

Northside Private Hospital – Preliminary Risk Screen and Hazardous Materials Assessment

A submission to DCWC

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Glossary

Terminology	Description
AS/NZS	Australian and New Zealand Standard
Council	Central Coast Council
EMP	Environmental Management Plan
EPA	Environment Protection Authority
ERP	Emergency Response Plan
GDCP	Gosford Development Control Plan 2013
GLEP	Gosford Local Environmental Plan 2013
HETI	Health Education and Training Institute NSW
IRP	Incident Response Plan
LGA	Local Government Area
LPG	Liquefied petroleum gas
PPE	Personal Protective Equipment
SEPP	State Environmental Planning Policy
VIE	Vacuum Insulated Evaporator
WHS	Work Health and Safety

Contents

Glossary	iii
Contents	iv
List of Tables	v
List of Figures	v
1 Introduction	1
1.1 Site Information	1
1.2 Proposal	2
1.3 Expected Hazardous Materials Associated with the Proposal	3
2 Preliminary Risk Screen	4
2.1 Material Properties	4
2.2 Transportation of Materials	7
2.3 Summary of Risk Screening	8
3 Mitigation Measures	9
4 Conclusions	12
Appendix A Site Plan	13

List of Tables

Table 1: Materials Summary Details.....	5
Table 2: Screening method used – Applying SEPP 33	6
Table 3: General Screening Threshold Quantities – Applying SEPP 33	6
Table 4: Transportation Screening Thresholds – Applying SEPP 33	7
Table 5: Hazard scenarios and consequences associated with the activities and facilities	9

List of Figures

Figure 1: Site Locality.....	2
Figure 2: Basement level 1 plans	13
Figure 3: Ground floor plans.....	14
Figure 4: Level 1 plans	15
Figure 5: Level 2 plan.....	16

1 Introduction

MRA Consulting Group (MRA) was engaged by Donald Cant Watts Corke Pty Ltd (DCWC), to prepare a Preliminary Risk Screen & and Hazardous Materials Assessment (this report) for the proposed development of the Northside Private Hospital in West Gosford. This report has been prepared in response to the Secretary's Environmental Assessment Requirements (SEARs) issued for the project, specifically item 23. *Hazards* which outlines the requirement to:

Identify, quantify and classify any proposed storage, use and management of any hazardous materials and measures to be implemented to manage hazards and risks associated with the storage.

Consideration has been given as to whether the proposed development should be considered a hazardous or potentially hazardous development under State Environmental Planning Policy (SEPP) 33 – *Hazardous and Offensive Development*. In this policy:

potentially hazardous industry means a development for the purposes of any industry which, if the development were to operate without employing any measures (including, for example, isolation from existing or likely future development on other land) to reduce or minimise its impact in the locality or on the existing or likely future development on other land, would pose a significant risk in relation to the locality:

- (a) to human health, life or property, or
- (b) to the biophysical environment,

and includes a hazardous industry and a hazardous storage establishment.

This preliminary assessment was undertaken according to typical risk screening procedures identified in the following key documents:

- *Hazardous and Offensive Development Application Guidelines: Applying SEPP 33 – January 2011 (SEPP 33 Guidelines);*
- *Risk Assessment – Hazardous Industry Planning Advisory Paper No 3 (HIPAP 3);*
- *Risk Criteria for Land Use Safety Planning – Hazardous Industry Planning Advisory Paper No 4 (HIPAP 4);*
- *Hazard Analysis – Hazardous industry Planning Advisory Paper No 6 (HIPAP 6); and*
- *Assessment Guideline – Multi-level Risk Assessment – May 2011 (Risk Assessment Guideline).*

This assessment comprises two components, which are assessed in Section 2:

- A Preliminary Risk Screening to determine if the proposed development is potentially hazardous.
- A Preliminary Risk Assessment undertaken to a level of detail that addresses Item 23 of project SEARs.

1.1 Site Information

The Site is located in the Northside Medical Precinct in West Gosford, on the corner of Racecourse Road and Faunce Street West which is situated in the Central Coast Council (Council) Local Government Area (LGA). The site is the former Ausgrid site, identified as Lot 2 in DP 1226923. The site locality diagram is provided as

Figure 1: Site Locality



Source: Nearmap, 2019.

The Site is zoned B6 (Enterprise Corridor) according to the Gosford Local Environment Plan (GLEP) 2014. Surrounding land uses include business (B6 and B5 – Business Development), recreation (Public (RE1) and Private (RE2)) and residential (R1 – General Residential).

1.2 Proposal

The proposed development will include the following features:

- 14 operating theatres;
- 14 intensive care unit bays;
- 6 levels of inpatient unit wards containing a total of 224 beds;
- Car parking for approximately 400 cars;
- Hospital front of house; and
- Hospital back of house.

Of the above uses, the proposed facility will involve the following activities which may generate or be required to store potentially hazardous materials. These uses include:

- Radiology;
- Pathology;
- Intensive Care Unit (ICU);
- Inpatient care; and
- Various other medical tenancies (undefined).

The proposed development has not yet designated an operator and general medical tenancies have not yet been entirely allocated. Therefore, an additional risk assessment will be required prior to commencement of operation of the facility should potentially hazardous uses occupy general tenancies in the future.

1.3 Expected Hazardous Materials Associated with the Proposal

It is proposed that the following hazardous materials will be stored on site for use in the operation of the proposed hospital:

- 5,000L of diesel fuel for the diesel fire pumps and two generators;
- VIE (Vacuum Insulated Evaporator) vessel of liquid oxygen;
- cylinders of medical oxygen gas for backup supply;
- cylinders of medical air;
- cylinders of medical nitrous oxide; and
- cylinders of medical carbon dioxide.

The site would construct infrastructure to connect to an existing natural gas main line located on the corner of Hely Street and Donnison Street West, approximately 600m South of the proposed hospital. The presence of this infrastructure means that no Liquid Petroleum Gas (LPG) would need to be otherwise stored or transported to the site for use.

2 Preliminary Risk Screen

Applying SEPP 33 guidelines, risk screening is provided to determine whether a proposed development is potentially hazardous. The screening method is based on broad estimates of the possible off-site effects or consequences from the generation, storage and management of hazardous or potentially hazardous materials present on site. Potential risk typically depends on five key factors, including:

- Properties of substance(s) being stored or handled;
- Conditions of storage or use;
- Quantity of materials/substances;
- Location with reference to the site boundary; and
- Surrounding land uses.

2.1 Material Properties

The following summary table (Table 1) outlines details of the hazardous materials that are likely to be stored on site for use in the operation of the proposed hospital, including their proposed location for storage. Details that are summarised include:

- Quantity of materials stored;
- Class of material according to the Australian Code for the Transport of Dangerous Goods by Road and Rail (Dangerous Goods Code);
- Location for storage at the site (and distance from the site boundary); and
- Packing Group – being the grouping used to indicate the degree of danger associated with the transport of dangerous goods of a given class, being:
 - Group 1 – substances presenting a high danger,
 - Group 2 – substances presenting a medium danger, and
 - Group 3 – substances presenting a low danger.

Note: Packing groups are not assigned to classes 1, 2 and 7 or Divisions 5.2, 6.2 or self-reactive substances of Division 4.1.

Table 1: Materials Summary Details

Hazardous Material	Quantity	Class	Packing Group	Location (distance to site boundary)	Comments
Diesel	5,000L	3	III	Above ground, outside of buildings near water storage tanks for use of fire pumps (15m from site boundary). See Figure 2, Appendix A.	Diesel (Class 3 PG III) – the method (Table 2) references Figure 9 graph of Applying SEPP 33 if greater than 5 tonnes. The quantity associated with the development is only approximately 5,000L which by weight is less than 5 tonnes (based on a density conversion of approximately 0.85kg/L). Therefore, the sk screening threshold is not triggered and the quantity is not considered potentially hazardous.
Liquid Oxygen	2,500m ³	2.2	N/A	Above ground, outside of buildings in VIE Tank near loading dock driveway void. See Figure 4 in Appendix A.	Liquid oxygen (Class 2.2) – Table 2 notes indicate that Class 2.2 materials are excluded from the risk screening.
Oxygen – compressed gas	3,000kg	2.2	N/A	Internally, within the level 1 basement in a designated medical gas bottled store situated in the main medical supply hold. See Figure 2 in Appendix A.	Oxygen compressed gas, medical air, medical nitrous oxide, and medical carbon dioxide are also Class 2.2, and therefore excluded from the risk screening according to Table 2.
Medical air	250kg (approx. 29,000L)	2.2	N/A		
Medical nitrous oxide	200kg (approx. 16,000L)	2.2	N/A		
Medical carbon dioxide	75kg (approx. 7,500L)	2.2	N/A		
Radioactive material	Minimal quantities for use in Radiology and Nuclear Sciences	7	N/A	Radiology (and other relevant) departments. See Figure 3 and Figure 5 in Appendix A.	Radioactive material (Class 7) typically stored and handled at the site in relation to medical tenancies and radiology department (for example) are excluded from the risk screening according to Table 2.

The relevant screening method to be used for each material is based on Table 1 in Applying SEPP 33 (NSW Department of Planning, 2011) which is duplicated as Table 2 in this report. Based on Table 2, the following screening methods or quantities have been used.

Table 2: Screening method used – Applying SEPP 33

Class	Method to Use/Minimum Quantity
1.1	Use graph at Figure 5 if greater than 100 kg
1.2-1.3	Table 3
2.1 — pressurised (excluding LPG)	Figure 6 graph if greater than 100 kg
2.1 — liquefied (pressure) (excluding LPG)	Figure 7 graph if greater than 500 kg
LPG (above ground)	table 3
LPG (underground)	table 3
2.3	table 3
3PGI	Figure 8 graph if greater than 2 tonne
3PGII	Figure 9 graph if greater than 5 tonne
3PGIII	Figure 9 graph if greater than 5 tonne
4	table 3
5	table 3
6	table 3
7	table 3
8	table 3

Note: Classes 1.4, 1.5, 1.6, 2.2, 7 and 9 are excluded from the risk screening. Classes used are those referred to in the Dangerous Goods Code and are explained in appendix 6.

Source: NSW Department of Planning, 2011.

Table 3: General Screening Threshold Quantities – Applying SEPP 33

Class	Screening Threshold	Description
1.2	5 tonne	or are located within 100 m of a residential area
1.3	10 tonne	or are located within 100 m of a residential area
2.1	(LPG only — not including automotive retail outlets ¹)	
	10 tonne or 16 m ³	if stored above ground
	40 tonne or 64 m ³	if stored underground or mounded

Source: NSW Department of Planning, 2011.

2.2 Transportation of Materials

The proposed development may be potentially hazardous if the number of generated traffic movements (for significant quantities of hazardous materials entering or leaving the site) is above the annual or weekly cumulative vehicle movements shown in Table 2 of Applying SEPP 33 (duplicated as Table 4 in this report). There will be negligible deliveries for diesel as this is only required for use of the firefighting water booster pumps and emergency generators. Diesel fuel will therefore be replenished on a need's basis. Given the threshold for weekly movements is 60, the transportation of this material is not likely to be potentially hazardous.

It is envisaged that deliveries for medical gases will be no more than 3 times per week or 156 times per year, however Class 2.2 materials are excluded from the risk screening. Additionally, Class 7 (radioactive materials) are also excluded from the risk screening.

Table 4: Transportation Screening Thresholds – Applying SEPP 33

Class	Vehicle Movements		Minimum quantity*	
	Cumulative Annual	Peak or Weekly	per load (tonne)	
			Bulk	Packages
1	see note	see note	see note	
2.1	>500	>30	2	5
2.3	>100	>6	1	2
3PGI	>500	>30	1	1
3PGII	>750	>45	3	10
3PGIII	>1000	>60	10	no limit
4.1	>200	>12	1	2
4.2	>100	>3	2	5
4.3	>200	>12	5	10
5	>500	>30	2	5
6.1	all	all	1	3
6.2	see note	see note	see note	
7	see note	see note	see note	
8	>500	>30	2	5
9	>1000	>60	no limit	

Note: Where proposals include materials of class 1, 6.2 or 7, the Department of Planning should be contacted for advice. Classes used are those referred to in the Dangerous Goods Code and are explained in Appendix 7.

* If quantities are below this level, the potential risk is unlikely to be significant unless the number of traffic movements is high.

Source: NSW Department of Planning, 2011.

2.3 Summary of Risk Screening

The materials associated with the development do not trigger the screening thresholds for either quantities or transportation movements and therefore the development is not considered potentially hazardous and SEPP 33 does not apply.

The safety management regime for hazardous materials is based on observance of standard engineering codes and standards such as:

- AS 4332-2004, The storage and handling of gases in cylinders.
- AS/NZS 4645, Gas distribution networks Series.
- AS 4289-1995, Oxygen and acetylene gas reticulation systems.
- AS 2896-1998, Medical gas systems – Installation and testing of non-flammable medical gas pipeline systems.
- AS 1940-2004, The storage and handling of flammable and combustible liquids provides.

3 Mitigation Measures

The proposed methods of operation of the proposed Northside Private Hospital are described in the Environmental Impact Assessment (EIS) for the project. The following potential hazards to the environment and/or public health have been identified in relation to the operation of the facility:

- Spills – liquid/solid (e.g. fuel tank leaks, material spill);
- Fire/ explosion – electrical/chemical (e.g. fire from adjacent sites; fire in the waste trucks entering the Site; or fire initiated on-site by vehicle accident, equipment or by discarded matches or naked flames; electrical faults);
- Exposure to hazardous substances;
- Traffic accidents resulting from the interaction between heavy vehicles and other vehicles and pedestrians; and
- Equipment failure.

Table 5 provides a summary of the potential hazards identified as part of the operational risk assessment, the risk associated with the hazard and the proposed mitigation strategy that would be adopted to address the hazard, along with the relevant standard or guidance document that would be used in the development of the procedure or engineered control.

Table 5: Hazard scenarios and consequences associated with the activities and facilities

Hazards/aspect	Risk	Management standards and guidelines
Handling hazardous materials	personal harm/injury, environmental pollution or property damage	• Ensuring correct labelling of containers and pipework, using warning placards and displaying safety signs. • Maintaining a register and manifest (where required) of hazardous chemicals and notifying the regulator if you store manifest quantities of hazardous chemicals. • Identifying any risk of physical or chemical reaction of hazardous chemicals and ensuring their stability. • Ensuring workplace exposure standards for hazardous chemicals are not exceeded. • Providing health monitoring to workers (if relevant). • Providing information, training, instruction and supervision to workers. • Providing a spill containment system for hazardous chemicals if necessary. • Obtaining the current SDS from the manufacturer, importer or supplier of the chemical. • Controlling ignition sources and accumulation of flammable and combustible substances. • Providing fire protection equipment, firefighting equipment and emergency and safety equipment. • Providing a copy of your emergency plan to the primary local emergency services organisation if the quantity of a class of hazardous chemical at your workplace exceeds its manifest quantity.

Hazards/aspect	Risk	Management standards and guidelines
		- Ensuring the stability and support of containers for bulk hazardous chemicals, including pipework and attachments. - Ensuring hazardous chemical storage and handling systems are decommissioned correctly. - Notifying the regulator as soon as practicable of abandoned tanks in certain circumstances.
Truck unloading of medical and other supplies, and loading of waste from the loading area	Loss of control, vehicle accident, impact on other vehicles, plant or pedestrians	- EMP prepared in accordance with <i>AS 4083-2010 Planning for emergencies in health care facilities</i>. - Operators to be licensed and competent.
Diesel fuel (class 3) storage – fire, storage tank failure, spills, etc.	Fire, release of dangerous goods, skin contact	- EMP prepared in accordance with <i>AS 4083-2010 Planning for emergencies in health care facilities</i>. - Storage in a separate storage area or bund. <i>AS1940:2004: The storage and handling of flammable and combustible liquids</i>. - Emergency Response Plan (ERP) to be included in Incident Response Plan (IRP), including fire response procedure. - Appropriate PPE to be supplied and worn.
Radioactive material – mishandling, spillage, prolonged exposure	Release of dangerous goods, skin contact, radiation	- EMP prepared in accordance with <i>AS 4083-2010 Planning for emergencies in health care facilities</i>. - Stored separate to other potentially hazardous materials including flammable or combustible goods. - Emergency Response Plan (ERP) to be included in Incident Response Plan (IRP), including fire response procedure. - Appropriate PPE to be supplied and worn.
Vehicle exhaust generated from movement of trucks in/around enclosed buildings and healthcare patients	Respiratory and skin health impacts	- Appropriate vehicle maintenance schedules would be strictly adhered to. - Patients will be prevented from frequenting areas that will have high traffic associated with deliveries and collections.
Fire – caused by machinery malfunction, electrical failure, ignition of fuel spill.	Fire	- Provision of sufficient hose reels around receipt and waste/product storage areas of the composting and manufacturing facility. - Location of existing fire hydrants near receipt and waste/product storage areas. - Installation of a fire hose reel with foam attachment adjacent to banded diesel storage area and generators. - Routine service of fire protection systems and equipment.

Hazards/aspect	Risk	Management standards and guidelines
		• ERP to be included in IRP, including fire response procedure.
General fire risk	• Damage to property, risk to human health • Smoke pollution	• Evacuation routes be painted on the facility floor with directional indicators showing the quickest routes (to prevent confusion in determining the most appropriate evacuation path). • All personnel are effectively practiced in site evacuation, through evacuation drills- conducted twice per annum. • The evacuation procedure be included within the Site emergency plan and that the emergency drill/exercise frequency also be listed within the plan with set months for the drill/exercise application. • Design and installation of a containment and disposal system that complies with relevant regulations for the low fire risk materials that are received and stored on site. • Purchase and access to bunding material to prevent water from entering stormwater systems. • Engagement of liquid waste disposal contractor, if required, to pump out and dispose of contaminated firewater.

4 Conclusions

A preliminary risk screening assessment of hazardous and potentially hazardous material has been undertaken for the proposed development in accordance with *Applying SEPP 33* guidelines.

Medical gases as outlined in this report are excluded from the risk screening and therefore, these materials are not considered potentially hazardous with reference to SEPP 33. Additionally, the quantities of diesel fuel are below screening threshold quantities as outlined in the *Applying SEPP 33 guidelines* and therefore, the quantities are not considered potentially hazardous with respect to SEPP 33.

The number of traffic movements associated with delivery of the materials are expected to be less than the transportation screening threshold outlined in the *Applying SEPP 33* guidelines. Therefore, the transportation of the materials associated with the proposed development is not considered potentially hazardous.

As hazardous materials associated with the development are not expected to trigger screening thresholds, the development is not considered potentially hazardous and therefore SEPP 33 does not apply. Regardless of the outcome of the preliminary risk screen, the safe management and storage of materials identified should be done so according to standard engineering codes and general mitigation measures outlined in Section 3.

Appendix A Site Plan

Figure 2: Basement level 1 plans

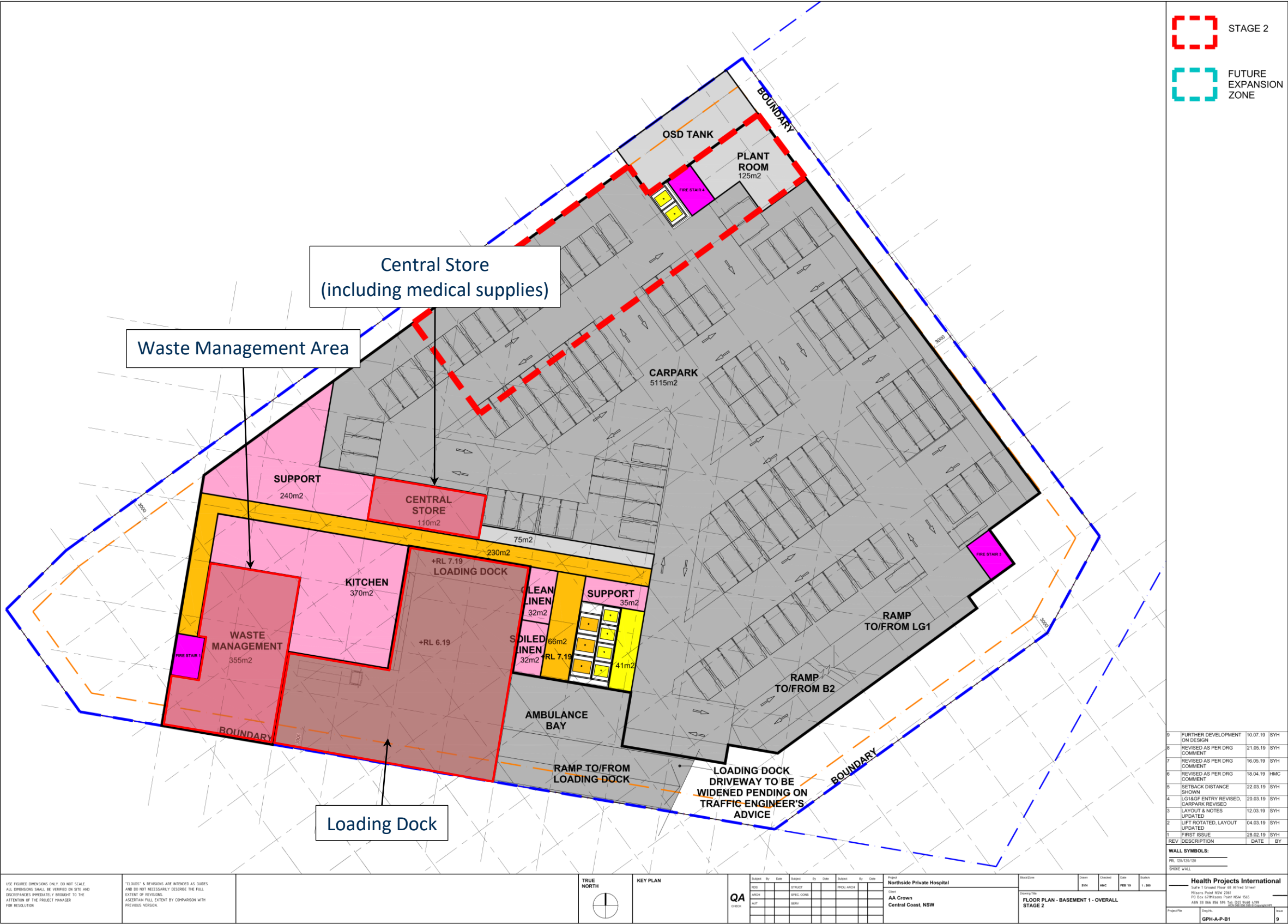




Figure 4: Level 1 plans

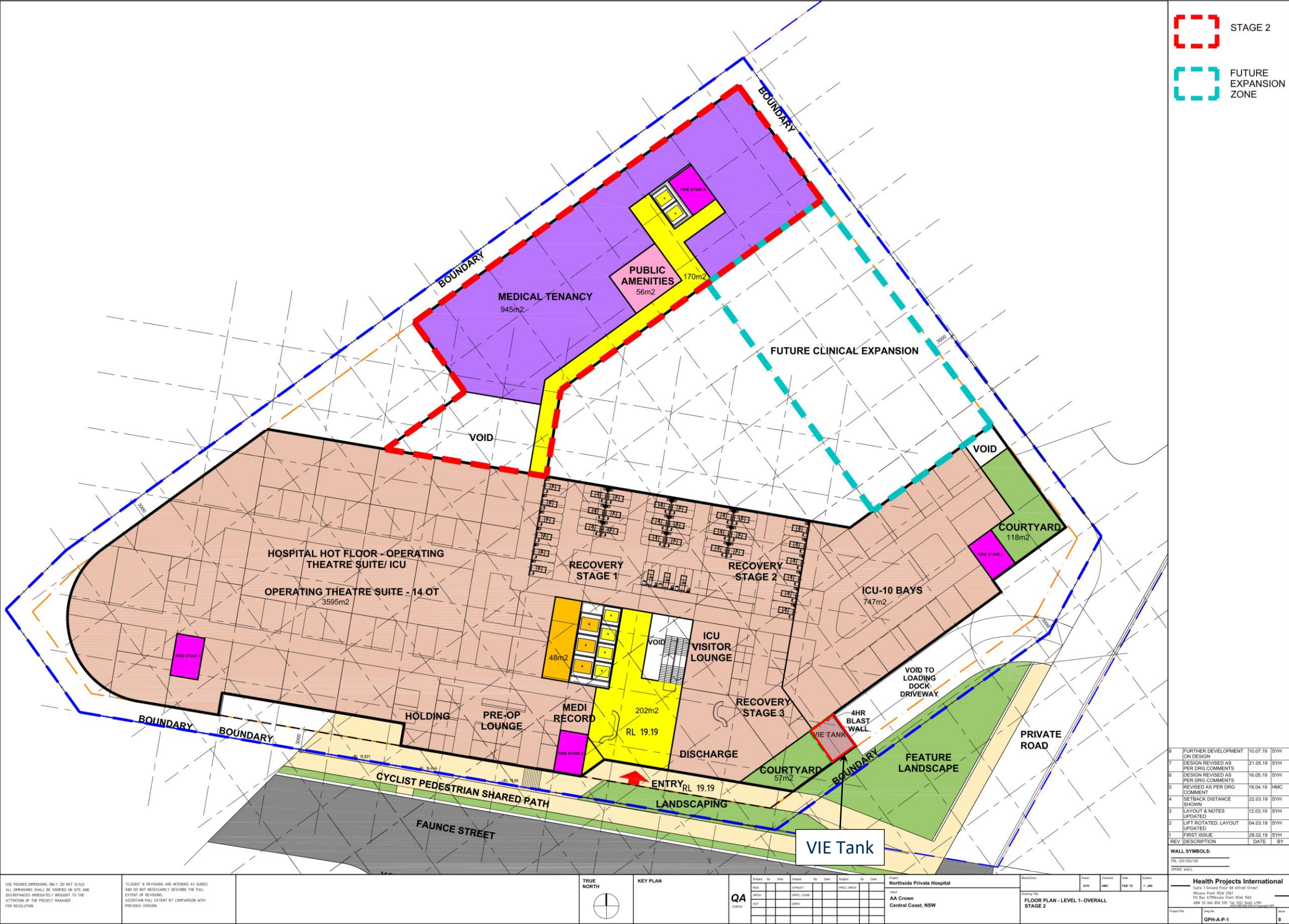


Figure 5: Level 2 plan

