

## Preliminary Construction Management Plan – EW3- Molecular Imaging Plant Room (REF6)

**RPAH Redevelopment** 

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### **Document Approval**

Rev.	Date	Prepared by	Reviewed by	Approved by	Remarks
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### **Details of Revision Amendments**

### **Document Control**

The Project Manager is responsible for ensuring that this plan is reviewed and approved. The Project Construction Manager is responsible for updating this plan to reflect changes to construction, legal and other requirements, as required.

### Amendments

Any revisions or amendments must be approved by the Project Manager and/or client before being distributed / implemented.

### **Revision Details**

Revision	Details
А	Drafted for the REF

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### 1. Purpose

This Preliminary Construction Management Plan has been prepared to support a Review of Environmental Factors (REF) on behalf of Health Infrastructure for the package of works outlined in Section 2.1 as part of the Royal Prince Alfred (RPA) Hospital Redevelopment.

This Plan has been drafted to outline preliminary parameters for site management practices during construction and is intended to provide sufficient information to support the REF, prior to planning approval, design finalisation and engagement of specialised subcontractors.

It is noted that it is the responsibility of the Contractor to prepare detailed Environmental and Site Management Plans in accordance with the REF, for approval and implementation during construction.

### 2. Introduction

### 2.1 Overview and Proposed Works

The proposed activity is part of a suite of campus wide infrastructure upgrades to occur in the near future.

The proposed Molecular Imaging Plantroom works comprises the following construction activities:

- Removal of existing Level 6 mechanical plant and making good to extent shown on the drawings.
- Penetrations for new services within the plant room.
- Waterproofing of existing slab
- Building interface works to the existing adjacent campus buildings where impacted.
- Construction of new structure for lightweight steel roof, gutter, and fascia works.
- Construction of new façade enclosure to plant room with a steel frame and metal stud framing.
- New façade system with the inclusion of solid aluminium cassette cladding and acoustic louvres.
- New construction of fire rated walls.
- Finishes and services within plant room as required.



Figure 1 New Level 06 Plantroom on the RPA Hospital Campus

### 2.2 Site and Locality Description

The RPA campus is located in Sydney's inner west suburb of Camperdown. It is situated between Sydney University to the east and the residential area of Camperdown to the west. The campus is divided by Missenden Road, which runs north to south dividing the campus into two distinct portions, called East Campus and West Campus. The northern boundary of the campus is defined by the Queen Elizabeth II Rehabilitation Centre and the southern extent of the campus is defined by Carillon Avenue.



Figure 2 RPA Hospital Campus

RPA incorporates a diverse range of operations including research, education, student housing, acute quaternary health services, as well as healthcare in both private and public domains. The larger precinct is defined by the Sydney Innovation Precinct for Health Education Research (SIPfHER) and is identified as an innovation and economic development zone for NSW.



Figure 3 RPA Hospital Buildings in relation to the SIPfHER

### 3. Key Participants / Stakeholders

The Project Organisational chart is as follows:





### 4. Indicative Programme

An indicative programme for the Works outlined in Section 2.1 is noted below. The Contractor will provide a detailed programme.

Milestone	Construction Duration	Indicative Program
Molecular Imaging Plant Room	52 weeks	May 2026 – April 2027

### 5. Operating Hours and Contacts

### 5.1 **Proposed Site Working Hours**

Due to the nature of the scope, the work is proposed to be completed with extended working hours as below:

Day	Standard Construction Hours	Proposed Construction Hours
Mon-Fri	7am to 6pm	7am to 6pm + OOHW as required for access
Saturday	8am to 1pm	7am to 1pm + OOHW as required for access
Sunday and Public Holiday	No work	No work other than OOHW as required for access

Some works such as connecting and disconnecting services and works that are considered disruptive may need to be completed during certain hours, beyond the limitations above, to ensure minimal impact on hospital operations. These works are to be planned in consultation with stakeholders and subject to Disruption Notice applications to ensure all aspects of the works are clearly understood by all parties to minimise disruption.

### 5.2 Contact Details

The Principal Contractor will identify the key points of contact that will be co-coordinating all on site construction related activities. Key points of contact at this stage are:

Alasdair Dunlop: Senior Project Manager, TSA Management

Email address: alasdair.dunlop@tsamgt.com

### 5.3 Complaints / Concerns

Complaints or concerns that residents, hospital users/staff or members of the public have with the site or any construction-related activity should be raised with the Project Manager.

### 6. Construction Methodology

This plan has been compiled for a REF application to provide a high-level overview of the delivery of the works. The plan will be further developed by the Principal Contractor as part of detailed site planning prior to commencing works. The CMP will then remain a 'live' document reflecting the site delivery parameters for the duration of the project. The Plan covers the below areas of management.

- Business Continuity Principles;
- The operations of site management when undertaking the works;
- Traffic/pedestrian management for the duration of the works;
- Work Health and Safety;
- Environmental Health and Safety;
- Infection Control Management;
- Services diversions;
- Air Quality;
- Dilapidation report.

### 7. Construction Activities

The works will take place in one distinct zone, being the Molecular Imaging Level 06 Plantroom.

The work itself is to be carried out on level 06 of building 89 (the roof of the Emergency department, which is a roof area only currently only accessible by CIE maintenance personnel.

Interface with the operating hospital will be required for the following construction activities:

- 1. Drilling into the level 06 slab for structural steel hold down bolt installation
- 2. Structural steel roof & metal roof installation to be carried out adjacent to live hospital areas (refer to Figure 6 New Molecular Imaging PlantroomFigure 6 showing the proximity of the new roofed area to existing live hospital departments.
- 3. Services shutdowns required to amalgamate the new services scope with existing hospital service infrastructure

These works will be carried out under Disruption Notice protocol and coordinated with the relevant stakeholders, as described in section 9.3, to ensure that impact on the hospital is minimised.





P01 - EXISTING PHOTO 1

### Figure 5 Adjacent to Live Hospital Areas

### Figure 6 New Molecular Imaging Plantroom

The construction of the molecular imaging plantrooms will be carried out in two stages.

These works will be carried out in conjunction with the broader Molecular Imaging department extension under the SSDA submission.

It is anticipated that up to 10 workers will be onsite during the peak construction period of this REF work scope.

The structural steel & roof installation will be carried out between the period December 2025 to June 2026 to utilise the SSD 4-7662959 works materials handling area and tower crane establishment. All deliveries will be carried out within the confines of the construction hoarding established for the SSDA works.



Figure 7 Delivery area and tower cranage establishment under SSD-47662959 will be used to install the structural steel & metal clad roof of the Molecular Imaging Plantroom

The façade, services & finishes install will be carried out post decant of the Emergency Department in early 2027. A construction zone will be established on John Hopkins Drive to accept material deliveries to service this portion of the works. Deliveries will be managed to ensure minimal impact on hospital vehicle and pedestrian traffic.



Figure 8 Construction site establishment methods under SSD-47662959 will be used to install the façade, services and finishes of the Molecular Imaging Plantroom

### 8. Business Continuity Principles

The Works will be undertaken within a live health care environment. The Contractor will be responsible for the staging and sequencing of construction works in order to minimise the impact to the existing operations of the RPA Hospital and greater campus.

Key principles include:

- The works will be taking place in an operating hospital environment for the duration of the works. Enable hospital operations on the RPA Hospital campus to continue to operate at full capacity during the construction works
- Separation of construction works from hospital operations to ensure:
  - o The safety of hospital staff, patients and visitors
  - Segregation of construction activities to minimise impacts to hospital operations including departments above and below proposed works
- The hospital operations shall not be disrupted through the works. This shall be completed through the staging and sequencing of works in order to maintain hospital operations at all times.
- Early Notice of Disruptions where disruptions such as noise, vibration, dust, services shutdowns, closure of pedestrian or vehicle paths/ access points, etc. are necessary, early notice must be provided to the Principal in accordance with the Disruption Notice process. The Contractor will provide minimum 10 working days' notice of disruption, however, shall socialise disruptions well in advance. Consultation will occur with the Principal, RPA/SLHD and all other relevant stakeholders to confirm an acceptable time/date/methodology for disruptions. Disruptions may be required to be completed outside of normal working hours.
- Infection Control ensure the infection control of the hospital is maintained. This includes
  external construction works on the campus and any locations of construction in the existing
  hospital environment. The infection control of existing facilities must not be compromised by
  construction works. Refer Section 13 of this document for more on Infection Control
  Management.
- Provision of temporary services/ measures to support disruptions where major disruptions are required such as service shut downs, or change of entry points, temporary arrangements such as alternative entry points, back up services, etc. shall be provided to the satisfaction of the Principal/ SLHD to facilitate the continued operation of the hospital. Refer Section 14 of this document for more on services diversions.
- Maintaining the compliance of all existing facilities during the works interface or connection with existing buildings or engineering system will be required. The Contractor must ensure the compliance and occupation of all existing facilities is maintained at all times.
- Maintain compliant access and egress pathways and if unable to do so, develop alternative pathways and the related documentation and notification of changes (e.g. update egress maps if fire/ evacuation pathways are altered).

### 9. Site Management

The works will be undertaken by a Principal Contractor. All statements and proposals documented in this Preliminary Construction Management Plan will be further detailed, following REF approval, design finalisation, and engagement of specialised subcontractors, to ensure alignment with the proposed methodologies and construction staging of the Contractor. This includes details of site layout, and logistics, construction zones, plant equipment and machinery.

### 9.1 Legislative and Regulatory Requirements

The Works will be undertaken in accordance with the following legislative requirements and any others that must be complied with, as required:

- National Construction Code 2022 comprising the Building Code of Australia;
- Applicable Australian Standards;
- Protection of the Environment Operations Act 1997 and Regulations;
- Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (EPA);
- Environmentally Hazardous Chemicals Materials Act 1985;
- Protection of the Environment Administration Act 1991 and Regulations;
- Work, Health and Safety Act 2011 and relevant codes of practice and Standards;
- Work Health and Safety Regulation 2017;
- Code of Practice for the Safe Removal of Asbestos (NOHSC:2002(1998));
- Resource and Recovery Act 2001;
- Environmental Planning and Assessment Act 1979;
- Heritage Act 1977;
- Local Government Act 1993;
- Soil Conservation Act 1938;
- Biodiversity Conservation Act 2016;
- Australian Standard 4970-2009: Protection of Trees on Development Sites

### 9.2 Site Fencing, Public and Property Protection

The general principle is to separate construction areas of work from the public, hospital staff and visitors. Where there is a cross-over, this will be managed to ensure safety of all persons and equipment.

Appropriate hoarding/fencing (as specified in Australian Standards and SafeWork NSW requirements) will be installed to prevent public and staff access and to maintain security for the various areas of the works.

Site Notices will be erected at the boundary of the site. The site notices will include details of; Principal Contractor details, name of Site Manager and 24-hour contact number, approved hours of work, and details of the Principal and other appropriate stakeholders. Safety related statutory signage will also be erected on the boundary of the site in accordance with WorkCover requirements.

Site, precinct information and pedestrian signage and any temporary pedestrian measures required will be installed and maintained for the duration of the Works.

These public and property protection measures will be reviewed prior to site establishment at this location and during regular PCG meetings, to ensure alignment with proposed preferred methodologies and construction stage and to ensure that the safety of the public and staff is maintained at all times during the works.

Potential nuisance will be minimised to the occupiers of adjacent areas of the Hospital. Typically, works will be hoarded off and completely segregated from public interaction. When interacting with adjacent spaces, the Contractor will ensure strict compliance with pre agreed operational methodologies.

### 9.3 Disruption Notices

Any planned disruptions to hospital operations will be managed through the process of Disruption Notices (DNs). For such stoppages, the DN will describe the applicable works, timetable, issues and risk management plans.

DNs are submitted by the contractor to the Project Manager and SLHD stakeholders for approval in advance of works commencing (minimum ten days).

The Contractor shall (in consultation with the Project Manager) provide positive planning and communication through this process, including establishing a "Disruption and Shutdown Approval" process with an agreed format and regular meetings, communicated formally via email.

The Contractor shall give the Principal sufficient written notice of any operational service and infrastructure interruption or significantly noisy works (such as use jackhammers etc on Site), relating to or arising from the Works. The Contractor's responsibility or obligation to comply with all relevant codes will remain unaffected by the giving of any such notice.

### 9.4 Site Access and Accommodation

Site access is to be controlled by the Principal Contractor at all times.

Suitable site accommodation will be established nearby, in consultation with SLHD, and will be sure to minimise the impact on Rochester Rd and the existing compound operations.

### **10.** Traffic Management

### **Structural Steel & Roof Installation**

### Dec 2025 to June 2026

The structural steel & roof installation will be carried out between the period December 2025 to June 2026 to utilise the SSD 4-7662959 works materials handling area and tower crane establishment. All deliveries will be carried out within the confines of the construction hoarding established for the SSDA works.

CPB will have traffic control at the gate managing deliveries within the site



Figure 9 Traffic Control at the Delivery area and tower cranage establishment under SSD-47662959

### **Façade Services & Finishes**

### Jan 2027 to Dec 2027

The façade, services & finishes install will be carried out post decant of the Emergency Department in early 2027. A construction zone will be established on John Hopkins Drive to accept material deliveries to service this portion of the works. Deliveries will be managed to ensure minimal impact on hospital vehicle and pedestrian traffic.



### Figure 10 Traffic Control for the at the molecular imaging site establishment methods under SSD-47662959 will be used to install the façade, services and finishes

Prior to construction works commencing, the Principal Contractor will develop a Construction Pedestrian and Traffic Management Plan which will detail how traffic, pedestrian and cyclist access will be managed during the construction works.

Traffic flows and vehicle/pedestrian separation are a major consideration and pedestrian routes are to be maintained throughout construction. Traffic control personnel will be provided by the Principal Contractor during operating hours, or as advised by the Principal Contractor within their Construction Pedestrian and Traffic Management Plan.

Key issues for traffic, pedestrian and cyclist management during construction to be considered in the Construction Pedestrian and Traffic and Management Plan include, but is not limited to:

- Provide safe and uninterrupted access for pedestrians and vehicles accessing the construction site, hospital site;
- Ensure maximum safety of site personnel, pedestrians, cyclists, commuters, and drivers;
- Minimise environmental nuisance and impact as a result of construction traffic;
- Ensure construction traffic does not unduly interrupt existing traffic flows on the local road network;
- Safe operation of buses and other transport services during construction in adjacent roads;
- Have no vehicles arrive at the site, without prior arrangement, outside the approved working hours;
- Encourage site workers to utilise local public transport system and car sharing wherever possible;
- Timely and effective implementation of traffic management measures;
- Maintain access at all times for hospital and stakeholder's deliveries.

Pedestrian and vehicular movements into and around the site will be maintained, or alternate routes determined where necessary, and be defined by clear signage. Where necessary, physical traffic management personnel will be used to guide pedestrians and vehicles safely. The contractor may be required to plan for night works.

Temporary hoarding appropriate to the interaction between pedestrians and construction works (as per relevant codes and standards) will be constructed to prevent unauthorised access to the construction site. These hoardings and fences may be staged to allow for appropriate construction methodologies to be planned.

Deliveries to within the site will be managed through the existing road within the hospital as agreed with the Project Manager and SLHD. Relevant management controls to be implemented as required.

Materials will be staged and stored in such a way to promote a clear and safe work site. At all times, materials are to be stored safely within the work area or site compound. While loading and unloading vehicles, it will be clearly stated that vehicles must not obstruct roads, driveways and paths of egress from surrounding buildings or fire protection equipment.

Refer to the TIA that was prepared for REF 3 (ref sections 4.1 and 5 (attached) in

Appendix A- Traffic Impact Statement. The traffic management requirements for this REF application is consistent which is stage of work.

### 11. Work Health and Safety

### 11.1 General

The Contractor is responsible for the construction work at all times until the work is completed under the Contract and is engaged as principal contractor and manager and controller of the premises for the construction work under Clauses 293 and 298 of the Work Health and Safety Regulations (NSW) 2017 (WHS Regulations). The Contractor is authorised to exercise such authority of the person conducting a business or undertaking that is commissioning the construction project as is necessary to enable it to discharge the responsibilities of principal contractor and manager and controller of premises imposed by the Work Health and Safety Act (NSW) (WHS Act) and Chapter 6 of the WHS Regulations.

The Contractor will maintain accreditation under the Australian Government Building and Construction WHS Accreditation Scheme (the Scheme) established by the Building and Construction Industry Improvement Act 2005 (BCII Act) while building work (as defined in section 5 of the BCII Act) is carried out. The Contractor must comply with all conditions of Scheme accreditation.

### 11.2 Design

The Contractor will consider Safety in Design while completing the detailed design, and complete a handover to the Construction team prior to design finalisation.

### 11.3 WHS Management Plan

A Project WHS Management Plan NSW Government Work Health and Safety Management Systems and Auditing Guidelines 5th Edition (WHSMS Guidelines) and WHS Regulation will be implemented prior to commencing works.

### 11.4 Incident Reporting

Compliance with the WHS Act 2011 regarding incident reporting protocols will be maintained. The Principal will be notified immediately of any WHS Incidents.

### 12. Environmental Health and Safety

### 12.1 Environmental Impacts

A Construction Environmental Management Plan (CEMP) that complies with environmental legislation will be developed by the Principal Contractor. The CEMP will describe the environmental strategy, methods, controls, and requirements for the execution of the Works. It will stand alone as the master document for site environmental activities.

The primary aim and objective of the CEMP will be to provide a framework of procedures to minimise the impacts of the construction of the project on the environment. The environmental performance of the contractor will be monitored throughout the Works.

### 12.2 Incident Reporting

Ensure compliance with the notification and other requirements of the Protection of the Environment Operations Act 1997 (NSW) (POEO Act).

The Principal will be immediately notified of any pollution incident that may cause material harm to the environment, providing evidence that notification requirements of the POEO Act have been met, where applicable.

Details of any waste removed from the Site and not disposed of at a lawful facility will be reported immediately.

When requested, the Contractor will provide an incident investigation report, including identification of the cause of the incident and corrective actions taken, in the form directed.

### 12.3 Noise and Vibration Management

Noise from the construction site shall be managed in line with the requirements of the Interim Construction Noise Guidelines, EPA and Australian Standards. No machine work will occur outside the approved working hours set unless approval has been given through the DN and project OOHWA process.

As part of noise mitigation for the project, the contractor will be responsible for the management, checking of compliant maintenance regimes and statutory supervision of all equipment.

Guidelines for operational limits, identification of at-risk receivers and implementation of mitigation measures will be provided in a project Construction Noise and Vibration Management Plan. The objectives of the Construction Noise and Vibration Management Plan will be to:

- Ensure that the resultant noise levels from construction works are mitigated in line with the requirements outlined within the NSW DECC Interim Construction Noise Guideline;
- Ensure all equipment is appropriately selected and operated based upon the noise and vibration impacts of the plant;
- Ensure that construction works are monitored and controlled as to limit resultant vibration levels at surrounding vibration sensitive receivers to levels in line with relevant applicable guidelines and regulations; and
- Ensure construction methodologies adopted minimise the impact of noise, dust and vibration.

Reasonable and feasible mitigation methods (having regard to the use and operation of existing health facilities in close proximity to the *Site*) of noise and vibration control will be implemented throughout the construction process to ensure that the noise levels emanating from the Site during the Works are minimised.

### 12.4 Odour/ Fumes Control

Any potential odours, fumes/smoke associated with demolition and construction for the site will be assessed and minimised.

### 12.5 Waste Management and Recycling Principles

The Contractor will be required to recycle and reuse materials where possible. The contractor will be required to arrange for the sorting and recycling of waste materials and packaging to ensure maximum recycling is achieved. The contractor will be committed to achieving compliance with the EPA guidelines. Refer to Appendix B – Waste Management Plan.

### 13. Infection Control Management

Infection prevention and control strategies must be implemented throughout the hospital campus that are consistent with national guidelines, including the availability of hand gels, ready access to personal protective equipment and attention to finishes.

The Contractor will develop an Infection Control Management Plan to ensure that all members of the construction team have a full appreciation of the project, the risks of infection posed by construction activities and how to manage these risks. The Infection Control Management Plan will outline the Contractor's approach to identifying any infection control risks and details the measures required to address the risk of infection resulting from the construction works.

The Contractor will regularly consult with the Principal to identify any infection control measures required to address the risk of infection resulting from the construction works.

### 14. Services Diversions

During the works, services diversions will be undertaken. In general, the following principles must be followed when diverting services:

- Any required services diversions/disruptions will be undertaken with full coordination, development and input with relevant HI, SLHD and authority stakeholders and will only proceed with approval, via a Disruption Notice process and appropriate consultation with the relevant service providers.
- Impacts on the hospital will be kept to the absolute minimum, which may result in 'Out of Hours' work.
- At all-times patient care will be paramount and staff and visitor safety, access and security maintained.

### 15. Dilapidation Report

Prior to commencing the works onsite and at completion, the Principal Contractor will generate a Pre and Post Dilapidation Report. It is the Contractor's responsibility to ensure the report considers all areas reasonably impacted by the works. At a minimum the reports will consider the following areas:

- Infrastructure and services within reasonable proximity to the works; and
- Property, Buildings, or structures within reasonable proximity to the works including site sheds. This includes but is not limited to existing taxi rank, existing grass area adjacent ambulance bay and hospital street corridor adjacent works zones.

The full extent of the Dilapidation reports will be agreed with the Principal prior to investigations proceeding.

**Appendix A- Traffic Impact Statement** 





# RPA HOSPITAL CAMPUS INFRASTRUCTURE WORKS REF 5

Traffic Impact Statement

17 JANUARY 2023





### **Quality Assurance**

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### 1.0 Introduction

### 1.1 Scope of campus infrastructure works

The proposed activity comprises alterations and additions to the Capital Infrastructure and Engineering (CI & E) building loading dock located off Rochester Street in the RPA Hospital West Campus. Specifically, the works are to establish a reconfigured and expanded Medical Gas Compound (MGC) comprising the following works:

- Demolish three (3) existing oxygen tanks;
- Demolish existing shed structure (roof, walls and slab to 300mm below existing ground level);
- Removal of redundant services;
- Removal of adjacent trees;
- Existing road surface to be saw cut;
- New MGC enclosure comprising fire rated walls and sliding door to house new main primary and secondary oxygen tanks (60kL), emergency oxygen tank (20kL) and new vaporisers;
- Install new hard stand on road for filling point;
- Install new bollards;
- Install new roof mounted fans;
- New oxygen pipe distribution system infrastructure within confines of MGC area.



#### Figure 1-1 Proposed medical gas storage compound

Source: Jacobs, 2022

#### Figure 1-2 Existing compound





### 1.2 Purpose of this report

This Traffic Impact Statement was prepared in support of the Review of Environmental Factors (REF) for campus infrastructure works at the RPA Hospital. This report presents the results of the following tasks undertaken:

- Existing conditions review of the site location and existing traffic, parking, servicing, public transport, active transport facilities and conditions.
- Scope of works description of proposed works and associated traffic changes.
- Transport and parking impact assessment review of likely impact on traffic, parking, servicing, public transport, active transport facilities and conditions.
- Construction traffic management plan (CTMP) preliminary overview of a CTMP to be used during construction works.

### 1.3 Structure of this report

This report has been structured into the following sections:

- Section 2 presents an overview of the existing traffic and transport conditions in the study area.
- Section 3 provides an overview of the proposal
- Section 4 presents a qualitative assessment of the construction, operational traffic impacts and suggested measures for mitigation
- Section 5 provides a preliminary overview of a construction traffic management plan to be used during construction works
- Section 6 concludes with a summary of the expected impacts.



### 2.0 Existing conditions

This section of the report discusses the existing traffic and transport context of the network that may be impacted by the proposed campus infrastructure works.

### 2.1 Road network

The hospital is serviced primarily by Missenden Road, which provides the hospital access to Parramatta Road and Carillon Avenue. This is supplemented by access on Church Street which runs along the western border of the hospital campus. A map of the hospital grounds and surrounding road network is presented in **Figure 2-1**.

### Figure 2-1 Hospital boundary and road network



Base map source: Nearmaps, 2021

Missenden Road is the only access route for the eastern campus, which includes the main hospital building. A loop road, consisting of John Hopkins Drive to the north, Gloucester House Drive to the south and Lambie Dew Drive on the east services the eastern campus. This loop road provides vehicle access to critical hospital functions including the ambulance bay, women and babies, the main loading docks and patient pick-up and drop-off.

The western campus is located between Church Street and Missenden Road, which provide north-south access. Between these are, Salisbury Road, Brown Street, Grose Street, Lucas Street, and the staff car park access which run east-west. The western campus has the hospital's main car parks and additional hospital facilities such as the administrative buildings, IRO, Renal dialysis, and radiation oncology.

### 2.1.1 Missenden Road

Missenden Road is the access corridor to the ED, the maternity ward and most other hospital buildings, while also being the primary north-south link through the area. Right-turn bans are in place from Parramatta Road eastbound onto the adjacent Mallett Street and Church Street, making Missenden Road the main north-south traffic corridor through the precinct.

Missenden Road has traffic calming treatments such as single lanes and on-street parking in both directions, wide pedestrian footpaths and multiple zebra crossings. This gives pedestrians a good level of priority along and crossing Missenden Road but could be an issue for ambulances and other patient transport in urgent situations.

There is a relatively constant flow of traffic on Missenden Road on the weekday (approximately 700 to 800 vehicles an hour in both directions between 7AM and 6PM). Flow may be disrupted by turning movements and pedestrian crossings, especially at the single-lane sections on Missenden Road. This is particularly important as pedestrian flows are relatively constant throughout the day with only relatively small peaks in the AM, PM and mid-day shift changeover.



#### Figure 2-2 Missenden Road, viewed from the north



### 2.1.2 Salisbury Road and Susan Street

Salisbury Road connects Missenden Road to Susan Street, a key service lane providing the only vehicle access to the KGV loading docks, the Chris O'Brien Lifehouse carpark and loading docks, engineering services, and the main Medical Gas Compound amongst other hospital facilities.

A roundabout at the intersection Salisbury Road and Susan Street allows patients and visitors to turn back to Missenden Road without using Susan Street, which is mostly one way.

Figure 2-3 Aerial imagery of Salisbury Road and Susan Street



Source: Nearmap, 2022



### 2.1.3 Rochester Street

Rochester Street is a no-through private road located between Engineering Services and Radiation Oncology. Rochester Street is used as a service lane, providing access to the Joinery Shop (Building 38), the medical gas compound, an informal drop off/collection area and parking for fleet and contractor vehicles. This is also an access point for the tunnels connecting to Lifehouse, King George V and the main clinical services building. Given these "back of house" support functions, vehicle access to this location is important for hospital operations, and the street is often occupied by parked vehicles throughout the day. This can be seen in **Figure 2-4**.

#### Figure 2-4 Rochester Street





### 2.2 Servicing activities

#### Figure 2-5 Key servicing access



🛱 Medical Gas Bulk Storage / Cylinders 🛛 🗔 Loading dock 🛛 🕴 Ausgrid Easement

Base map source: Nearmap, 2022

### 2.2.1 Medical gas cylinder and bulk oxygen

The main medical gas cylinder and bulk oxygen storage are located on the proposed site, behind the engineering building off Susan Street. The existing location requires a challenging manoeuvre for service vehicles that have to navigate Susan Street, a narrow service lane, to deliver gas cylinders or top up the bulk oxygen. The existing refill frequency is a few times a month.

A secondary bulk oxygen container is located at the end of Cadigal Lane at the south-eastern corner of the hospital site. Cadigal Lane is a single lane access route that connects to, a road on USYD grounds, and is currently serviced by a vehicle reversing up to the container. Servicing also occurs at the Centenary Institute

Bulk liquid nitrogen is stored in tanks outside the Centenary building and serviced from the driveway to the main entrance.

Medical gas is serviced by bulk oxygen refill trucks (12.5m length) and medical gas cylinder delivery trucks (10.1m length).

### 2.2.2 Main loading dock

The main loading dock is located on the south-east of the main hospital building, fronting on Lambie Dew Drive (shown in **Figure 2-6**). The loading docks are currently unmanaged and dock activity is highest between 9am and 4pm. Vehicles accessing the loading dock range from small courier vehicles to HRVs.





### Figure 2-6 Main loading dock on Lambie Dew Drive, viewed from the south

### 2.2.3 Ausgrid easement arrangement

Ausgrid has an easement agreement to be able to access the Susan Wakil chamber substation from Lambie Dew Drive. This is currently provided by the access road that links Lambie Dew Drive to the laneway on the west of the Susan Wakil Building.



### 3.0 Description of Proposal

The purpose of the proposal are to establish a reconfigured and expanded Medical Gas Compound (MGC) comprising the following works:

- Demolish three (3) existing oxygen tanks;
- Demolish existing shed structure (roof, walls and slab to 300mm below existing ground level);
- Removal of redundant services;
- Removal of adjacent trees;
- Existing road surface to be saw cut;
- New MGC enclosure comprising fire rated walls and sliding door to house new main primary and secondary oxygen tanks (60kL), emergency oxygen tank (20kL) and new vaporisers;
- Install new hard stand on road for filling point;
- Install new bollards;
- Install new roof mounted fans;
- New oxygen pipe distribution system infrastructure within confines of MGC area.

#### Figure 3-1 Planview of proposed development



Source: Jacobs, 2022



### 4.0 Traffic Impact Assessment

### 4.1 Construction impacts

The provision of safe routes for pedestrians, minimising any impacts on public transport access and staging of road closures (where required) will be confirmed as part of the Construction Traffic Management Plan (CTMP) that will be prepared prior to start of any construction. The extent of closures and access difficulties will be dependent on the volume and types of construction vehicles used during the works. **Section 5.0** provides more details of construction impacts that would be further considered in the CTMP.

### 4.1.1 Impact to Rochester Street

Rochester Street is used regularly by hospital vehicles and services and construction works on the street will require careful coordination with the hospital. Both vehicle and pedestrian access will need to be maintained during construction works so key hospital operations are not disrupted, including refill and access of medical gas.

### 4.1.2 Impact to Susan Street

Susan Street facilities key hospital functions and must not be blocked during regular hours. Given that the scale of the proposal is limited to Rochester Street, impacts to Susan Street are expected to be minimal and likely to be a result of construction vehicles that are waiting for access.

### 4.1.3 Pedestrian access

Pedestrian access on Rochester Street is minimal at the Medical Gas Compound and staff are observed to walk on the roadway instead. Pedestrian access will need to be maintained in coordination with the hospital to ensure that servicing activities can be carried out as required.

### 4.1.4 Disruption to private property access

No disruption to private property access is expected from Early Works Package 5 construction work.

### 4.1.5 Parking impact during construction

Rochester Street is used informally by engineering services and contractors to park their vehicles despite "no stopping" signs along the street. Parking availability may be reduced during construction depending on the extent of the construction zone and therefore coordination with the hospital will be required to ensure hospital operations are not disrupted. No formal parking is being displaced due to the proposal.

### 4.1.6 Parking for construction workers

Construction workers are encouraged not to drive to site. Impact to on-street parking is minimal as it is already near maximum capacity and the time restrictions are not suitable for most workers.

### 4.1.7 Areas that are sensitive to movement of vehicles and machinery

During the day, Susan Street and Rochester are already used as service lanes and will see heavy vehicle traffic. However, the proposed site will be in proximity to Chris O'Brien Lifehouse and noise levels may be a concern after hours and overnight.



### 4.2 Operations impacts

The expected impact of the proposed work is an increase in the frequency of refills at the medical gas compound. Assuming a growth rate proportional to the growth of the bulk oxygen capacity, the refilling frequency is estimated to increase from a few times a month to once or twice a week.

The net impact of this growth is minimal as the traffic volume is insignificant. Bulk oxygen suppliers also refill outside regular hours when traffic and hospital activity are low.

### 4.2.1 Road network impacts

The increase in medical gas refill trucks is small and the impact on the road network is negligible.

### 4.2.2 Public transport impacts

There is no impact on the public transport as a result of the proposed works.

### 4.2.3 Active transport impacts

There is no impact on the active transport network as no changes are proposed to the provision of footpaths or cycling infrastructure.

### 4.2.4 Parking impacts

There is no impact on parking as a result of the proposed works.

### 4.3 Mitigation measures

The following mitigation measures should be further considered by the contractor and covered in the CTMP. As the operational impacts are negligible, mitigation measures are only considered for the construction period.

### 4.3.1 Minimise construction activity during regular hospital hours

Hospital operations that require use of Rochester Street mainly occur during regular work hours and therefore construction impacts will be minimised if works were scheduled outside of these hours.

### 4.3.2 Management of arrival schedule at construction site

The space available for construction works and vehicle manoeuvring (including turn-around manoeuvres) is minimal on Susan Street and Rochester Street. Queueing or difficulty moving vehicles to and from the site may occur if arrivals are not scheduled appropriately.

Given the key access functions that Susan Street and Rochester Street provide, queueing in this area should be avoided.

Construction works should also consider the arrival schedule of the medical gas refill trucks as to not block refilling operations.



### 5.0 Construction traffic management plan

A detailed Construction Traffic Management Plan (CTMP), which would include a construction traffic control plan would be prepared, separate to this report by the contractors. This would be done prior to commencement of construction and in accordance with the Traffic Control at Work Sites Technical Manual (2010).

The CTMP will address the overall traffic management of the site during the construction phase, including details of the following:

- Description of construction activities
- Working hours
- Construction vehicle movements and expected routes to and from the site
- Provision for vehicle, pedestrian and cyclist access and management
- Parking for construction vehicles and workers
- Emergency access management
- Appropriate wayfinding.

The overarching strategy of the CTMP would be to:

- Ensure all stakeholders are considered during all stages of construction
- Provide safe routes for pedestrians and cyclists during construction
- Minimise any impact on public transport access
- Communicate changes to roads or paths to the community, emergency services, public transport operators, and any other affected stakeholders
- Identify measures to manage the movements of construction-related traffic to minimise traffic and access disruptions on the public road network
- Provide a car parking strategy for construction staff.



### 6.0 Conclusion

This traffic impact assessment has reviewed the traffic and parking changes associated with the proposed works on the medical gas compound.

The assessment has confirmed that these changes:

- Will have no on the public and active transport networks in the vicinity of the project.
- Will have a negligible impact on the network performance in the vicinity of hospital.
- Will have no impact on parking supply and demand at the hospital.

It recommends the following mitigation measures:

- Minimise construction activity during regular hospital hours
- Management of arrival schedule at construction site

A detailed Construction Traffic Management would be prepared prior to commencement of construction, which would seek to minimise the impacts of the construction work.



### Appendix B – Waste Management Plan



Royal Prince Alfred (RPA) Hospital Redevelopment Project Review of Environmental Factors





Waste Management Plan – Molecular Imaging Expansion and New Lift



### **Document Administration**

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### 1. Purpose

The Waste Management Plan (WMP) has been prepared to support a Review of Environmental Factors (REF) on behalf of Health Infrastructure for the package of works outlined in Section 2.1 as part of the Royal Prince Alfred (RPA) Hospital Redevelopment.

The Works will be undertaken by the Principal Contractor. All statements and proposals documented in this WMP are a guide only. At the time of contract award, it is the responsibility of the Contractor to prepare a detailed WMP for the Works and to ensure alignment with the legislation, health services requirements and project requirements. This WMP will be replaced by the Contractor's WMP once appointed.



### 2. Introduction

### 2.1 Overview and Proposed Works

In March 2019, the NSW Government announced a significant expansion of the Royal Prince Alfred (RPA) Hospital with the \$750 million RPA Redevelopment Stage 1 Project ('the Project').

The Project will include the development of clinical and non-clinical services infrastructure to expand, integrate, transform and optimise current capacity at the RPA to provide contemporary patient-centered care that is evidence based including expanded and enhanced facilities and services for:

- Emergency Department (ED)
- Intensive Care Unit (ICU)
- Operating Theatres (OT)
- Interventional Cardiology
- Adult Acute Inpatient accommodation
- Medical imaging services (including Intervention)
- Clinical and non-clinical support services

The Project has currently completed Feasibility Development, with refinement of site wide infrastructure requirements and identification of a Preferred Service Configuration Option for further design development.

A summary of the works as proposed within this REF is as follows:

- Molecular Imaging expansion on levels 6 and 7 of Building 89
- Molecular Imaging modifications on levels 6 and 7 of Building 63
- New lift, lift lobby and access to Building 63
- Installation of photovoltaic panels on level 8 roof

### Need for the expansion of Building 89

The expansion of the existing molecular imaging department is required to allow the provision of additional services, with additional equipment to cater to an increasing patient load.

There are limited options to provide an expanded lab, scanning and office space for the Molecular Imaging Department. It is critical that the expansion remains in close proximity to existing services including the cyclotron and other PET scanning machines. As such, the only clear option is to expand vertically over the adjacent roof space of Building 89.

### Need for the installation of the Lift

Access to the molecular imaging department is currently via the level 5 Emergency Department corridor in Building 63. This is already problematic due to the high foot traffic of the Emergency Department corridor. This will become increasingly challenging as the patient load increases into the future. It is proposed to change the access to be via a new lift, in order to alleviate congestion from the Emergency Department corridor.

### Need for Photovoltaic Cells (PVs)

NSW Health Resource Efficiency Strategy 2016 to 2023 states that NSW Health is the largest general Government energy consumer in NSW. The NSW health system faces many challenges, including those related to the current climate crisis. As demand for health services continues to grow, responding to these challenges will require changes in the way health services are delivered.

As part of a Health Infrastructure state roll out, Building 89 in RPA Hospital has been selected to receive a solar (PV) system due to its north facing orientation. The installation of a solar energy system will enable Building 89 to



maximise resource efficiency while minimising operational costs and impacts on the environment.

#### **Proposal Objectives**

The key objectives of the proposed activity are:

- Improve access within Building 89;
- Provide capacity to the Molecular Imaging department to meet projected demand and futureproofing; and
- To minimise the energy use of the hospital main building through the use of renewable (solar) energy sources.

### 2.2 Site and Locality Description

The RPA campus is located in Sydney's inner west suburb of Camperdown. It is situated between Sydney University to the east and the residential area of Camperdown to the west. The campus is divided by Missenden Road, which runs north to south dividing the campus into two distinct portions, called East Campus and West Campus. The northern boundary of the campus is defined by the Queen Elizabeth II Rehabilitation Centre and the southern extent of the campus is defined by Carillon Avenue.



Figure 1 RPA Hospital campus



RPA incorporates a diverse range of operations including research, education, student housing, acute quaternary health services, as well as healthcare in both private and public domains. The larger precinct is defined by the Greater Sydney Commission as the Camperdown Health, Education and Research Precinct (CHERP) and is identified as an innovation and economic development zone for NSW.



Figure 2 RPA Hospital buildings in relation to the CHERP

### 3. Legislative Requirements

The Works will be undertaken in accordance with the following legislative requirements relevant to the management of waste in New South Wales, and any others that must be complied with in carrying out the works as required:

- NSW Health Waste Reduction and Purchasing Policy 2011-2014
- Waste Management Guidelines for Health Care Facilities
- NSW Occupational Health and Safety Act (2000)
- NSW OH&S Regulation (2001)
- Protection of the Environment Operations Act and Regulation
- Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (EPA)
- Waste Avoidance and Resource Recovery Act
- Contaminated Land Management Act
- NSW EPA, 2014 Waste Classification Guidelines
- NSW EPA, 2014 The Excavated Natural Material Order
- NSW EPA, 2014 The Excavated Public Road Material Order and The Reclaimed Asphalt Pavement Order
- NSW WorkCover, 2011 How to Safely Remove Asbestos Code of Practice
- Australian Code for the Transport of Dangerous Goods by Road and Rail



- AS/NZS 4031:1992 (Non-reusable containers for the collection of sharp medical items used in health care areas)
- AS/NZS 4261:1994 (Reusable containers for the collection of sharp items used in human and animal medical applications)
- AS/NZS 3816:1998 (Management of clinical and related waste)
- AS/NZS 2161.10 Parts 1-3:2005 (Occupational protective gloves)
- AS/NZS 4123 Parts 1-7:2008 (Mobile waste containers)
- AS/NZS 2243 Part 3:2010 (Safety in Laboratories)
- RPS No.20 Safety Guide for Classification of Radioactive Waste (ARPANSA, 2010)
- Code for the Safe Transport of Radioactive Material (ARPANSA, 2014)
- Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation (RPS14) (ARPANSA, 2008)
- Industry Code of Practice for the Management of Biohazardous Waste (including Clinical & Related Wastes) (WMAA, 2014)
- The Australian Council on Healthcare Standards (ACHS) EQuIPNational Guidelines Standard 15 (ACHS, 2012)
- Labelling of workplace hazardous chemicals Code of Practice (SafeWork NSW, 2016)
- Code of Practice: Hazardous manual tasks (SafeWork NSW, 2016)
- PD2008\_004 Community Sharps Disposal by Area Health Services
- PD2013\_043 Medication Handling in NSW Public Health Facilities
- Guideline for Approval of Method to Treat Clinical Waste
- PD2017\_013 Infection Prevention and Control Policy
- PD2017\_010 HIV, Hepatitis B and Hepatitis C Management of Health Care Workers Potentially Exposed
- PD2007\_052 Sharps Injuries Prevention in the NSW Public Health System
- PD2012\_061 Environmental Cleaning Policy
- Infection prevention and control practice handbook. Principles for NSW public health organisations (CEC, 2016)
- Environmental Cleaning Standard Operating Procedures. Module 3.4 Environment (CEC-HAI, 2012)
- Environmental Cleaning Standard Operating Procedures. Module 6 Cleaning Agents (CEC-HAI, 2012)
- Environmentally Hazardous Chemicals Act 1985
- Environmentally Hazardous Chemicals Regulation 2017
- Protection of the Environment Administration Act and Regulations
- Code of Practice for the Safe Removal of Asbestos (NOHSC:2002 (2005))
- Guide to the Control of Asbestos Hazards in Buildings and Structures (NOHSC:3002 (1998))
- Resource and Recovery Act 2001
- Environmental Planning and Assessment Act 1979
- Local Government Act 1993
- Soil Conservation Act 1938



### 4. Waste Management Principles - Construction

### 4.1 Waste Management Principles

In accordance with NSW Health requirements for health care facilities, a detailed WMP will be developed by the Principal Contractor providing detailed information regarding the nature and volume of waste generated by the development and the means of storage and disposal of waste from the site. Waste management practices will adopt the waste hierarchy established by the Waste Avoidance and Resource Recovery Act 2001 (WARR Act) of reduce, reuse, recycle, treat and dispose.



Figure 3 Waste Hierarchy (NSW, EPA 2017)

The major components of the waste management system will include:

- Avoidance and Reduction of Waste
- Recycling and Reuse
- Segregation at the source
- Waste streams
- Handling and Storage
- Waste treatment
- Waste disposal

The Works will be undertaken by a Principal Contractor. All statements and proposals documented in this WMP are a guide only. At the time of contract award, the Contractor(s) will formulate their own WMP for the Works and ensure alignment with the legislation, health services requirements and project requirements. This WMP will be replaced by the Contractor's WMP once appointed.



### 4.2 Waste Estimation

Indicative quantities of waste likely to be generated during construction have been set out per the below assumptions. This will be developed in further detail by the Principal Contractor. It is expected that actual waste quantities and composition will vary depending on outcomes of detailed design, materials specification and construction planning and methods.

The quantities of waste likely to be generated during demolition have been calculated based on benchmarks provided by the UK Building Research Establishment (BRE) (refer Table 2) and benchmarked data of waste composition developed by Sustainability Victoria (refer Table 3).

Project Type	Average volume (m <sup>3</sup> ) of waste per 100m <sup>2</sup>
Residential	18.1
Public buildings	20.9
Leisure	14.4
Industrial Buildings	13.0
Healthcare	19.1
Education	20.7
Commercial Other	17.4
Commercial Offices	19.8
Commercial Retail	20.9
Source: BRE (2012)	

Table 1: Average Volumes of Waste Produced by Different Project Types

Table 2:	Guide to	Waste	Composition	and	Volumes - Construction	

Material	Estimated Waste %	Conversion Factor (Density) (Tonne per m <sup>3</sup> )
Hard material	32%	1.2
Timber	24%	0.3
Plastics	15%	0.13
Cement sheet	9%	0.5
Gypsum material	6%	0.2
Metals	6%	0.9
Paper / card	4%	0.1
Soil	1%	1.6
Other	0.3%	0.3

Source: Sustainability Victoria Waste Wise Tool Kit (2013)



Material	Average Volume/ 100m <sup>2*</sup>	Total (m³)	Total (Tonnes)
Hard material (32%)	6.1	126.9	152.3
Timber (24%)	4.6	95.7	28.7
Plastics (15%)	2.9	60.3	7.8
Cement sheet (9%)	1.7	35.4	17.7
Gypsum material (6%)	1.1	22.9	4.6
Metals (6%)	1.1	22.9	20.6
Paper / card (4%)	0.8	16.6	1.7
Soil (1%)	0.2	4.2	6.7
Other (0.3%)	0.1	2.1	0.6
Total	19.1	387.1	240.7

#### Molecular Imaging Expansion, New Lift and Lift Lobby

\*based on a proposed GFA for Molecular Imaging Expansion, the new lift and lift lobby of 2081m<sup>2</sup>

Strategies will be implemented to minimise waste generation and maximise reuse and recycling.

### 4.3 Waste Avoidance and Reduction

The most effective strategy in the waste hierarchy is to avoid the generation of waste. Throughout the construction phase of the Project, the avoidance of waste can be achieved through a number of strategies, including but not limited to:

- Reducing materials brought to site through a thorough understanding of the design, operational requirements, required quantities and detailed project planning; and
- Inventory control, proper storage and management of materials to avoid waste from materials that are out of date or off specification and reducing the need to reorder supplies.
- Appropriate Storage and Management of materials onsite to limit the potential for damage from weather or plant which will eliminate the need for purchase of replacement products and waste generation.

### 4.4 Waste Recycling and Reuse

Where the generation of waste cannot be avoided, it is encouraged to promote the reuse and recycling of waste materials. This can be achieved through a variety of strategies, including but not limited to:

- Evaluating waste production processes and identifying potentially recyclable materials;
- Identifying and recycling products that can be reintroduced into the construction and operation processes;
- Separating and segregating waste, particularly recyclable material from non-recyclable;
- Proper disposal of recyclable waste such as glass, paper and aluminium; and
- Where possible, reusing materials and equipment in later stages of the construction phase and/or in different projects. For example, classifying excavated material as Virgin Excavated Natural Material (VENM) or Excavated Natural Material (ENM) to allow potential reuse off-site



The contractor's WMP will address recycling targets and monitoring strategies to enabling monthly reporting on the recycling outputs.

### 4.5 Waste Segregation

Segregation of various streams of waste is an important part of efficient waste management. Where possible, waste such as excavated material will be separated on-site into dedicated bins and areas for reuse and/or collection by a licensed contractor:

- General Waste Glass, Paper & Cardboard and Aluminium
- Natural material will be classified as VENM for reuse onsite where possible or for offsite reuse.
- Excavated material (unable to be used onsite) to be sent to a recycling facility
- Waste from piling works, including waste steel and formwork

If separation is not possible on-site, the Contractor(s) shall organise the separation of waste off-site. Waste will be classified in accordance with the requirements of the NSW EPA (2014) Waste Classification Guidelines.

### 4.6 Waste Streaming

Throughout the construction phase of the Project, organic waste that is biodegradable will be recycled where possible. Uses of organic waste include, but are not limited to, mulch or garden compost to enhance lawns and gardens. Where reuse is not possible, organic waste will be placed in mobile bins for regular collection by a licensed contractor.

Domestic wastes such as non-biodegradable food scraps, bottles, cans and packaging – will be segregated into recyclables and non-recyclables at point of generation and collected by a licensed contractor.

### 4.7 Hazardous Waste

A Hazardous Building Materials Survey (HBMS) has been undertaken to the areas included within the scope of this REF. This survey comprised a detailed visual inspection and sample collection with the objective to locate and identify areas of suspected hazardous materials.

The outcomes of this survey and measures for dealing with hazardous waste are further noted within the HBMS report by Sydney Environmental Group (SEG). This includes the following measures to be undertaken by the Contractor:

- Development of a Hazardous Building Materials Management Plan to ensure all practicable steps are taken to prevent or minimise the risk of exposure to hazardous materials during works;
- Ensuring a copy of the hazardous building materials register is made readily available to all contractors conducting works on the site;
- Remove all hazardous building materials identified and recorded in the register prior to any demolition works of the structures identified within the site; and
- Should any previously unidentified suspected hazardous building materials be identified during demolition, works should cease, and the materials should be inspected by an experienced occupational hygienist prior to the recommencement of works.

### 4.8 Waste Handling and Storage

The Contractors WMP will identify storage and collection areas including loading zones and stockpile locations. Storage locations of waste will be planned to consider the changing nature of the site and construction phases. Clear signage will be provided to mark the location of different types of waste and materials.

Stockpile management strategies include, but are not limited to:

• Locating stockpiles in designated, marked areas and away from drainage lines and up-slope of sediment barriers;



- Locating stockpiles on hardstand surfaces or on plastic sheeting, and covering stockpiles or stabilising surfaces to reduce erosion; and
- Maximum stockpile height of 2 m (subject to Engineering advice).

Where applicable, liquid wastes will be stored in bunded areas protected from the weather. Containers will be labelled with name of the waste stream, composition and physical state, restricted properties and date of storage to ensure safe handling and management procedures are met.

Clearly marked waste containers with information such as name of waste, composition (solid/liquid), restricted properties of the waste (corrosive, ignitable) and date of the first waste deposited into the container.

All servicing arrangements will need to consider the safety of site users.

The Contractor shall ensure that the supply chain is responsible and accountable for maintaining a clean, clear and safe working environment. Rubbish bins should be provided to all work areas and be regularly removed to the central skip bin location for collection and transport from site to a waste recycle facility.

### 4.9 Waste Treatment

It is intended that no waste is treated on-site. Treatment of construction and general waste will be performed by a licensed contractor after proper removal of waste off the project site. This includes wastewater requiring offsite disposal.

### 4.10 Waste Disposal and Transport

Waste that cannot be recycled and/or reused will be disposed off-site by a licensed contractor to a licensed landfill or recycling facility.

Prior to disposal, waste will be classified in accordance with the requirements of the NSW EPA Waste Classification Guidelines.

All vehicles transporting waste off-site will have covered loads. A waste tracking record will be maintained of all disposals that records the waste facility name and address, type and identity of disposal vehicle, date of disposal, type and quantity of waste and method of treatment (where applicable). Contractor(s) will keep evidence of the proper disposal of waste to licensed facilities.

All vegetation and topsoil will be assessed for site suitability.

### 4.11 Waste Management Methods

A detailed construction waste management plan will be developed by the Contractor. The plan will provide further details of the management required for the waste types generated under the works associated with the RPAH Development.

As the design progresses, accurate estimates of quantities of building materials prior to construction will ensure that a minimum of waste is generated. Records of waste and recycling collected and disposed of will be collated throughout the construction phase by the Contractor. Unused materials in a good condition will often be collected by suppliers, facilitating the reduction of the amount of material sent to recyclers or landfill.

The Contractor will be required to achieve compliance with the EPA guidelines.

A summary of likely waste streams to be generated through Enabling Works construction are identified in the table below, a proposed method for handling, storage and reuse/disposal of each type of waste are also presented.

Table 4: Likely Waste Streams

Activity	Waste stream	Management
Construction Waste	Concrete, metal, steel, timber, fittings, plastic, electrical and plumbing	<ul> <li>Segregation of recyclable wastes and storage onsite (within construction compounds)</li> </ul>



Activity	Waste stream	Management
		Collection and transport to appropriate recycling facility
Site Office and Worksites	General Office Waste – paper, printer cartridges	<ul> <li>Segregation of recyclable wastes and storage on-site</li> <li>Collection and transport to a recycler</li> </ul>
	Domestic Wastes – food scraps, glass bottles, cans, packaging.	<ul> <li>Segregation of recyclable wastes and storage onsite</li> </ul>
	Septic and Sanitary systems waste	Sewerage treatment plant
Plant Maintenance and Chemicals Management	Drums and Containers	<ul> <li>Segregation of recyclable wastes and storage onsite (within construction compounds)</li> </ul>
		• Collection and transport to a recycling facility

The storage of waste created by the site through demolition, excavation and general construction works will be specified within the site establishment zones in the Principal Contractor's Construction Management Plan.

### 4.12 Hazardous Materials Management

Dangerous goods are to be managed in accordance with relevant codes of practice and standards. Material safety data sheets on all of these flammable and potentially harmful liquids will be provided by the Contractor undertaking the Works. Any hazardous materials discovered during execution of the Works should be dealt with by the Contractor in accordance with the requirements set out in the Contract.

### 5. Responsibilities and Training

### 5.1 Roles and Responsibilities

The Principal Contractor will be responsible for developing a detailed waste management plan prior to commencement of the construction works. That plan must be consistent with the approach, principles and management methods outlined in this plan.

The Contractor will also be responsible for:

- Inducting all contractors and visitors about the relevant aspects of this plan.
- Ensuring all waste management contractors have the necessary qualifications and licenses to remove waste from the site.
- Carrying out periodic audits to check compliance with the waste management plan.

### 5.2 Training and Induction



During construction, all site personnel and subcontractors will be inducted into the requirements of this plan in accordance to their level of responsibility. As such, the induction is expected to include the following components:

- The waste hierarchy and associated waste management principles (avoid, reuse, and recycle).
- NSW EPA Waste Classification Guidelines.
- Procedures for handling and storage of wastes.
- Location of waste disposal and storage facilities.
- Actions to be undertaken in the event of a hazardous material spill.

Staff and contractors with specific responsibilities for waste management including for the handling and disposal of hazardous waste will be given additional training as required.

### 6. Waste Management Principles - Operation

### 6.1 Waste Management Plan - Operation

Sydney Local Health District (SLHD) have a Waste Management Policy (refer Appendix 1) in place for existing SLHD facilities, including RPA Hospital. As design progresses for the Project, the existing SLHD Waste Management Policy for RPA Hospital will be updated to ensure ongoing improvements and compliance with policy and legislation in all aspects of waste management, including generation, handling, storage and disposal of all forms of waste.

### 6.2 Management of Clinical Waste Streams

Management of Clinical Waste Streams will be in compliance with NSW Health's PD2017\_026 Clinical and Related Waste Management for Health Services (Refer Table 1 and 2):



### Table 1: Management of clinical waste streams: anatomical, sharps and other clinical waste

Waste stream	Anatomical waste	Clinical sharps waste	Clinical waste (Incl. Pathological Waste)	
Definition	Identifiable human body parts such as limbs, organs, placenta and recognisable or large pathological specimens resulting from investigation or treatment of a patient It does not include deceased bodies	Any clinical object capable of inflicting a penetrating injury which may or may not be contaminated with blood and or body substance. This includes needles, ampoules and any other sharp objects or instruments designed to perform penetrating procedures[1] May contain clinical material or Genetically Modified Organism (GMO)[2] waste	<ul> <li>Clinical waste with the potential to cause injury, infection or offence:</li> <li>Unrecognisable human tissue (excluding hair, teeth, nails and anatomical waste)</li> <li>Bulk blood or other body fluids (or body substances)</li> <li>Material and equipment visibly stained by blood or body fluids (includes incontinence pads and disposable nappies that come from an infectious patient)[3]</li> <li>Lab specimens, cultures or other waste from lab investigations</li> <li>Waste from medical or veterinary research</li> <li>Genetically Modified Organisms (GMOs)</li> </ul>	
Bin colour	Yellow	Yellow	Yellow	
Lid colour of bin	Orange	Yellow	Yellow	
Plastic bin liners	Orange	N/A	Yellow	
Labelling of bins and if applicable liners	Anatomical waste	Clinical sharps	Clinical waste	
Symbol	<b>&amp;</b>	<b>&amp;</b>	<b>&amp;</b>	
Symbol (description)	Black biological hazard	Black biological hazard	Black biological hazard	
Label (if containing viable PC1 or PC2 GMOs)		Contains GMOs	Contains GMOs	
Specific requirements	For incineration only	For incineration <i>or</i> autoclaving and shredding Sharps containers must be rigid-walled and meet the requirements specified in AS/NZS 4031 and AS/NZS 4261[4,5] Autoclave tape and bag indicators must be used to show autoclaving has been completed	For incineration <i>or</i> autoclaving [6] and shredding. Autoclave tape and bag indicators must be used to show autoclaving has been completed. Fluid may be able to be discharged into sewer depending on Liquid Trade Agreement between the health service and water utility All clinical waste once treated by a process acceptable to NSW Health[7] may be reclassified in accordance with the Waste Classification Guidelines[8] before recycling or disposal There are special precautions regarding disposal of waste related to cases of viral haemorrhagic fever[9]	
Relevant Act/ Regulation /Australian Standard	AS/NZS 3816:1998 Management of clinical and related waste AS/NZS 4123:2008 Mobile Waste Containers	AS/NZS 3816:1998 Management of clinical and related waste AS/NZS 4123:2008 Mobile Waste Containers Protection of the Environment Operations Act 1997 Protection of the Environment Operations (Waste) Regulation 2014	AS/NZS 3816:1998 Management of clinical and related waste AS/NZS 4123:2008 Mobile Waste Containers Protection of the Environment Operations Act 1997 Protection of the Environment Operations (Waste) Regulation 2014	
EPA licence requirements	No	No	No	



### Table 2: Management of Clinical waste streams: cytotoxic and pharmaceutical

			1
Waste stream	Cytotoxic waste	Pharmaceutical waste	Radioactive waste
Definition	Material contaminated with residues or preparations containing materials toxic or otherwise harmful to cells. This includes any residual cytotoxic drug or laboratory chemical and any discarded material or clinical waste associated with the preparation or administration or excretion of cytotoxic drugs May include Genetically Modified Organisms (GMOs) or tissues containing GMOs	Pharmaceuticals or other chemical substances specified as regulated goods in the Poisons and Therapeutic Goods Act 2008. Includes any substance specified in a Schedule of the Poisons List under the Act, as well as any therapeutic good which is unscheduled Includes expired or discarded pharmaceuticals, filters or other material contaminated by pharmaceutical products	Waste material, including sharps and clinical waste contaminated with a radioisotope which arises from the medical or research use of radionuclides, e.g. during nuclear medicine, radioimmunoassay and bacteriological procedures, and may be in solid, liquid or gaseous form, and which emits a level of radiation above the level set by regulatory authorities
Bin colour	Purple	Red	Red[1]
Lid colour of bin	Purple	Red	Red
Plastic bin liners	Purple	N/A	Red
Labelling of bins and if applicable liners	Cytotoxic waste	Pharmaceutical waste	Radioactive waste plus specific requirements below
Symbol		Nil	CAUTION AREANTON
Symbol (description)	White telophase	Nil	Yellow background with distinctive 'trefoil' symbol in black and the lettering 'CAUTION RADIATION' in black
Label (if containing viable PC1 or PC2 GMOs)	Contains GMOs		
Specific requirements	For incineration only Collection, transport and handling only by licensed and registered waste management companies	Storage, destruction and disposal methods must comply with PD2013_043 Medication Handling in NSW Public Health Facilities[2] Pharmaceutical waste must be incinerated at a licensed controlled waste facility. Certain pharmaceuticals may only be destroyed by authorised persons under the <i>Poisons and</i> <i>Therapeutic Goods Act 1966</i> [3] Pharmaceutical waste bins must be lockable	Radioactive material to be stored on- site in appropriate storage area until it decays to below the thresholds of a "radioactive substance" as defined under the Radiation Control Act and Regulation Waste is to be classified with reference to the Safety Guide for the Classification of Radioactive Waste[4] and in accordance with the EPA Waste Classification Guidelines[5] Radioactive waste must be labelled with the substance, activity level and the date at which it is measured Handling and storage to comply with a Radiation Management Plan in accordance with the Code of Practice for Radiation Protection in the Medical Applications of lonizing Radiation (ARPANSA 2008)[6] Radioactive sharps – see page 9 [7] When radioactive waste is to be transported, health services must comply with the Code of Practice for the Safe Transport of Radioactive Material (ARPANSA 2014)[8]
Relevant Act and Regulation	AS/NZS 4123:2008 Mobile Waste Containers Protection of the Environment Operations Act 1997 Protection of the Environment Operations (Waste) Regulation 2014	Poisons and Therapeutic Goods Act 1966 Poisons and Therapeutic Goods Regulation 2008	AS/NZS 4123:2008 Mobile Waste Containers Radiation Control Act 1990 Radiation Control Regulation 2013
EPA licence requirements	No	No	Yes - Waste Classification Guidelines Part 3: Waste containing radioactive material (EPA, 2014)



### **Appendix 1 – SLHD Waste Management Policy**

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