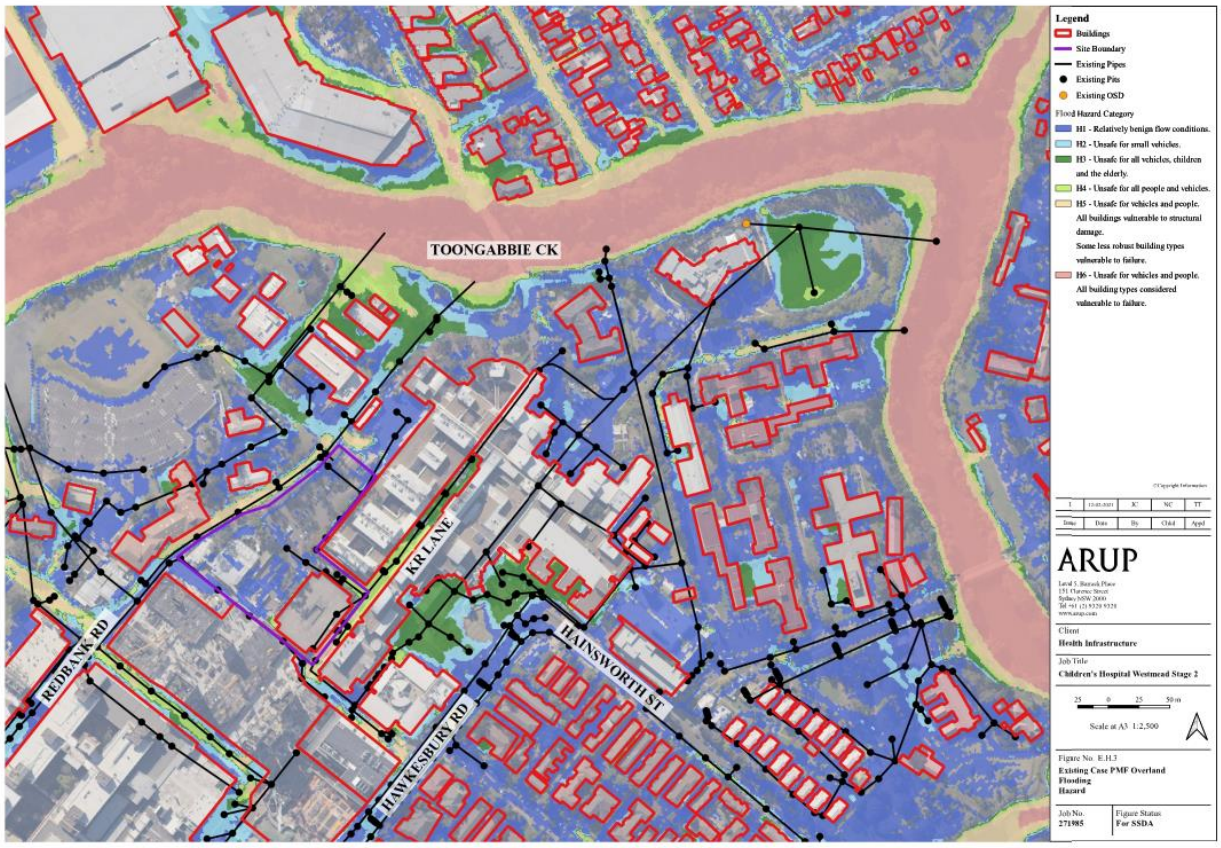
0.05 - 0.1
0.1 - 0.3
0.3 - 0.5
0.5 - 1
> 1
Notes:
1. The riverine flooding shown excludes local catchment runoff
ARUP
Client
Health Infrastructure
Job Title
Children's Hospital Westmead Stage 2
Scale at A3 1:2,500
Figure No. E.D.8
Existing Case PMF Riverine Flooding
Peak Flood Depths and Levels
Job No.
271985
Figure Status
For SSDA

Appendix B – PSB Flood Hazards (1% AEP and PMF Flood Cases)

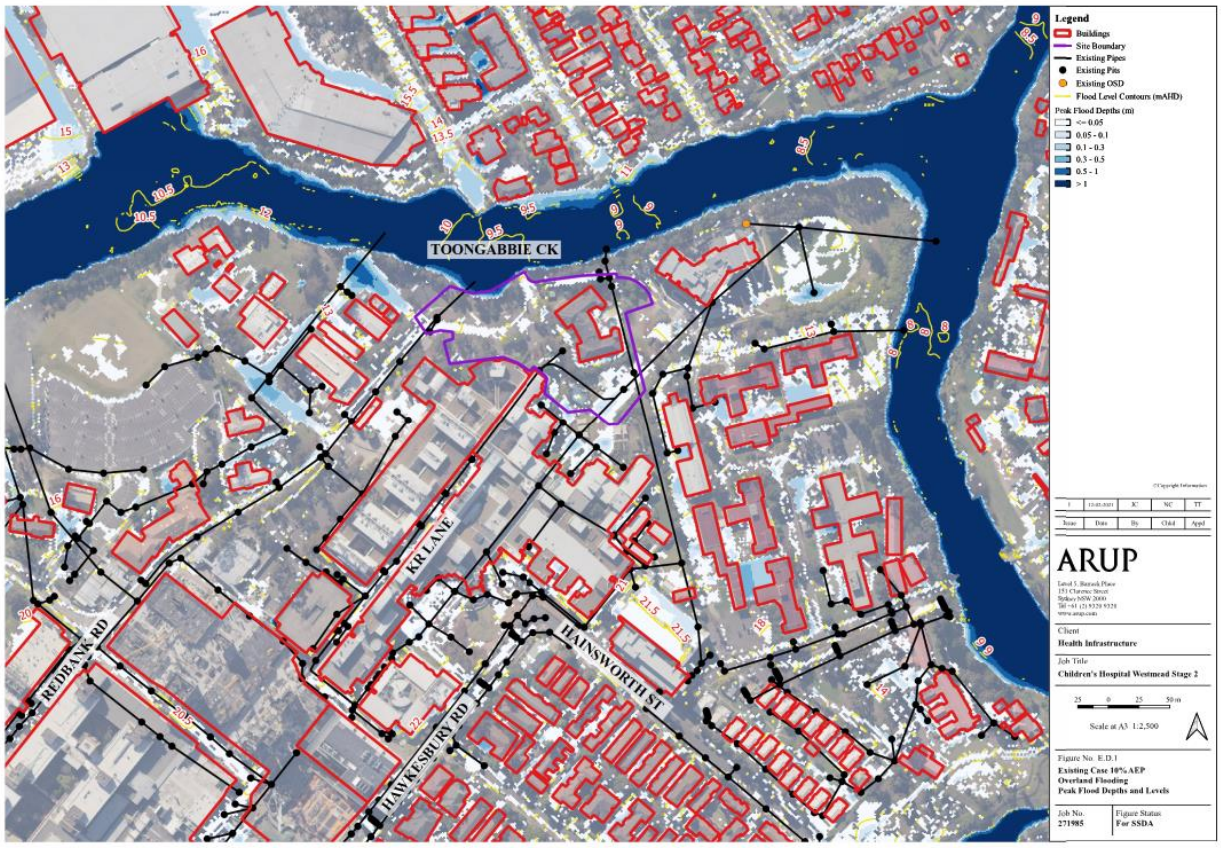

TOONGABBIE CK
KR LANE
HAINSWORTH ST
REDBANK RD
HAWKESBURY RD
Legend
Buildings
Site Boundary
Existing Pipes
Existing Pits
Existing OSD
Flood Hazard Category
H1 - Relatively benign flow conditions.
H2 - Unsafe for small vehicles.
H3 - Unsafe for all vehicles, children and the elderly.
H4 - Unsafe for all people and vehicles.
H5 - Unsafe for vehicles and people. All buildings vulnerable to structural damage. Some less robust building types vulnerable to failure.
H6 - Unsafe for vehicles and people. All building types considered vulnerable to failure.
ARUP
Client
Health Infrastructure
Job Title
Children's Hospital Westmead Stage 2
Scale at A3 1:2,500
Figure No. E.H.1
Existing Case 1% AEP Overland Flooding Hazard
Job No. 271985
Figure Status For SSDA

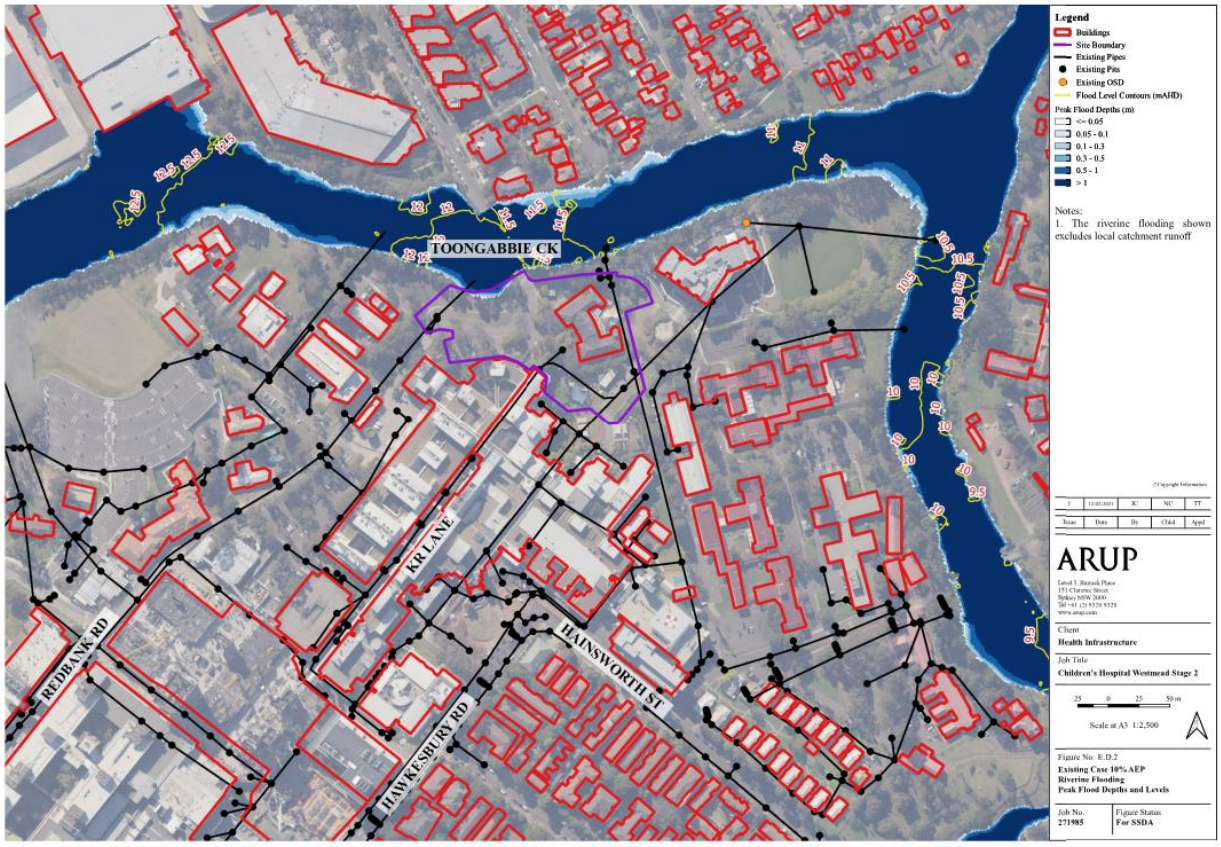

TOONGABBIE CK
KR LANE
HAINSWORTH ST
REDBANK RD
HAWKESBURY RD
Legend
Buildings
Site Boundary
Existing Pipes
Existing Pits
Existing OSD
Flood Hazard Category
H1 - Relatively benign flow conditions.
H2 - Unsafe for small vehicles.
H3 - Unsafe for all vehicles, children and the elderly.
H4 - Unsafe for all people and vehicles.
H5 - Unsafe for vehicles and people. All buildings vulnerable to structural damage. Some less robust building types vulnerable to failure.
H6 - Unsafe for vehicles and people. All building types considered vulnerable to failure.
Notes:
1. The riverine flooding shown excludes local catchment runoff
ARUP
Client
Health Infrastructure
Job Title
Children's Hospital Westmead Stage 2
Scale at A3 1:2,500
Figure No. E.H.2
Existing Case 1% AEP Riverine Flooding Hazard
Job No. 271985
Figure Status For SSDA

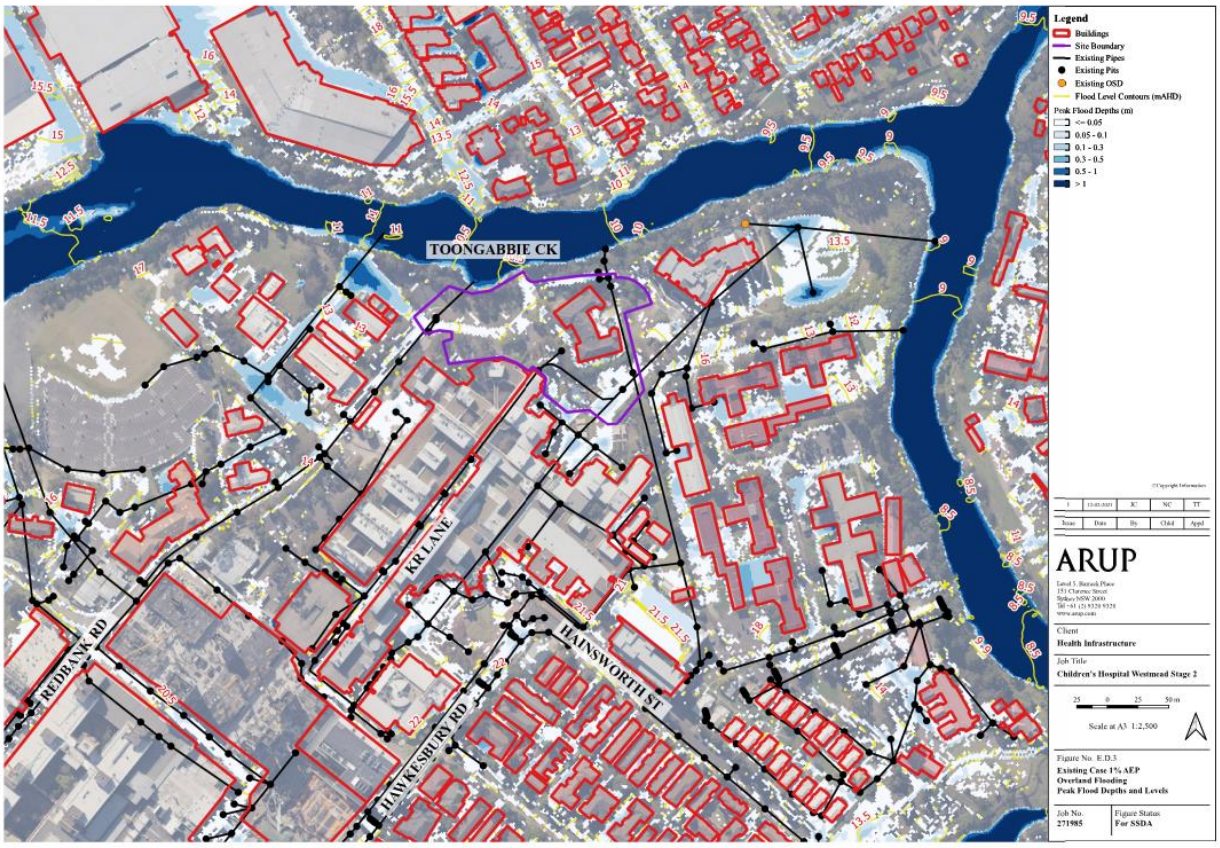

TOONGABBIE CK
K R LANE
HAINSWORTH ST
REDBANK RD
HAWKESBURY RD
Legend
Buildings
Site Boundary
Existing Pipes
Existing Pits
Existing OSD
Flood Hazard Category
H1 - Relatively benign flow conditions.
H2 - Unsafe for small vehicles.
H3 - Unsafe for all vehicles, children and the elderly.
H4 - Unsafe for all people and vehicles.
H5 - Unsafe for vehicles and people. All buildings vulnerable to structural damage. Some less robust building types vulnerable to failure.
H6 - Unsafe for vehicles and people. All building types considered vulnerable to failure.
ARUP
Client
Health Infrastructure
Job Title
Children's Hospital Westmead Stage 2
Scale at A3 1:2,500
Figure No. E.H.3
Existing Case PMF Overland Flooding Hazard
Job No. 271985
Figure Status For SSDA

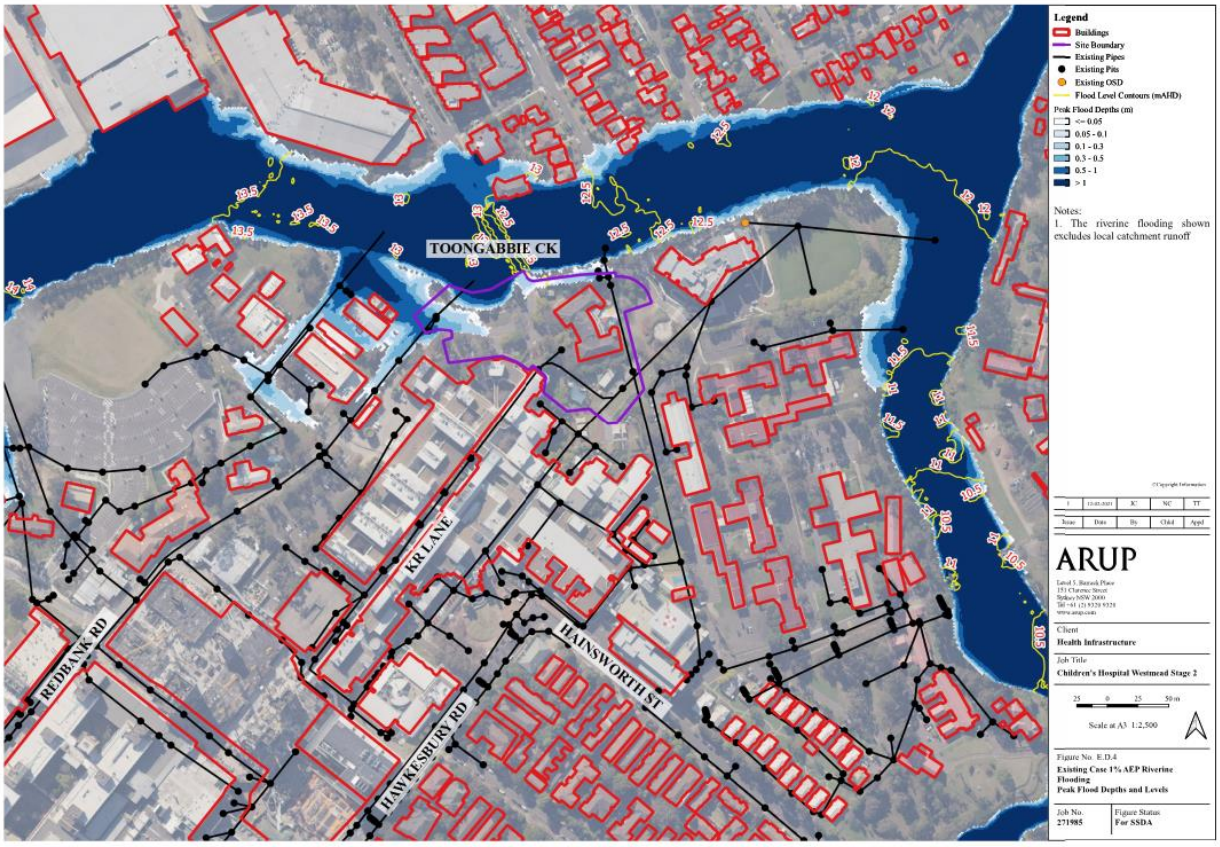

TOONGABBIE CK
K R LANE
HAINSWORTH ST
REDBANK RD
HAWKESBURY RD
Legend
Buildings
Site Boundary
Existing Pipes
Existing Pits
Existing OSD
Flood Hazard Category
H1 - Relatively benign flow conditions.
H2 - Unsafe for small vehicles.
H3 - Unsafe for all vehicles, children and the elderly.
H4 - Unsafe for all people and vehicles.
H5 - Unsafe for vehicles and people. All buildings vulnerable to structural damage. Some less robust building types vulnerable to failure.
H6 - Unsafe for vehicles and people. All building types considered vulnerable to failure.
Notes:
1. The riverine flooding shown excludes local catchment runoff
ARUP
Client
Health Infrastructure
Job Title
Children's Hospital Westmead Stage 2
Scale at A3 1:2,500
Figure No. E.H.4
Existing Case PMF Riverine Flooding Hazard
Job No. 271985
Figure Status For SSDA

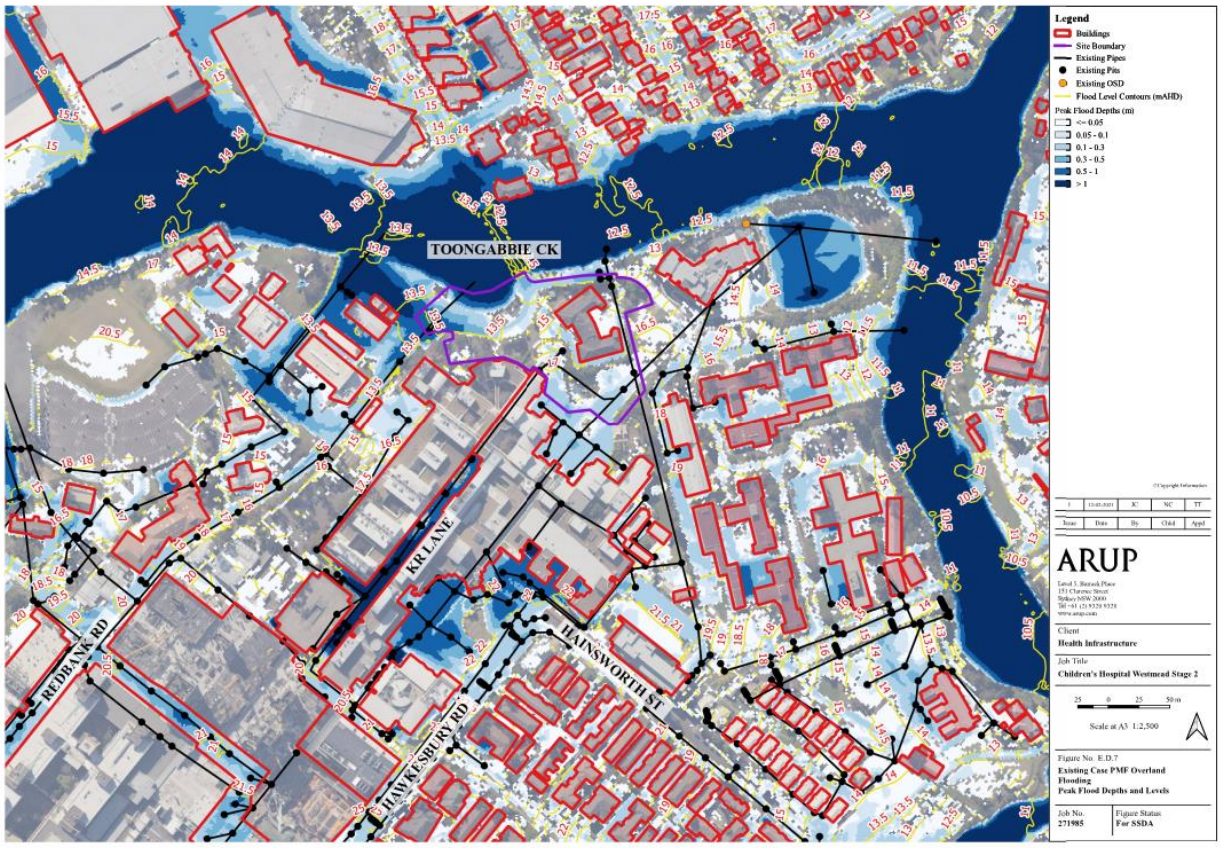
Appendix C – MSCP Peak Flood Depths & Levels (10% AEP, 1% AEP and PMF Flood Cases)

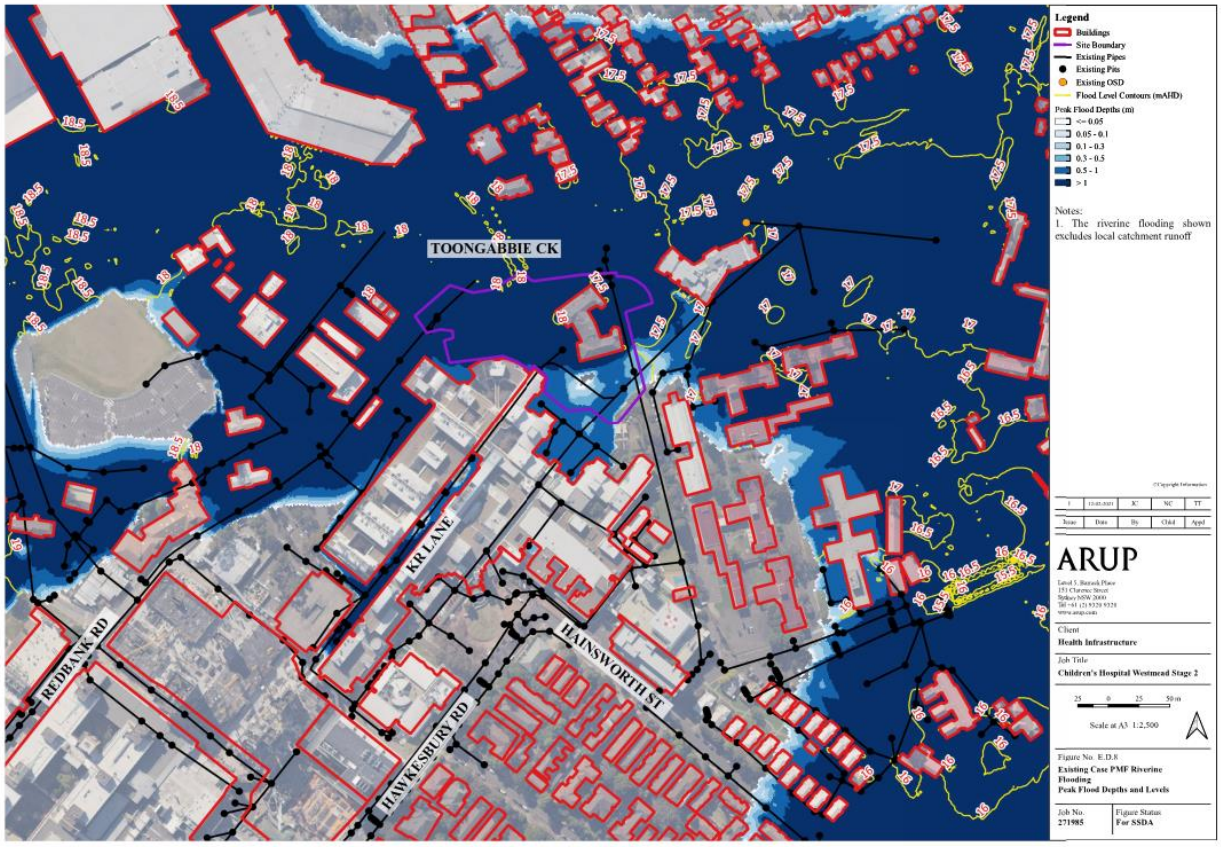

TOONGABBIE CK
KR LANE
HAINSWORTH ST
REDBANK RD
HAWKESBURY RD
Legend
Buildings
Site Boundary
Existing Pipes
Existing Pits
Existing OSD
Flood Level Contours (mAHD)
Peak Flood Depths (m)
<= 0.05
0.05 - 0.1
0.1 - 0.3
0.3 - 0.5
0.5 - 1
> 1
ARUP
Client
Health Infrastructure
Job Title
Children's Hospital Westmead Stage 2
Scale at A3 1:2,500
Figure No. E.D.1
Existing Case 10% AEP
Overland Flooding
Peak Flood Depths and Levels
Job No.
271985
Figure Status
For SSDA


TOONGABBIE CK
KR LANE
HAINSWORTH ST
REDBANK RD
HAWKESBURY RD
Legend
Buildings
Site Boundary
Existing Pipes
Existing Pits
Existing OSD
Flood Level Contours (mAHD)
Peak Flood Depths (m)
<= 0.05
0.05 - 0.1
0.1 - 0.3
0.3 - 0.5
0.5 - 1
> 1
Notes:
1. The riverine flooding shown excludes local catchment runoff
ARUP
Client
Health Infrastructure
Job Title
Children's Hospital Westmead Stage 2
Scale at A3 1:2,500
Figure No. E.D.2
Existing Case 10% AEP
Riverine Flooding
Peak Flood Depths and Levels
Job No.
271985
Figure Status
For SSDA

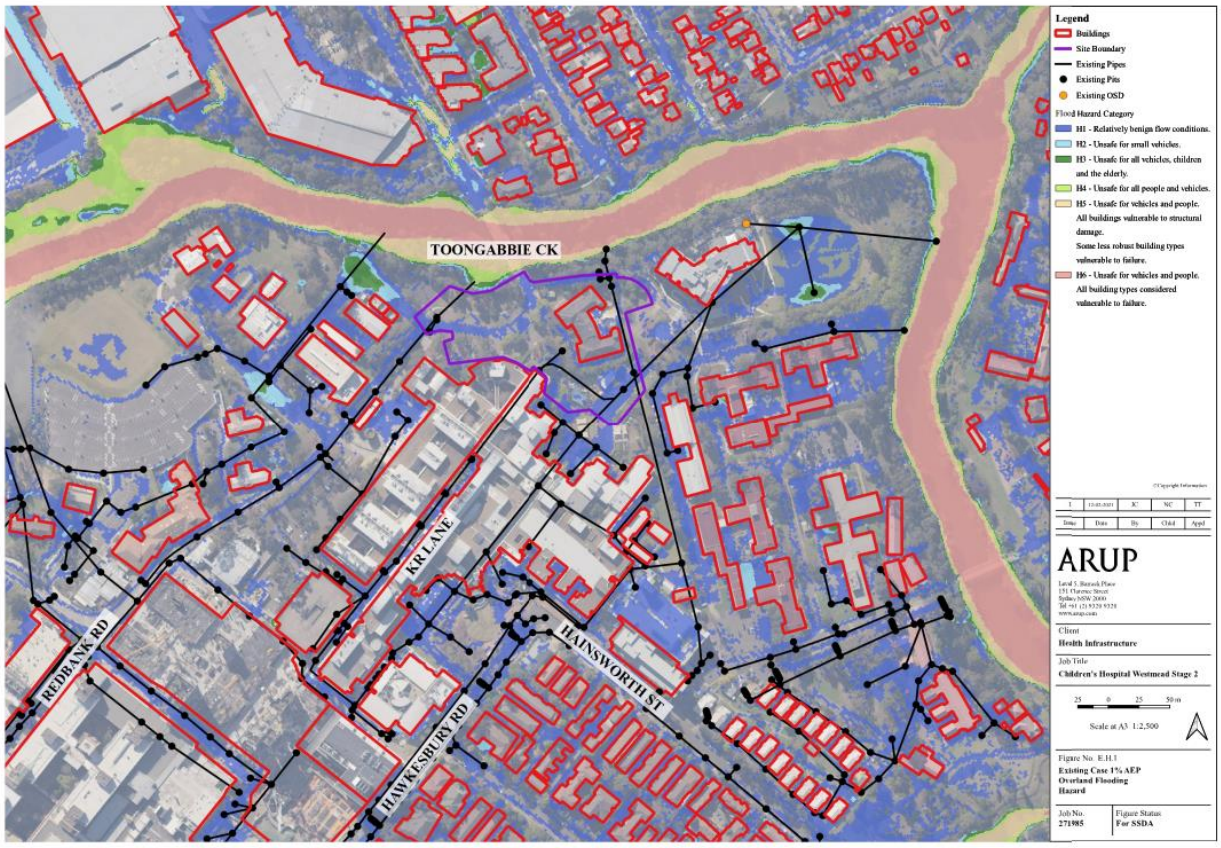

TOONGABBIE CK
KR LANE
HAINSWORTH ST
REDBANK RD
HAWKESBURY RD
Legend
Buildings
Site Boundary
Existing Pipes
Existing Pits
Existing OSD
Flood Level Contours (mAHD)
Peak Flood Depths (m)
<= 0.05
0.05 - 0.1
0.1 - 0.3
0.3 - 0.5
0.5 - 1
> 1
ARUP
Client
Health Infrastructure
Job Title
Children's Hospital Westmead Stage 2
Scale at A3 1:2,500
Figure No. E.D.3
Existing Case 1% AEP
Overland Flooding
Peak Flood Depths and Levels
Job No.
271985
Figure Status
For SSDA


TOONGABBIE CK
KR LANE
HAINSWORTH ST
REDBANK RD
HAWKESBURY RD
Legend
Buildings
Site Boundary
Existing Pipes
Existing Pits
Existing OSD
Flood Level Contours (mAHD)
Peak Flood Depths (m)
<= 0.05
0.05 - 0.1
0.1 - 0.3
0.3 - 0.5
0.5 - 1
> 1
Notes:
1. The riverine flooding shown excludes local catchment runoff
ARUP
Client
Health Infrastructure
Job Title
Children's Hospital Westmead Stage 2
Scale at A3 1:2,500
Figure No. E.D.4
Existing Case 1% AEP Riverine Flooding
Peak Flood Depths and Levels
Job No.
271985
Figure Status
For SSDA

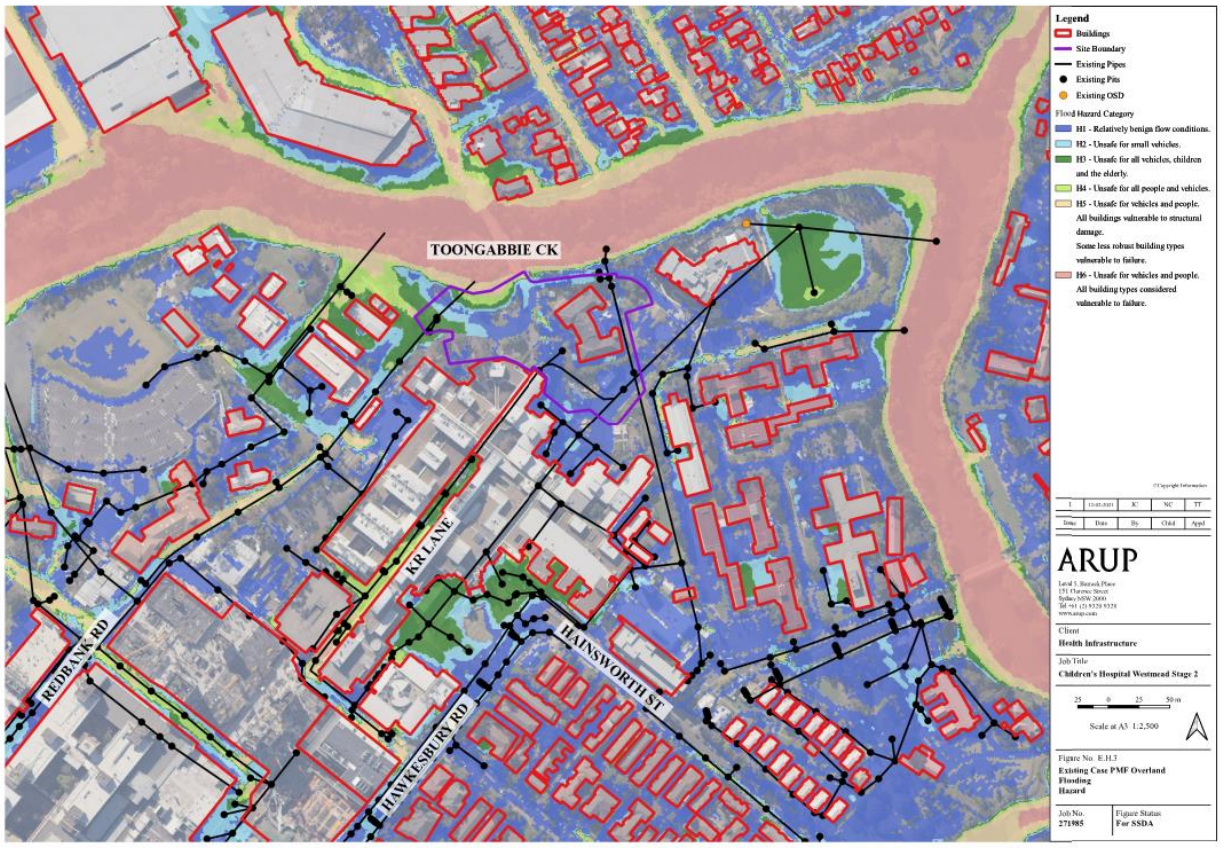

TOONGABBIE CK
KR LANE
HAINSWORTH ST
REDBANK RD
HAWKESBURY RD
Legend
Buildings
Site Boundary
Existing Pipes
Existing Pits
Existing OSD
Flood Level Contours (mAHD)
Peak Flood Depths (m)
<= 0.05
0.05 - 0.1
0.1 - 0.3
0.3 - 0.5
0.5 - 1
> 1
ARUP
Client
Health Infrastructure
Job Title
Children's Hospital Westmead Stage 2
Scale at A3 1:2,500
Figure No. E.D.7
Existing Case PMF Overland Flooding
Peak Flood Depths and Levels
Job No.
271985
Figure Status
For SSDA


TOONGABBIE CK
KR LANE
HAINSWORTH ST
REDBANK RD
HAWKESBURY RD
Legend
Buildings
Site Boundary
Existing Pipes
Existing Pits
Existing OSD
Flood Level Contours (mAHD)
Peak Flood Depths (m)
<= 0.05
0.05 - 0.1
0.1 - 0.3
0.3 - 0.5
0.5 - 1
> 1
Notes:
1. The riverine flooding shown excludes local catchment runoff
ARUP
Client
Health Infrastructure
Job Title
Children's Hospital Westmead Stage 2
Scale at A3 1:2,500
Figure No. E.D.8
Existing Case PMF Riverine Flooding
Peak Flood Depths and Levels
Job No.
271985
Figure Status
For SSDA

Appendix D – MSCP Flood Hazards (1% AEP and PMF Flood Cases)


TOONGABBIE CK
K R LANE
HAINSWORTH ST
REDBANK RD
HAWKESBURY RD
Legend
Buildings
Site Boundary
Existing Pipes
Existing Pits
Existing OSD
Flood Hazard Category
H1 - Relatively benign flow conditions.
H2 - Unsafe for small vehicles.
H3 - Unsafe for all vehicles, children and the elderly.
H4 - Unsafe for all people and vehicles.
H5 - Unsafe for vehicles and people. All buildings vulnerable to structural damage. Some less robust building types vulnerable to failure.
H6 - Unsafe for vehicles and people. All building types considered vulnerable to failure.
ARUP
Client
Health Infrastructure
Job Title
Children's Hospital Westmead Stage 2
Scale at A3 1:2,500
Figure No. E.H.1
Existing Case 1% AEP Overland Flooding Hazard
Job No. 271985
Figure Status For SSDA


TOONGABBIE CK
K R LANE
HAINSWORTH ST
REDBANK RD
HAWKESBURY RD
Legend
Buildings
Site Boundary
Existing Pipes
Existing Pits
Existing OSD
Flood Hazard Category
H1 - Relatively benign flow conditions.
H2 - Unsafe for small vehicles.
H3 - Unsafe for all vehicles, children and the elderly.
H4 - Unsafe for all people and vehicles.
H5 - Unsafe for vehicles and people. All buildings vulnerable to structural damage. Some less robust building types vulnerable to failure.
H6 - Unsafe for vehicles and people. All building types considered vulnerable to failure.
Notes:
1. The riverine flooding shown excludes local catchment runoff
ARUP
Client
Health Infrastructure
Job Title
Children's Hospital Westmead Stage 2
Scale at A3 1:2,500
Figure No. E.H.2
Existing Case 1% AEP Riverine Flooding Hazard
Job No. 271985
Figure Status For SSDA


TOONGABBIE CK
K R LANE
HAINSWORTH ST
REDBANK RD
HAWKESBURY RD
Legend
Buildings
Site Boundary
Existing Pipes
Existing Pits
Existing OSD
Flood Hazard Category
H1 - Relatively benign flow conditions.
H2 - Unsafe for small vehicles.
H3 - Unsafe for all vehicles, children and the elderly.
H4 - Unsafe for all people and vehicles.
H5 - Unsafe for vehicles and people. All buildings vulnerable to structural damage. Some less robust building types vulnerable to failure.
H6 - Unsafe for vehicles and people. All building types considered vulnerable to failure.
ARUP
Client
Health Infrastructure
Job Title
Children's Hospital Westmead Stage 2
Scale at A3 1:2,500
Figure No. E.H.3
Existing Case PMF Overland Flooding Hazard
Job No. 271985
Figure Status For SSDA


TOONGABBIE CK
K R LANE
HAINSWORTH ST
REDBANK RD
HAWKESBURY RD
Legend
Buildings
Site Boundary
Existing Pipes
Existing Pits
Existing OSD
Flood Hazard Category
H1 - Relatively benign flow conditions.
H2 - Unsafe for small vehicles.
H3 - Unsafe for all vehicles, children and the elderly.
H4 - Unsafe for all people and vehicles.
H5 - Unsafe for vehicles and people. All buildings vulnerable to structural damage. Some less robust building types vulnerable to failure.
H6 - Unsafe for vehicles and people. All building types considered vulnerable to failure.
Notes:
1. The riverine flooding shown excludes local catchment runoff
ARUP
Client
Health Infrastructure
Job Title
Children's Hospital Westmead Stage 2
Scale at A3 1:2,500
Figure No. E.H.4
Existing Case PMF Riverine Flooding Hazard
Job No. 271985
Figure Status For SSDA

Appendix E – Peer review conducted by Northrop

Danielle.Simpson

From: Angus Brien <ABrien@northrop.com.au>
Sent: Tuesday, 12 July 2022 9:28 AM
To: Danielle.Simpson
Cc: Danny.Khal; Mathew Richards; Laurence Gitzel
Subject: RE: CHW Stage 2 Enabling Works - Peer Review of Environmental Plans - FERSP
Attachments: Angus Brien - Flooding CV.pdf

Thanks Danielle.

No further comments. Please see CV attached.

Cheers.

Angus Brien
Principal | Flood Engineer

Northrop Consulting Engineers
T 02 4943 1777 **M** 0413 358 531
Level 1, 215 Pacific Highway Charlestown NSW 2290
PO Box 180 Charlestown NSW 2290
www.northrop.com.au

From: Danielle.Simpson <danielle.simpson@fordcivil.com.au>
Sent: Tuesday, 12 July 2022 9:10 AM
To: Angus Brien <ABrien@northrop.com.au>
Cc: Danny.Khal <Danny.Khal@fordcivil.com.au>; Mathew Richards <MRichards@northrop.com.au>; Laurence Gitzel <LGitzel@northrop.com.au>
Subject: RE: CHW Stage 2 Enabling Works - Peer Review of Environmental Plans - FERSP

Thanks Angus,

Please find attached revised plan as per the comments sent through yesterday.

Can you please confirm that you are satisfied with the amendments and that all comments are now closed?

If you could please also send through your CV to satisfy that the plan was peer reviewed by a suitably qualified person that would be greatly appreciated.

Thanks,

DANIELLE SIMPSON

M 0411 302 181
E danielle.simpson@fordcivil.com.au
P 02 9597 4122
F 02 9597 4966
A 9 Hattersley Street, Arncliffe NSW, 2205
PO BOX 26, Arncliffe NSW, 2205
fordcivil.com.au

REMEDIATION BULK I
INFRASTRUCTURE ENVIRI

Ford Civil Contracting Pty Ltd
Experience You Can Trust

From: Angus Brien <ABrien@northrop.com.au>
Sent: Monday, 11 July 2022 10:20 AM
To: Danielle.Simpson <danielle.simpson@fordcivil.com.au>
Cc: Danny.Khal <Danny.Khal@fordcivil.com.au>; Mathew Richards <MRichards@northrop.com.au>; Benjamin Lawrence <BLawrence@northrop.com.au>; Laurence Gitzel <LGitzel@northrop.com.au>
Subject: RE: CHW Stage 2 Enabling Works - Peer Review of Environmental Plans - FERSP

Thanks Danielle,

Please see attached with minor comments for your consideration.

Kind regards,

Angus Brien
Principal | Flood Engineer

Northrop supports working flexibly as it encourages inclusiveness throughout our industry

Northrop Consulting Engineers
T 02 4943 1777 **M** 0413 358 531
Level 1, 215 Pacific Highway Charlestown NSW 2290
PO Box 180 Charlestown NSW 2290
www.northrop.com.au

From: Danielle.Simpson <danielle.simpson@fordcivil.com.au>
Sent: 23 June 2022 08:53
To: Angus Brien <ABrien@northrop.com.au>
Cc: Danny.Khal <Danny.Khal@fordcivil.com.au>; Mathew Richards <MRichards@northrop.com.au>; Benjamin Lawrence <BLawrence@northrop.com.au>; Laurence Gitzel <LGitzel@northrop.com.au>
Subject: RE: CHW Stage 2 Enabling Works - Peer Review of Environmental Plans - FERSP

Hi Angus,

Hope you've been well.

Thanks for completing the review of the Flood Emergency Response Sub Plan. Apologies for the slow response.

This has now been updated as per your comments. Refer to revision C attached.

I have also included rev B with close out comments (in blue) and the word file with tracked changes for ease of review. These can be found in the following link:
https://fordcivilcontracting.sharepoint.com/:f:/s/WENAB2/ElTvPCCJNsZAtQpCmZbGtcIBsNfMqRuq9l24Q51zpMqzOA?e=4gySRX

If you could please review the revised plan and confirm if you are satisfied with the responses that would be greatly appreciated.

If you require any further clarifications, please let me know.

Thanks,

DANIELLE SIMPSON

M 0411 302 181
E danielle.simpson@fordcivil.com.au
P 02 9597 4122
F 02 9597 4966
A 9 Hattersley Street, Arncliffe NSW, 2205
PO BOX 26, Arncliffe NSW, 2205
fordcivil.com.au

REMEDIATION BULK I
INFRASTRUCTURE ENVIRI

Ford Civil Contracting Pty Ltd
Experience You Can Trust

From: Angus Brien <ABrien@northrop.com.au>
Sent: Thursday, 7 April 2022 5:13 PM
To: Danielle.Simpson <danielle.simpson@fordcivil.com.au>
Cc: Danny.Khal <Danny.Khal@fordcivil.com.au>; Mathew Richards <MRichards@northrop.com.au>; Miguel Canas <Miguel.Canas@fordcivil.com.au>; Benjamin Lawrence <BLawrence@northrop.com.au>; Laurence Gitzel <LGitzel@northrop.com.au>
Subject: RE: CHW Stage 2 Enabling Works - Peer Review of Environmental Plans

Hi Danielle,

Hope you are well.

Please see marked up document attached. I consider the plan does not satisfy the requirements of condition B20 because –

- There is no reference to flood levels or warning times.
- There are no references to appropriate evacuation routes.
- There are no triggers for the response protocols (who does what and when).

I believe the majority of the data is available in the flood impact assessment figures and I have included some examples of plans we have previously prepared for other projects.

Please feel free to give me a call to discuss if required.

Kind regards,

Angus Brien
Principal | Flood Engineer

Northrop Consulting Engineers
T 02 4943 1777 **M** 0413 358 531
Level 1, 215 Pacific Highway Charlestown NSW 2290
PO Box 180 Charlestown NSW 2290
www.northrop.com.au

Angus Brien

Civil Engineer

BEng (Civil) (Hons) MIEAust Member SIA FMA

Angus Brien has over fifteen years engineering experience in the private and local government sectors. He is familiar with a range a software packages, including the two dimensional flood modelling software – TUFLOW and XP-STORM. Other programs include HEC-RAS for one dimensional river simulations, XP-RAFTS for hydrological modelling, MUSIC for water quality modelling and DRAINS for stormwater management.

Angus has recently completed a number of flood and drainage studies on difficult sites, each presenting unique challenges for water management. He is passionate about developing and delivering technically robust solutions that balance key economic, social and environmental considerations.

Project Experience

O'Connell Street Flood Emergency Response Plan

Northrop prepared documentation for the temporary school at O'Connell Street, Parramatta. This site was impact by flooding from the Parramatta River in events rarer than the 1% AEP. A Flood Emergency Repsonse Plan was developed for the school to make staff and students aware of the existing flood risk, who was responsible for coordinating the response and what to do in the event of a flood.

Angus was responsible for preparing the flood emergency response plan and liaising with Council and a peer reviewer.

Red Gables Road Bridge

Northrop was commissioned to undertake the flood modelling component of The Gables subdivision. Red Gables Road bridge was required to cross the new riparian corridor adjacent to the town centre. TUFLOW was used as part of this process to estimate the peak flow reaching the bridge and modelling the afflux and flow behaviour through the bridge in various recurrence intervals.

Angus's role on this project was lead flood modeller and he was responsible for the documentation of the flood reports to Council and provision of velocities and levels to the structural design team.

Bar Beach Avenue Stormwater Infrastructure Improvements

Northrop was commissioned to provide drainage upgrade advice to The City of Newcastle at Bar Beach, Mereweather. Angus collected data available from Council and undertook site visits to collect additional information where necessary. An XP-STORM model was used to assess the performance of the existing drainage system and recommend improvements.

Angus's role on this project was lead modeller and client liaison.

The Gables Main Lake and Basin

Northrop was commissioned to provide flood modelling for The Gables subdivision, located in north western Sydney. This included the modelling of an approximately 650ML lake and flood attenuation basin at the centrepiece of the development. Modelling was undertaken in TUFLOW and dam break and safety assessment was undertaken through consideration of ANCOLD guidelines.