



Health
Infrastructure

**Investment Decision
Document:
Lidcombe Forensic
Precinct**

1 DOCUMENT MANAGEMENT

1.1 REVISION HISTORY

Version	Date	Issued by	Issued to	Reason
1.0	8/11/2022	JSP	HI	For review
1.1	12/11/2022	JSP	Working Group	For review
1.2	21/11/2022	JSP	HI	For review
1.3	27/11/2022	JSP	HI / NSWHP / NSWPF	Final
1.4	30/11/2022	JSP	HI / NSWHP / NSWPF	Updates to FIS and CBA and further feedback on the IDD

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Endorsement by:

The capital cost estimates in this Lidcombe Forensic Precinct Investment Decision Document are certified to have been developed in accordance with Health Infrastructure's requirements.

Signed _____

Cost Manager, Genus Advisory

The Lidcombe Forensic Precinct Investment Decision Document been reviewed and is fully endorsed by the NSW Health Pathology

Signed _____

Gray McCosker

Chief Executive, NSW Health Pathology

The Lidcombe Forensic Precinct Investment Decision Document been reviewed and is fully endorsed by the NSW Police Force

Signed _____

Deputy Commissioner, Corporate Services, NSW Police Force

The Investment Decision Document is certified to contain all items required for project approval and funding.

Signed _____

Executive Director, Health Infrastructure

The Investment Decision Document is certified to contain all items required for project approval and funding.

Signed _____

Chief Executive, Health Infrastructure

DESCRIPTION

PROJECT DESCRIPTION

The Lidcombe Forensic Precinct (the Project) will provide a new fit for purpose world class building combining multiple services including NSW Health Pathology Forensic and Analytical Science Services (FASS), NSW Health Pathology Specialised Services and the NSW Police Force Forensic Evidence and Technical Services Command (FETS).

The end-of-life condition of the current FASS infrastructure, and its unique and essential role in the NSW justice system, present serious business continuity and sample integrity risks, and underpins the development of this IDD.

This IDD is in response to an approved Brief for the Secretary for NSW Health (18/1/2022) to progress planning for a joint infrastructure proposal to develop a Forensic Precinct at the NSW Health Pathology (NSWHP) FASS Lidcombe site between NSWHP and NSW Police Force.

PROJECT VISION and OBJECTIVES

Precinct Vision: A world-leading precinct providing integrated and innovative forensic and scientific services to sustain and advance the health and safety of the NSW community

The Objectives of the Project are to:

- Address significant risks to the continuity and integrity of forensic testing in the NSW criminal justice system, that arise from the end-of-life state of the current facility.
- Deliver an integrated service for NSW, which assists rapid and proactive utilisation of information (operational translation)
- Deliver efficient and effective services through synergy and collaborative interagency teams
- Strengthen networks and expertise for NSW by bringing specialists together
- Promote discovery of new service models through translation research, prototyping and enhanced knowledge base
- Use information and communications technology to improve sample management (receipting, processing, and storage), and reporting
- Promote research and education through agency and university partnerships
- Promote seamless flows for staff and samples built around contemporary service models
- Deliver an environment which offers “bump” spaces enabling formal and informal collaboration
- Provide design solutions that ensure the integrity of samples and maintains chain of custody
- Deliver a healthy environment in response to the nature of the work undertaken which offers spaces to support staff health and wellbeing, including culturally appropriate spaces
- Pursue operational and design initiatives that minimise the Project’s environmental impact – including NSW Health Pathology (NSWHP) and Health Infrastructure NSW (HI) sustainability work
- Adopt future proofing strategies to meet the growing and changing service models

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- Provide centralised solution to improve efficiencies, effectiveness, and surge capacities for NSWHP to cater growing demand and new model of care across the state
- Reduce requirements for additional hospital space and improve service delivery through digital and offsite anatomical pathology.

PROJECT SCOPE

The project scope includes the following services:

- NSWHP FASS including:
 - Criminalistics - Chemical Criminalistics, Forensic Biology and DNA, and Illicit Drugs Analysis.
 - Forensic Chemistry – Forensic Toxicology, Drugs and Driving Toxicology, and Drugs Toxicology
 - Environmental Toxicology – provides environmental health testing in:
 - Water Microbiology
 - Legionella Reference Laboratory
 - Clinical and Environmental Toxicology
 - Trace inorganics
 - Centre for Forensic Innovation and Research
- NSWHP Specialist Services including the consolidation of the following services from multiple sites across NSW:
 - Phenomics
 - Genomics
 - Anatomical Pathology
- NSW Police Force (NSWPF) FETS including the consolidation of the following dislocated services across multiple sites in metropolitan Sydney:
 - Crime Scene Services Branch
 - Identification Services Branch

Once the Project is funded, the detailed planning phase will investigate how this scope will be delivered within the available budget to meet the project objectives.

PRELIMINARY COST ESTIMATE FOR THE PROJECT

\$676.3 million (excluding GST)

THE CASE FOR CHANGE

KEY DRIVERS

The key drivers for the case for change are:

- current assets approaching end of life and present a risk to security and integrity of services;
- current inefficiencies due to dislocated services;
- projected service activity, demographics, and crime trends; and
- alignment with government and service strategic directions.

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SERVICE ACTIVITY AND PRIORITY

Forensic scientific services are provided to NSWPF to support the safety of the NSW population. In many cases, samples are collected by NSWPF and analysed by NSWHP to support crime investigations.

While crime scene attendance was recently lower due to COVID, NSWPF activity is projected to increase across:

- Number of samples collected
- Number of jobs
- Amount of analysis and processing

The following total growth is projected from 2021/22 to 2032/33:

+135%	Growth in Pharmacology Services Unit case work
+27%	Growth in Ballistics Investigation Section jobs
+111%	Growth in Fingerprint Operations Analysis/Processing jobs
+136%	Growth in DNA Results Management Unit samples
+45%	Growth in Engineering Investigation Unit jobs

Table 1: Current, Historic (2017/18 to 2020/21) and Projected (2022/23 to 2032/33) forensic activity, NSW Police Force and NSW Health Pathology¹

Area/Team	Existing sites	2017/18	2018/19	2019/20	2020/21	2022/23	2027/28	2032/33
Forensic & Analytical Science Service (FASS)		250,946	251,749	244,431	236,677	315,036	444,836	674,872
NSWHP (Lidcombe)	Water Microbiology	14,911	14,486	15,159	14,539	14,943	15,736	16,572
	Legionella	4,383	3,809	4,248	4,031	3,929	4,138	4,357
	Trace Inorganic Laboratory	3,008	2,891	3,723	2,954	2,982	3,140	3,307

¹ Projected activity is based on demand whereas the FIS is based on serviceable demand and hence is different from 2023/24

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	Clinical & Environmental Toxicology Lab	862	789	658	853	858	988	1,137
	Forensic Toxicology Laboratory	4,159	4,669	4,626	4,714	4,816	5,072	5,341
	Drugs & Driving Laboratory	28,546	26,874	29,077	32,638	27,811	29,446	31,177
	Illicit Drug Analysis Unit	18,084	18,786	19,896	17,585	20,591	23,994	27,959
	Chemical Criminalistics Unit	1,027	1,213	1,229	1,308	1,394	1,757	2,216
	Forensic Biology/DNA	72,053	83,170	90,042	89,902	139,652	257,299	474,057
NSWHP (North Ryde)	Drug Toxicology Unit (DTU)	103,913	95,062	75,773	68,153	98,059	103,265	108,748
Forensic Evidence & Technical Service Command (FETS)								
NSWPF (Pemulwuy)	Pemulwuy Crime Scene Zone (All crime scene) - scene attendance	354,223	339,753	306,416	289,179	266,244	240,663	226,557*
NSWPF	Sydney Crime Scene Zone (all crime scene) - FASS analysis jobs	51,050	61,439	57,325	69,082	76,782	123,659	199,153
NSWPF	Pharmacology Services Unit		199	190	251	290	440	590
NSWPF	Ballistics Investigation Section	4,213	4,134	4,242	4,041	4,122	4,551	5,125

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NSWPF	Fingerprint Operations	89,369	85,287	92,310	113,704	140,592	179,435	240,460
NSWPF	DNA Results Management Unit	29,865	29,149	35,283	33,952	44,892	62,881	80,254
NSWPF (Alexandria)	Engineering Investigation Unit	802	831	753	779	805	955	1,131

Source: NSW Police Force

* Scene Attendance decreased during COVID, trendline anticipated to be higher in line with other growth estimates Source: NSW Police Force activity in FIS

The NSWHP Clinical Service Plan notes that demand projections should align with the projected growth of services requiring pathology services, and that in general NSWHP statewide activity is estimated at between 3% to 4% growth per annum.

Demographics and crime trends

Population growth and an evolving crime environment are putting pressure on the demand for police services. In addition, the public is increasingly expecting cutting edge forensics to be used in crime detection and investigation.² The *Towards 2025 NSW Health Pathology Strategic Plan* also anticipates transformations in how they support crime investigations with “the convergence of big data, artificial intelligence and machine learning”. While crime rates are trending down from 2021/22 for violent crime, sexual assault and assault, the volume of these crimes are the highest they have been in 10 years³, and the volume and complexity of tests associated with each crime are increasing.

² https://www.infrastructure.nsw.gov.au/media/1173/pwc_insw_-_justice_baseline_report.pdf

³ NSW Police Force Trend by Financial Year Graphs, 2022/23 to 2021/22, BOCSAR

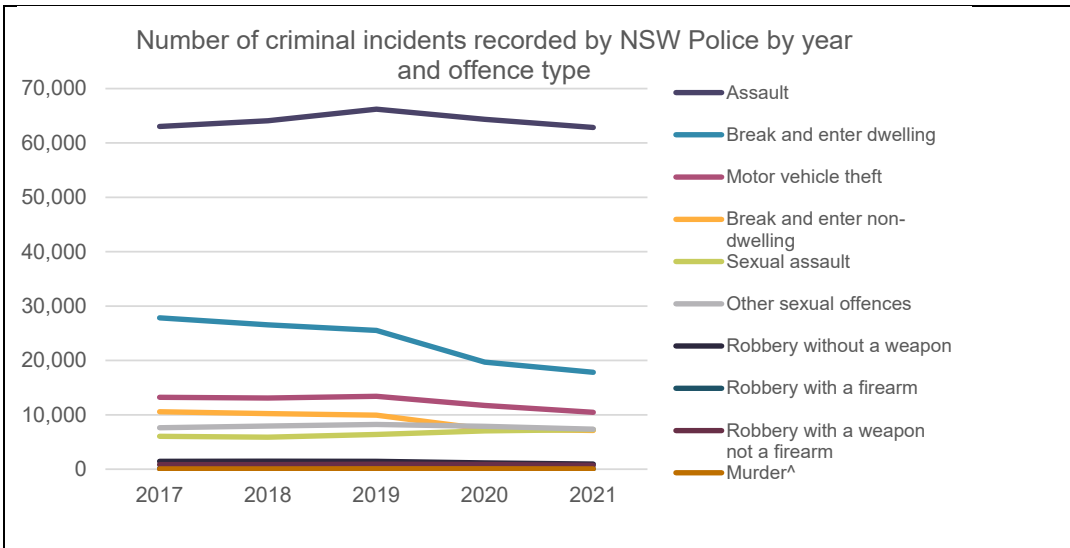


Figure 1: Criminal Incidents Trends 2017-2021

[^]For murder, the numbers and rates shown are for recorded victims rather than criminal incidents.
Source: BOCSAR, Long term trends for major offenses – all of NSW, accessed: https://www.bocsar.nsw.gov.au/Pages/bocsar_datasets/Trends.aspx

Source: 5 Year Trends, Latest Recorded Crime Reports https://www.bocsar.nsw.gov.au/Pages/bocsar_crime_stats/bocsar_latest_quarterly_and_annual_reports.aspx updated June 2022

While crime rates per 100,000 population for most crimes are decreasing, the NSW population is projected to grow by over a million people from 2021 to 2036

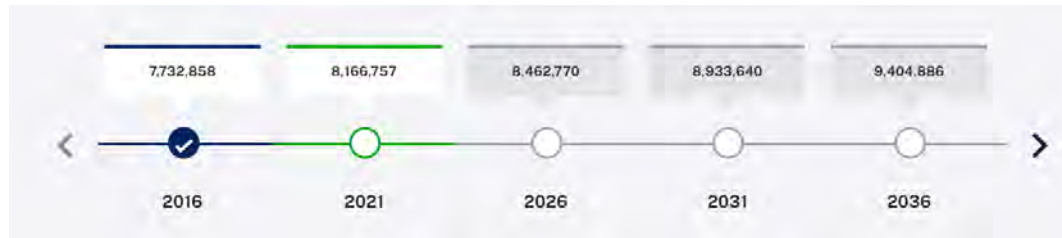


Figure 2: NSW Population Growth Projections

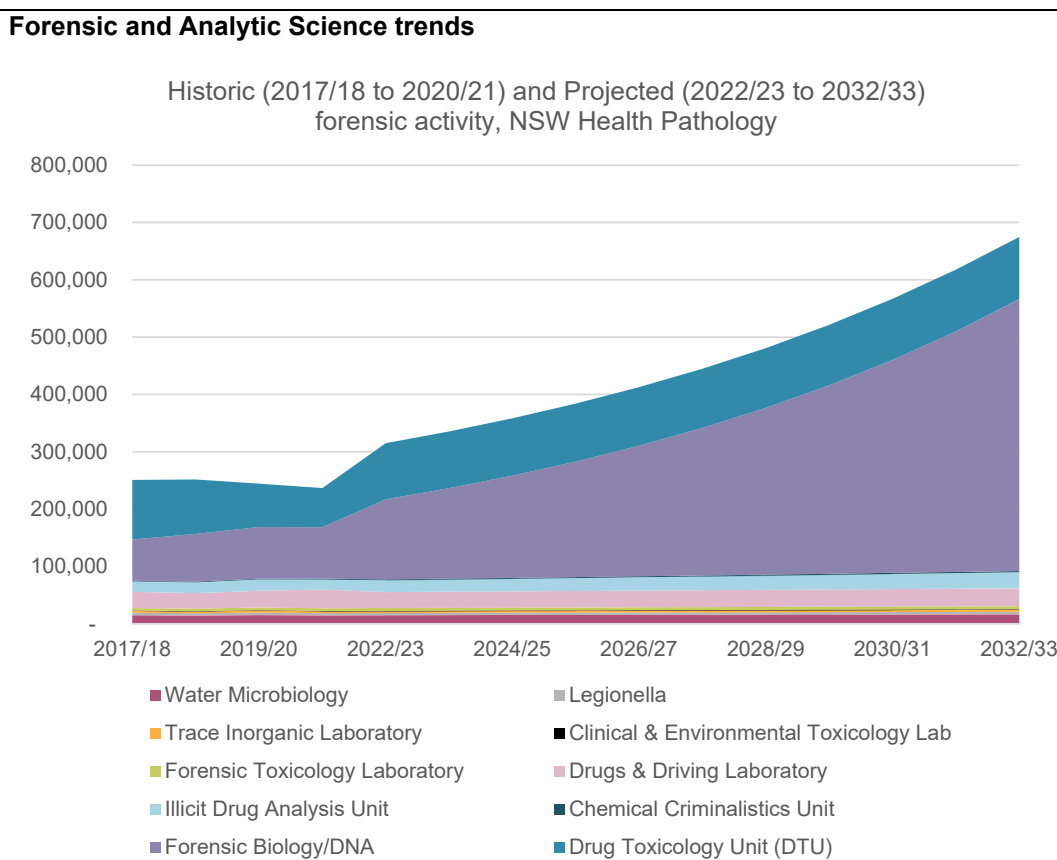


Figure 3: Forensic Pathology Projected Trends to 2032/33

Forensic Biology/DNA and Drug Toxicology Unit activity accounts for the majority of total NSW Pathology FASS activity. The majority of other services are trending relatively stable due to block funding arrangements, or slightly increasing. The largest projected growth from 2022/23 to 2032/33 is in Forensic Biology/DNA.

Total activity is projected to double from 315,036 in 2022/23 to 674,872 in 2032/33, drivers for which include: increasing number and types of tests on same sample; addition of new streams for testing which are more complex and time intensive, and surge capacity for statewide projects and special police operations.

NSWHP Specialised Service Trends

Pathology services are growing at 3-4% per annum on average. Specialised pathology services require highly specific expertise, equipment, and critical mass to function, as well as an attractive work environment to retain staff and position NSW as a leader in these services.

NSW Health Pathology is a leader in clinical genetic services and research, performing more than 80,000 genetic and genomic tests each year to reveal new insights, reduce time to diagnosis, and support personalised precision medicine. There is strong synergy

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with the forensic DNA services for developing new approaches to criminalistics utilising genomics, such as emerging applications of forensic genetic genealogy. Anatomical pathology also has key collaborations with genomics.

A key driver to provide anatomical pathology specialist services at this site is the inability of current pathology services on hospital sites to support future demand growth. The Lidcombe precinct would take on non-acute activity currently managed by metro hospital laboratories, significantly delaying the need for laboratory capital investment of finite and expensive hospital ground. The new centralised and digitalised services in pathology will enable and improve efficiency and effectiveness. On average this off-site activity accounts for approximately 36% of activity processed in metro labs.

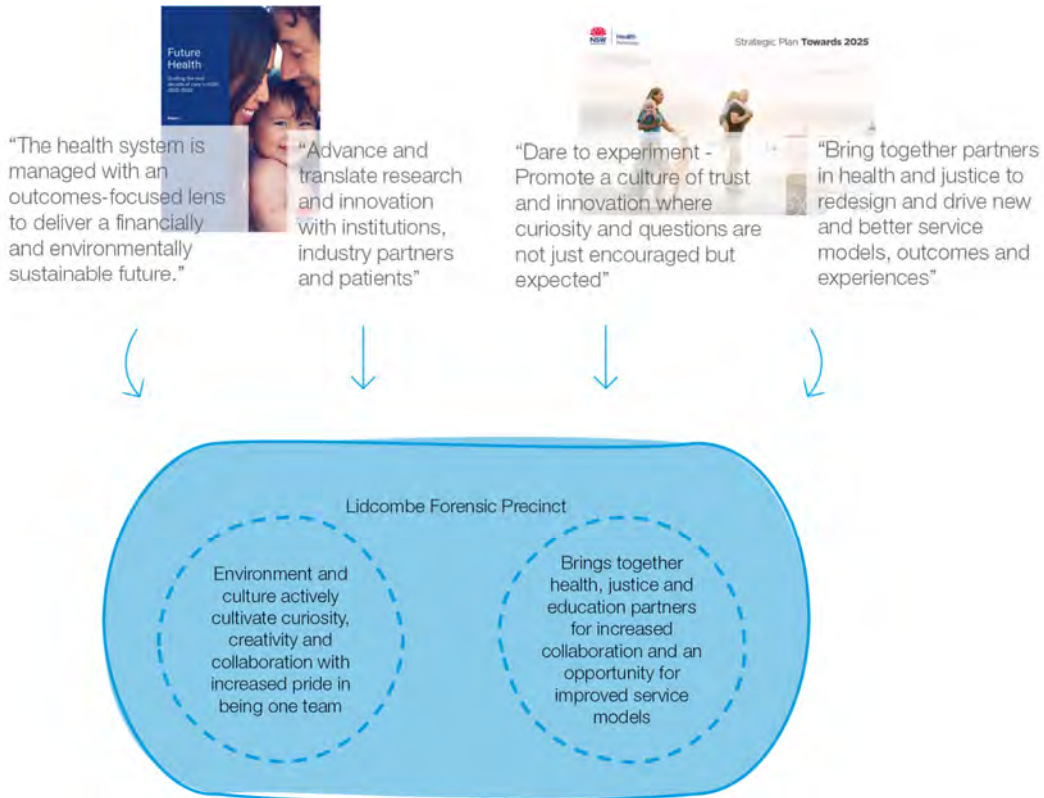
In addition, the site would provide phenomics and development, evaluation and special assay service through liquid chromatography and tandem mass spectrometry (LC-MS/MS). LC-MS/MS will complement genomic services, be a major pillar in the future of personalised medicine and require close collaboration with clinicians in determining assay specifications. MS services are also provided by FASS, and collocation would support a centralised service with greater testing types so that tests no longer have to be sent overseas for expensive processing and long patient wait times.

Table 2: Projected Activity for NSWHP Specialist Services

Service	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	CAGR
Special Services	95,790	108,435	108,435	108,435	108,435	108,435	108,435	202,312	219,512	237,290	256,301	10.3%
Anatomical pathology	38,977	39,916	39,916	39,916	39,916	39,916	39,916	57,731	60,649	62,751	64,886	5.2%
Genomics	51,972	62,907	62,907	62,907	62,907	62,907	62,907	136,341	150,185	165,423	182,194	13.4%
Phenomics	4,841	5,612	5,612	5,612	5,612	5,612	5,612	8,240	8,678	9,116	9,221	6.7%

These services would be supported by collaborative prototyping and research areas for translational research, developing new approaches to forensic science, specialised pathology services, education and workforce development.

Strategic Planning Context



NSW State Health Plan



Strategic Direction

“Advance and translate research and innovation with institutions, industry partners and patients”

Project Alignment

Precinct enables collaborative and innovative service deliver between NSW Health, NSW Police, and Education Providers

Strategic Direction



“Staff are supported to deliver safe, reliable, person-centred care driving the best outcomes and experiences.”

Project Alignment

Build positive work environments that bring out the best in everyone and attract and retain skilled people

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	<p>Strategic Direction “The health system is managed with an outcomes-focused lens to deliver a financially and environmentally sustainable future.”</p> <p>Project Alignment The project supports NSW Health’s commitment to an environmentally sustainable footprint for future healthcare</p>
<p>Towards 2025 NSW Health Pathology Strategic Plan (2020)</p> 	<p>Strategic Direction “Connected communities of care - Bring together partners in health and justice to redesign and drive new and better service models, outcomes and experiences for all our communities”</p> <p>Project Alignment The precinct will bring together health and justice partners for increased collaboration and an opportunity for improved service models</p> <hr/> <p>Strategic Direction “Dare to experiment - Promote a culture of trust and innovation where curiosity and questions are not just encouraged but expected”</p> <p>Project Alignment Precinct environment and culture actively cultivate curiosity, creativity and collaboration with increased pride in being one team “We are partners in translational research where discoveries move rapidly from the lab to the community” “We invest in infrastructure designed and curated to be fit-for-purpose and the future”</p>
<p>NSW Police Force: Our Focus for the Future</p> 	<p>Strategic Direction How the community perceives their police force is critical to safeguarding the community. How we engage the community, respond to and support victims, and progress investigations will build community confidence and victim outcomes</p> <p>Project Alignment Support the projected increase in forensic demand to solve crimes in a timely manner</p> <hr/> <p>Strategic Direction Together, we will shape a connected workforce and connected community, inspiring our people while remaining authentic to our rich history</p> <p>Project Alignment Improve collaboration between colleagues being in one location as well as collaboration with NSWHP</p> <hr/> <p>Strategic Direction We need a plan for the future that enables us to adapt to a complex and changing operating environment</p> <p>Project Alignment Strengthen the partnership between NSWPF and NSWHP in one location with flexibility in design</p>

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<p>State Infrastructure Strategy 2022-2042</p> 	<p>Strategic Direction “Continue NSW’s investment program in sectors that require renewal, with a focus on TAFE and Justice.”</p> <hr/> <p>Project Alignment Support statewide investment in justice sector</p>
<p>GPOP – Our true centre: the connected unifying heart</p> 	<p>Strategic Direction “Grow precincts next when major infrastructure like Sydney Metro West and the proposed Parramatta Light Rail Stage 2 are delivered.”</p> <p>Project Alignment Lidcombe is one of the 8 identified precincts. Investing in this project aligns with the proposed action to grow and maintain the Lidcombe precinct.</p>
<p>Forensic Precinct Plan</p> 	<p>“There is sufficient space within the precinct to accommodate future expansion of FPCC, FASS and the potential addition of other stakeholders and facilities.</p> <p>A central shared area is a key urban design strategy to activate the precinct both functionally and aesthetically.”</p>
<p>NSW Health 20-Year Health Infrastructure Strategy</p> 	<p>Strategic Direction “NSW Health will plan for future capacity and trends such as consumer expectations, prioritising network sharing and specialisation, allowing for technological uncertainty.” “Investment decisions have a bigger focus on maintaining existing assets.”</p> <p>Project Alignment Supports technology changes, collaboration, specialisation, and continued use of owned precinct in lieu of leased arrangements. Previous precinct changes have supported maintenance and improvement of current assets until end of life.</p>
<p>NSWHP Clinical Services Plan 2019 - 2025</p> 	<p>Strategic Direction The inaugural NSWHP Clinical Services Plan outlines the strategic direction for developing clinical and forensic and analytical service to 2025 and beyond. “Our involvement in dedicated centres for innovation and excellence, in concert with LHDs and justice partners, will serve as effective hubs for collaborative research, education and simulation”</p> <p>Project Alignment</p>

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Ensuring clinical timeframes, patient safety and clinical quality standards are maintained to ensure high quality, safe services.
Providing collaborative areas for research, innovation and education.

Current assets

NSW Police Force – Multiple sites (FETS)

FETS occupies multiple NSWPF sites across the Sydney Metropolitan area. Some infrastructure issues currently being faced include:

- Disparate locations create service inefficiencies
- Alexandria facility has insufficient space for collocated services
- Pemulwuy facility is rented and not owned by NSWPF, with rental agreement due to expire in 2024. The current facility is inadequate for the services needs

In addition, Infrastructure NSW acknowledges that there are “pressures on maintenance costs and each of the justice agencies reports maintenance backlogs and underfunding of recurrent maintenance”⁴

NSW Health Pathology – Lidcombe Site (FASS)

There are a range of buildings currently located on the proposed LFP site that have been constructed and/or upgraded at various phases during its history. This is demonstrated in the diagram below noting the boundary outlined in red and adjacency to the Environmental Protection Authority precinct.

Building 1: The former Mineral Resources Building, constructed in 1975 is currently not occupied and had a structural assessment report completed in October 2022. The report indicates that given the degree of damage and the rectification to make good would require a significant amount of large-scale replacement and structural work.



Figure 4: Mineral Resources Building

⁴ https://www.infrastructure.nsw.gov.au/media/1173/pwc_insw_-_justice_baseline_report.pdf

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Figure 5: Existing Lidcombe Forensic Precinct Site

Building 2: The Forensic Medicine & Coroners Court Complex (FMCCC) was purpose built and commissioned in January 2019.



Figure 6: The Forensic Medicine & Coroners Court Complex

Building(s) 3: The main FASS building was constructed in 1969 as part of the Lidcombe Hospital campus. Other buildings on the site consist of demountable or fibro buildings repurposed for administration or laboratory functions.

The existing infrastructure is nearing its end of life and is unable to be expanded or upgraded to allow for contemporary, best practice laboratory facilities suitable for meeting the growing forensic testing needs of NSW. The buildings are extremely aged and have no lift access.



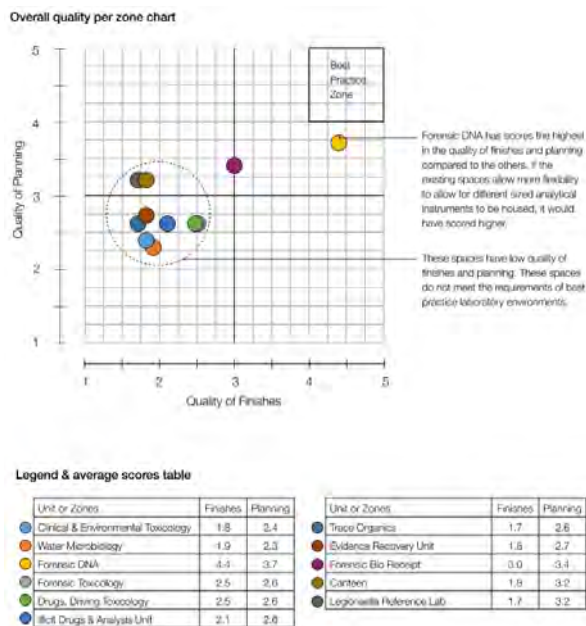
Figure 7: FASS Demountable, main building and an existing laboratory

An Architectural Services Report and an Engineering Condition Assessment Report was completed in May 2019 (**Appendix 7**) which identified significant constraints within the existing FASS buildings that inhibited contemporary forensic laboratory practice. These

constraints included layout, amenity and finishings that were below standards, end of life and / or unserviceable.

The Architectural Services Report scored finishings (both built and furniture, fixtures, and fittings) and planning (layout and amenity) using a scale of 1 (poor) to 5 (excellent). The majority of spaces were found not meet the requirements of best practice laboratory environments as demonstrated in Figure 8.

Figure 8: Finishings and Planning Scores for FASS



NSW Health Pathology Specialised Services

NSW Health Pathology Specialised Services including Anatomical Pathology, Genomics and Phenomics are spread across numerous laboratories at NSW hospital sites. A centralised facility offers an opportunity for these services to be co-located creating service efficiencies (e.g.: workforce, processing times) and improving translational research collaborations.

The Lidcombe facility provides the infrastructure to absorb demand, significantly delaying the need for laboratory capital investment of finite and expensive hospital grounds. The consolidated staff at Lidcombe improves the expertise and knowledge to process complex cases and reduce the need to transport specimens and slides from originating lab to the processing lab back to originating lab for reading. In the new model of care, specimens sent to Lidcombe for processing and digitalisation for reporting, reducing the transport cost by up to 50% and improving the reporting turnaround time. This is demonstrated in the diagram below.

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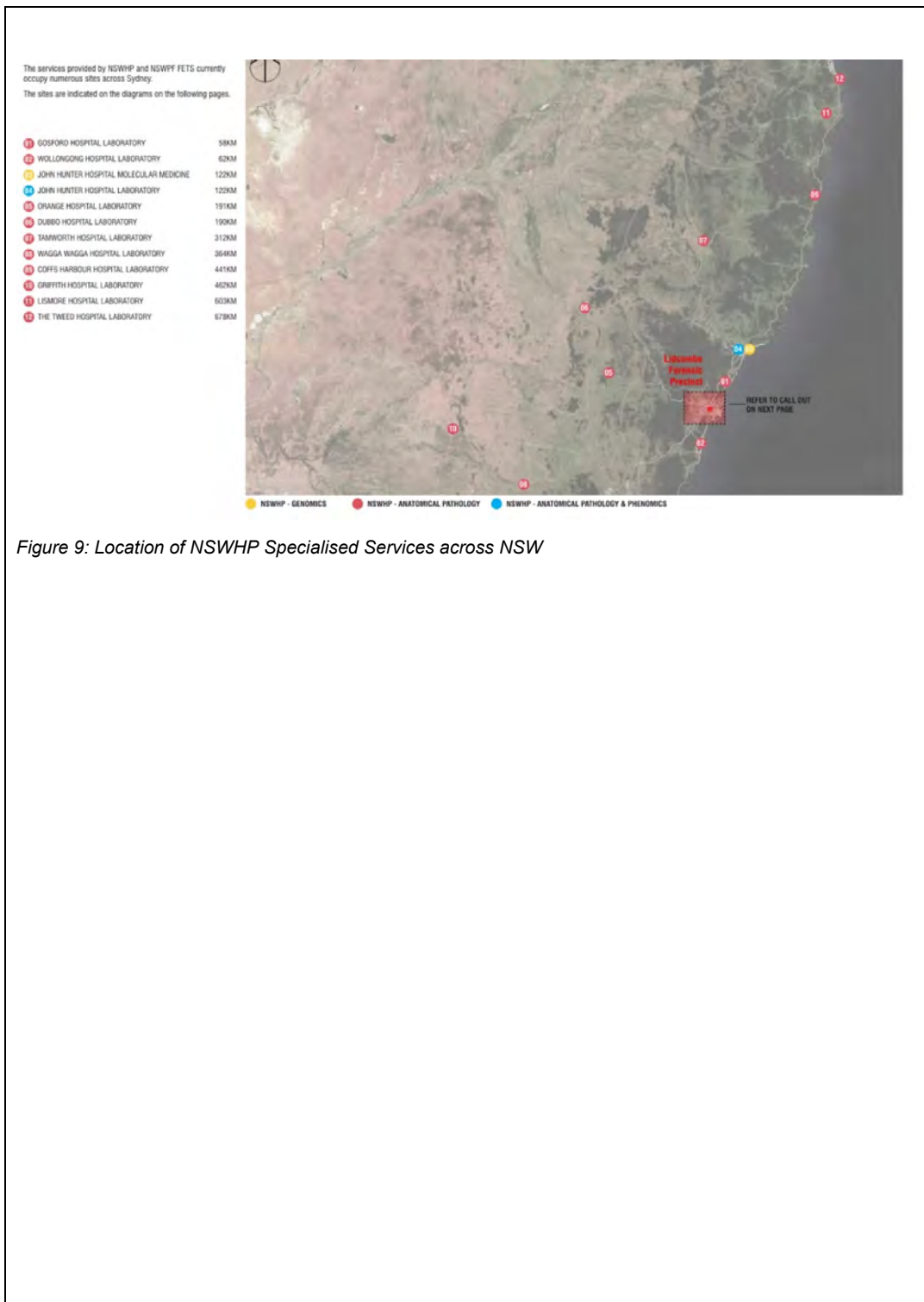


Figure 9: Location of NSWHP Specialised Services across NSW

Dislocation of Services

In addition to the condition of the current assets, the Project provides an opportunity to address the dislocation of services as a result of their multiple geographical locations across metropolitan Sydney and NSW as demonstrated above. This contributes to travel inefficiencies, lost productivity, workforce inefficiencies, delays in turnaround times and inhibits formal and informal collaboration to facilitate innovation and translational research. The diagram below indicates the locations of both NSWHP and NSWPF services across metropolitan Sydney.



Figure 10: Location of NSWHP and FETS Scoped services across Metropolitan Sydney










In addition to the principle key drivers outlined above in detail, the table below summarises the case for change including the key drivers.



Table 3: Summary of Key Drivers in the Case for Change

Key Driver	Description
Ability to provide full scope of services is limited by dislocated services	Current dislocation of services limits the ability to provide a full scope of services – for example, by collocating liquid chromatography and tandem mass spectrometry (LC-MS/MS), QLD Pathology has been able to expand their test menu beyond what NSWHP currently offers.
Risks due to current asset condition	Business continuity is at risk if current infrastructure condition results in shut down periods or sample loss – for some specialised services, NSWHP is the only provider for the entire state – interruptions would impact investigations, court matters, and therefore present risk to community health and safety
Demand for testing is growing	Insufficient capacity on existing sites to accommodate growth in demand for testing. The requirement for more sophisticated tests to

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	ensure best practice health and justice outcomes is a driver of this trend.
 <p>Future service planning aims are better achieved when NSW Police and NSW Pathology are co-located</p>	Future service planning for NSWHP and NSWPF aims to identify emerging drug trends in NSW and develop early warning systems to drive evidence-based policing and drug health policy and practices in NSW. Co-locating the staff of both organisations would greatly support this.
 <p>Key functional relationships are not met, and limit results</p>	Key functional relationships between NSWPF and NSWHP are not met with current service locations, limiting the ability to collaborate on results.
 <p>There are staff and technology inefficiencies</p>	Current dislocation of services impacts on efficiency of both staff and technology.
 <p>Current dislocation of services pose risks</p>	Due to dislocation of services, staff transport samples between buildings and across campuses/sites – this poses a risk to sample security, sample integrity and staff safety.
 <p>Working conditions limit retention of highly specialised staff</p>	There are issues with staff retention across the scientific community in Australia – collocating specialist highly-skilled staff would improve staff collaboration, recruitment and retention.
 <p>Use of external providers raises costs and result return time</p>	Limited availability of certain tests results in expensive and lengthy processes to arrange patients test results from overseas providers. Planned future service provision would meet local (and ideally further) needs in-house while avoiding costs of external providers.
 <p>There is an opportunity to position NSW as a leader in forensics</p>	Southern hemisphere provision of specialised services is relatively new, limited and presents an opportunity to position NSW as a leader in translational research and service provision to new regions.
 <p>Current development of new assays is slow</p>	Current development of new assays is slow due to dislocation and inefficiencies. This project scope would therefore provide NSWHP with a competitive advantage over other labs such as private.
 <p>Costs of procurement, management, and maintenance of technology are duplicated</p>	Current technology is dislocated and duplicates the management of highly specialised scientific instruments. Co-locating a critical mass of instruments can save costs on procurement, management, and maintenance.

 <p>Existing assets have undergone a variety of improvements</p>	<p>Existing assets have undergone a variety of improvements and refurbishments over past years to prolong their life. However, they would now achieve value being replaced and/or consolidated.</p>
 <p>Existing operations have high costs of couriers and staff travel</p>	<p>Existing operations have high costs of couriers and staff travel. Project provides opportunity to avoid courier costs and decrease staff travel between sites, thereby increasing the amount of time staff spend in the field.</p>

Functional adjacencies

The diagram below demonstrates the functional adjacencies and shared spaces that would be achieved if the proposed full scope was realised. The adjacencies would provide for efficiency in footprint, travel and workflows, providing an integrated NSWHP FASS and Specialised Services and NSWPFF FETS in one precinct.

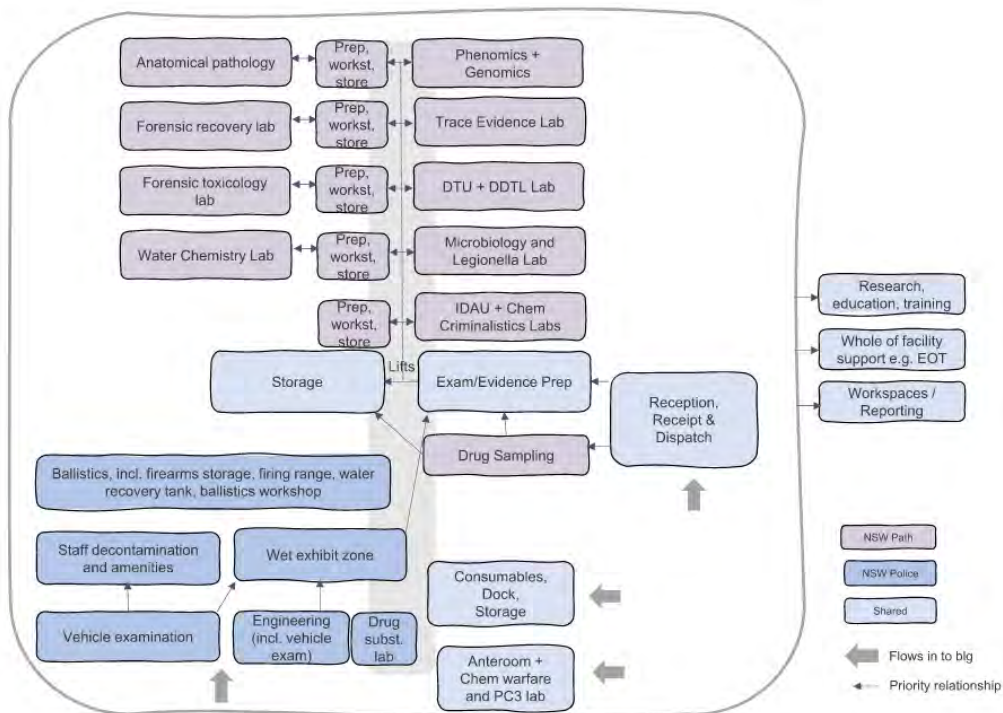


Figure 11: Proposed adjacencies to be achieved for the full scope

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INTERDEPENDENCIES

The Lidcombe Forensic Precinct project supports the *State Infrastructure Strategy 2022-2042* by delivering and sharing space across agencies. NSW Health Pathology, NSW Police Force, NSW Health Infrastructure and NSW Health have been collaboratively involved in planning the project.

“Government and the community will also benefit from co-locating services and new facilities in one place, regardless of which agency is delivering the service.”

State Infrastructure Strategy 2022-2042

Infrastructure investment in Lidcombe aligns with the NSW Government’s prioritisation of the Greater Parramatta and Olympic Park (GPOP) area, which has been highlighted in the State Infrastructure Strategy, Greater Sydney Regional Plan, and Future Transport 2056 plans as a key infrastructure investment location to support growth.

Future interdependencies to be explored include the FMCCC, Local Health Districts, the Environmental Protection Agency and other State, Federal and Local Government agencies such as Transport for NSW, Australian Federal Police and Cumberland Council.

PRIORITY

The Project is a major priority for NSWHP and NSWPF to address significant business continuity and justice system integrity risks that exist due to the current end-of-life infrastructure. The Project will also realise the objective to provide accessible and fit for purpose facilities and replace ageing infrastructure that no longer supports contemporary delivery of forensic scientific services. FASS will not be able to service the projected demand for services, with a need to cap services from 2023/24. This is an opportunity for not only efficiency gains by bringing both NSWHP and NSWPF together on one campus, but also creating a Forensic Precinct that provides for the people of NSW and is nationally and internationally recognised as world class.

Stakeholder Engagement

In response to the endorsed brief to explore planning for the Lidcombe Forensic Precinct, Johnstaff Projects were engaged by Health Infrastructure NSW (HI) to develop an IDD to inform the need for a capital commitment from the NSW Government. Consultation included executive levels of the NSWPF and NSWHP to acquire the information required to develop the IDD. This included a number of workshops with both groups to ascertain the need, the vision and objectives, benefits and to identify a preferred option and Master Plan. Upon confirmation of capital funding, a Stakeholder and Communications Plan will be developed as part of the future planning and Final Business Case.

OPTIONS ANALYSIS

Five Dimensions Options Analysis

In accordance with the *Interim Guide to Options Development of Health Capital Projects (January 2021)* the stakeholders considered the Five Dimensions of Options Analysis, outlined in the table below, prior to options development and assessment.

Table 4: Five Dimensions Options Analysis

Item	Factors	High-level assessment
1 – The “What” – Service: scope, scale, and location	Scale	<p>The Project will deliver a world class integrated forensic precinct with NSW Health Pathology Forensic & Analytical Science Service (FASS), Specialised Pathology Services and NSW Police Force Forensic Evidence and Technical Services Command (FETS) on one campus. The infrastructure will bring together multiple services across Greater Sydney and NSW into one building to address current inefficiencies created through the need for travel and the use of couriers, in addition to mitigating the risks posed by the current infrastructure to the chain of custody for evidence and the potential miscarriage of justice. The Project does not have an allocation of capital funding. The delivery of partial components of the scope (e.g.: FASS or FETS alone) will not fully achieve the benefits that colocation will provide.</p>
	Location [Greenfield v brownfield]	<p>The existing FASS Lidcombe is located on the same campus as the recently commissioned Forensic Medicine & Coroners Court (FMCC) complex (January 2019). There is sufficient available land on the site to construct a new building that could be staged with minimal interruption to services in addition to maintaining a significant amount of therapeutic and climate controlling green space. The land is owned by NSW Ministry of Health, Health Administration Corporation (HAC) with no capital costs for land purchase required. The new build within the existing campus provides an immediate adjacency to the FMCC, minimising travel times for staff to attend the FMCC when required.</p> <p>The location of the campus is central to Greater Metropolitan Sydney</p>
	Infrastructure upgrade scope: [New build, refurbishment, replacement]	<p>The proposed total GDA (inc. circ and T&E) of new build is 34,977m². The adaptive re-use / refurbishments of existing spaces have been considered throughout the options development. Factors influencing this have included the age and condition of the existing infrastructure, as well as location / adjacency for services.</p> <p>Condition reports indicate that the existing buildings are no longer fit for purpose, contain hazardous materials and the structural grid does not support contemporary practice. The FASS building was constructed in 1969 and in addition to the issues with its existing condition, it will need to cap its service activity by 2023/24.</p> <p><i>The NSW Health Asset Management Framework: NSW Health Pathology Asset Performance Assessment - Buildings and Building Equipment</i> estimates that \$10.8m will be required to maintain the current FASS building to a minimum standard.</p> <p>FETS is currently located on multiple sites that are constrained due to being located in existing readapted infrastructure or leased commercial buildings.</p>

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		Specialised Pathology Services are located in multiple facilities across Metropolitan Sydney and NSW occupying valuable space in health facilities that could otherwise be planned for other services or not required.
2 – The “How” - Service Solution	Existing:	Both FASS and FETS are required to maintain the chain of custody for physical evidence. The current infrastructure poses risks to the chain of custody due to the travel requirements to transport evidence both internally and externally due to the location of FASS and FETS across various locations in Sydney and NSW and also the design of existing facilities which do not support efficient flows. IT systems are used to document findings once analysis is complete; however, the majority of evidential items are material and need to be transported for sampling and testing. NSW Specialised Pathology services are located across multiple sites in metropolitan Sydney and NSW occupying space in health facilities.
	New:	The co-location of NSWHP and NSWPF scoped services will minimise travel times and the movement of evidence and promote collaboration between the two services. The new build will provide a fit for purpose facility that will minimise risks to the chain of custody and processing errors and allow for the projected increase in activity after 2029. The new service will also be a place where innovation will be promoted in collaboration with tertiary institutions facilitating research, education and training, creating a precinct that is recognised at a local, national and international level.
3 – The “Who” – Service Delivery	Services	NSW Health Pathology will provide the FASS and specialised pathology services and NSW Police Force will provide the FETS component. The collocation of these agencies will provide a seamless flow of evidence, sampling, analytics and reporting, minimising the risk of compromising the chain of custody, creating efficiencies, and promoting collaboration through ease of access to expertise between the two agencies
4 – The “When” – Timeframe and Staging	Timeline and Staging	Contract documentation Q1 2026 (Assuming commencement of Part 0 of Facility Planning Process Q3 2023) Staging: <ol style="list-style-type: none"> 1. New Build and decant of services into the new building 2. Car Park constructed concurrently with the new build 3. Remediation / demolition of the existing buildings
	Construction commencement	Anticipated Q4 2026
	Construction completion	Anticipated Q4 2028
	Commissioning	Anticipated Q1 2029
	Demolition of existing buildings	Anticipated Q2 2029
5 – Funding	Potential funding options	NSW Government Funding \$676.3m NSW Police Force Lease arrangements to be modelled on the FMCCC framework (TBC) Private partnerships (e.g., with universities or others) to be explored further in Business Case stage.

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Scope Options

The scope for the LFP was developed in consultation with the NSWPF and NSWHP stakeholders. The scope of services including a schedule of accommodation is documented in the *Lidcombe Forensic Precinct Scoping Document (Appendix 1)*. This was used to develop a long list of options to assess against the Base Case. The long list of 7 options included the non-capital solutions outlined below. A short list was created through a qualitative assessment using a multi criteria assessment based on the benefits to be realised from the Project. The short list of 3 options were costed and a FIS and CBA were developed to inform the preferred option.

Non-Capital Options

The non-capital options currently in place include:

Table 5: Non-Capital Options

Non-Capital Options	Description
Service realignments to improve integration and workflows	<p>FASS Service realignments to improve integration and workflows have been undertaken, but this is severely constrained by the condition and layout of the buildings on the campus. Receipt points for sample deliveries have been consolidated to improve efficiency across the campus, but this has only been able to be progressed as a virtual model. The building design does not support the development of a centralised receiving area as there is no space central and large enough to provide this function. A key requirement to improve service efficiency would be the provision of laboratories with efficient functional adjacencies but this cannot be designed within the current "U" shaped layout of the main building.</p> <p>FETS have accommodated staff in available space within existing infrastructure and leased space across metropolitan Sydney.</p>
Streamline and standardise work processes and methodology	Laboratory layouts, location of laboratory equipment at FASS have been maximised to improve workflows within the constraints and limitations of the existing building which does not meet the requirements of contemporary practice.

These non-capital solutions are not sufficient to meet the future demand of NSWHP and NSWPF forensic services to continue to keep the community healthy and safe through rapid detection and diagnosis and preventing and solving crime.

Capital Scope Options

The table below summarises the short list scope options and Base Case with the qualitative and quantitative (BCR).

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Table 6: Capital Scope Options

Infrastructure Option	Assessment outcome (%)	Cost (\$m)	BCR
1 - Base Case Keep safe and operational and minimise risk	20%		
1A - Full Scope, New Build (24,984m²) NSWHP (FASS and Specialised Services) <ul style="list-style-type: none"> • Criminalistics • Forensic and Environmental Toxicology • Phenomics • Genomics • Anatomical Pathology • Centre for (Forensic) Innovation and Research NSWPF (FETS) <ul style="list-style-type: none"> • Crime Scene Services Branch • Identification Service Branch 	100%	\$676.3	1.19
2A - NSWHP Full Scope Only, New Build (15,071m²) NSWHP (FASS and Specialist Services) <ul style="list-style-type: none"> • Criminalistics • Forensic and Environmental Toxicology • Phenomics • Genomics • Anatomical Pathology • Centre for (Forensic) Innovation and Research NSWPF (FETS) <ul style="list-style-type: none"> • No scope – as existing • Potential Stage 2 	61%	\$441.3	1.18
3A - NSWHP Partial Scope and NSWPF Full Scope, New Build (17,609m²) NSWHP (FASS only) <ul style="list-style-type: none"> • Criminalistics • Forensic and Environmental Toxicology • Centre for (Forensic) Innovation and Research NSWPF (FETS) <ul style="list-style-type: none"> • Crime Scene Services Branch • Identification Services Branch Excluded NSWHP Specialised Services <ul style="list-style-type: none"> • Phenomics • Genomics • Anatomical Pathology 	67%	\$491.1	1.01

*All scheduled areas in the table include circulation. Excludes T&E and SOA contingency. Based on SOA v2.6

Preferred Option

The options development and qualitative analysis identified Option 1A as the preferred option.

Master Plan Options Development

A Precinct Master Plan was developed in 2015 during the planning of the FMCCC. Informed by the LFP Scoping Document and the short list capital infrastructure options, a revision and refresh of the 2015 Master Plan was undertaken to confirm previous assumptions and consider new assumptions, to select a preferred site within the current precinct. The previous Precinct Master Plan did not consider a greenfield site and given the relationship of the stakeholders with the FMCCC and the availability of land on the site which is owned by HAC, a greenfield option was not considered. With consideration to the footprint required and the site constraints, 7 options were developed and assessed by the stakeholders.

Option 5 of the Master Plans was selected as the preferred option based on a pros and cons and on balance assessment. The Master Plan Report is located in **Appendix 5**.

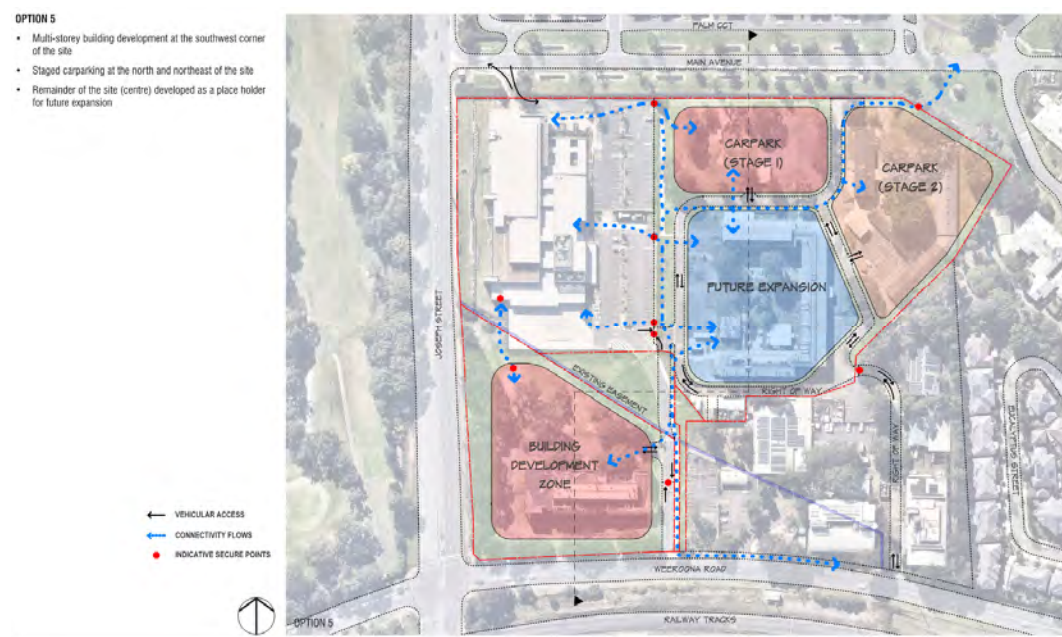


Figure 12: Preferred Master Plan Option

Option 5 was chosen due to the following:

- Lower height building considered beneficial for workflows
- Car park perimeter allows central space for future expansion
- The development does not build over or use the entire site

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- A singular building brings all the users together meeting a key Project objective to foster collaboration between NSWPF and NSWHP

IDENTIFICATION OF BENEFITS

The following table outlines the key benefits and measures which will be further refined and finalised during the Project planning phase. The table below has been adapted from the HI Benefits Realisation Plan (BRP) and aligns with the benefits and investment options mapping in **Appendix 6**.

Table 7: Benefits of the Project

Outcome area	Benefits - Service outcomes	Potential benefits indicator/s
Safety - compliance	Reduction in reportable incidents	Decrease in: <ul style="list-style-type: none"> • WHS incidents • Lost sample incidents • Testing and sample errors
Better value for money – increased efficiency	More efficient service delivery and greater return on investment	<ul style="list-style-type: none"> • Faster sample processing time • Less time taken for quality assurance and error resolution • Less travel/delivery time results in lower courier costs • Increase in staff productivity (front line work % vs. travel %) • Reduction in chain of custody breaches • Decrease in costs of leases and RMR of existing infrastructure • Reduction in Laboratory capital investment of finite and expensive hospital grounds
Sustainability – financial, environmental, and adaptability	Maintenance efficiencies through scale and collocation Increased capacity and efficiency to meet demand at acute facilities, i.e. AP	<ul style="list-style-type: none"> • Reduced whole-of-life-cycle costs • Reduced rent costs • Reduced building management costs
	Cessation of travel across multiple sites	<ul style="list-style-type: none"> • CO2 emission reductions
	Flexibility for future changes in scope and technology	<ul style="list-style-type: none"> • Satisfaction with lab design, and avoided refurbishment costs
Sustainability and workforce – new model of delivery	Improved translational research outcomes and increased health innovation and national recognition	<ul style="list-style-type: none"> • Increased joint authorship research • Decreased time of validation, translation of practice • Improved recovery rates • Non-government investment opportunities

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		<ul style="list-style-type: none"> Joint appointments
Better value care	Optimising outcomes for the NSW community	<ul style="list-style-type: none"> Time to solve crime Turnaround times for evidence gathering sampling and test results Crime prevention

RISK ASSESSMENT AND MITIGATION STRATEGY

Risks, along with their impact, likelihood and mitigation strategies were confirmed by the project working group in November 2022. The highest risks to the project have been summarised below.

Table 8: Top Key Risks for the Project

Risk Rank	Risk Category	Risk Description	Mitigation Strategy	Status
1	Business continuity	The end-of-life condition of the current infrastructure, and its unique and essential role in the NSW justice system, present a serious business continuity risk should there be delay in this project proceeding.	Investment Decision Document submitted for funding consideration. Consideration to be given to staging the Project as part of the options analysis. Value Management strategies to be considered if not fully funded.	High
2	Operational	Reputational risk to the NSW Government due risk of integrity failures resulting from the poor condition of the infrastructure, and inefficiency of the dislocated services.	Investment Decision Document submitted for funding consideration. Non-capital strategies are in place to manage risks as best as possible with current infrastructure.	High
3	Financial	Assumptions in cost plan are incorrect	Robust review of the cost plan and escalation added in accordance with current industry trends	Moderate
4	Cost	Assumptions for car park numbers leads to an underestimation of the number of car spaces	There is availability on the site to increase car and assumptions to be tested further by transport consultants during feasibility	Moderate

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5	Stakeholders	Disruption and/or impact on adjacent residents, EPA or the FMCCC	Master Plan reduces impact on adjacent residential area by placing forensic building on opposite side of precinct. Stakeholder Management and Communications Plan to be developed as part of the future planning	Moderate
6	Program	Program delays will inhibit NSWHP moving into the new building by 2029 by which time they will be operating in end-of-life infrastructure	The project proposed program has factored in the feasibility studies undertaken as part of the IDD anticipating that this will expedite the early stages of the Program	Moderate
7	Business continuity	Maintaining FASS services during construction and commissioning	Disruption notices and operational commissioning plan to be developed as part of further planning once the Project is funded	Moderate
8	Stakeholders	Operational agreements between NSWPF and NSWHP are unable to be resolved	Operational agreement framework from the FMCCC to be used as a basis for establishing agreements between NSWHP and NSWPF	Low

COST BENEFIT ANALYSIS

Health Infrastructure (HI) Business Strategy Unit has undertaken a preliminary Cost Benefit Analysis (CBA) to support the Investment Decision process for the Project. The Quantifiable benefits of all Options incremental to the base case have been considered in this analysis.

In accordance with NSW Government Guidelines for the Cost-Benefit Analysis issued by NSW Treasury in March 2017 (TPP17-03) and the NSW Health Guide to Cost Benefit Analysis of Health Capital Projects (GL2018_021), this IDD CBA has considered the short-listed options.

Based on the quantitative analysis of the costs and benefits of the Project, the results of the CBA are presented in the table below.

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Table 9: CBA results, incremental to Base Case (20 years@7%)((\$m)

Present value (\$m)	Option 1A	Option 2A	Option 3A
Incremental costs			
Capital costs	\$421.9	\$280.3	\$311.9
Life cycle capital costs	\$39.4	\$22.2	\$24.8
Operating costs	\$141.3	\$113.3	\$89.8
Total incremental costs	\$602.6	\$415.9	\$426.5
Incremental benefits			
Total incremental benefits	\$719.0	\$492.7	\$430
Incremental Net Present Value (NPV)	\$116.4	\$76.8	\$4.3
Incremental Benefit Cost Ratio (BCR)	1.19	1.18	1.01

All short-listed options generate positive economic outcomes with positive NPVs and BCRs greater than 1. Based on Project assumptions and parameters, Option 1A would deliver the highest net benefits to community, with an NPV of \$116.4 million and BCR of 1.19. While Option 2A delivers a similar BCR as Option 1A, it presents a lower net economic benefit to the community (NPV of \$76.8 million).

The detailed Cost Benefits Analysis is located at **Appendix 4**.

FINANCIAL IMPACT STATEMENT

A Financial Impact Statement (FIS) has been completed which provides a preliminary assessment of the budget impact of the proposed Project against the Base Case.

Three short list options have been considered in the preliminary FIS, including:

- **Base Case Option 1:** Keep safe and operational. Noting the deteriorating nature of the existing infrastructure and inability to implement sustainable and efficient services.
- **Option 1A** (ETC of \$676.3m): Full Scope, New Build NSWHP (FASS and Specialist Services) and NSWPF (FETS)
- **Option 2A** (ETC of \$441.3m): NSWHP Full Scope Only, New Build NSWHP (FASS and Specialist Services)
- **Option 3A** (ETC of \$491.1m): NSWHP Partial Scope (FASS only) and NSWPF Full Scope (FETS)

Based on activity projections which drive both the cost of goods and services labour related costs, the increase in recurrent costs incremental to the Base Case is estimated at

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between \$16.1m - \$25.5m in 2032/33. The preliminary FIS projects the combined recurrent cost impacts for preferred Option 1A at \$25.5m.

The notional capital spend for all options uses a proportional GDA area (excluding shared spaces) to attribute capital spend across NSWHP and NSWPF. This would result in the following assumption for the preferred option recurrent cost calculation:

Option 1A: NSWHP funding \$495.7m (using a 73% GDA proportional share) and NSWPF funding \$180.6m (using a 27% GDA proportional share)

Based on the above, the projected recurrent cost impacts based on Option 1A for NSWHP is \$22.5m and for NSWPF is \$3.0m.

Table 10: Preliminary Recurrent Impact Summary 2032/33

Agency / Option	Option 1A (\$m)	Option 2A (\$m)	Option 3A (\$m)
NCOS NSWHP 2032/33 (excl. depreciation)	\$22.5	\$20.4	\$13.1
NCOS NSWPF 2032/33 (excl. depreciation)	\$3.0	-	\$3.0
NCOS combined 2032/33 (excl. depreciation)	\$25.5	\$20.4	\$16.1

The detailed FIS is located in **Appendix 3**.

CAPITAL COST PLAN (all costs are indicative and based on standard rates)

The preliminary capital cost cashflows for each option are based on the information known to date. These cashflows will continue to evolve as the planning continues and cost estimates are confirmed. The table below provided by Genus Advisory indicates the preliminary capital cash flows for each option. A preliminary capital cost plan for each option can be found in **Appendix 2**.

Option 1A

Capital costs items	Total (\$)	Prior planning expenditure to state	Current year	Projections														
				Budget	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10				
					(\$m)	(\$m)	(\$m)	(\$m)	(\$m)	(\$m)	(\$m)	(\$m)	(\$m)	(\$m)	(\$m)			
Land	\$0.00	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Demolition costs	\$17,390,000	\$0	\$0	\$0	\$0	\$17,390,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Building costs	\$303,625,100	\$0	\$0	\$0	\$0	\$0	\$44,981,496	\$247,627,727	\$11,015,611	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Professional Fees	\$78,849,000	\$0	\$250,000	\$4,500,000	\$17,429,731	\$20,429,731	\$18,203,970	\$17,366,568	\$450,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
FF&E and ICT	\$65,559,000	\$0	\$0	\$0	\$0	\$0	\$0	\$32,779,500	\$32,779,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
M&E	\$23,258,000	\$0	\$0	\$0	\$0	\$0	\$0	\$1,426,000	\$11,659,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Health Infrastructure Management Fee	\$11,367,200	\$0	\$0	\$2,160,143	\$2,160,143	\$2,160,143	\$2,160,143	\$2,160,143	\$2,160,143	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Escalation	\$96,195,400	\$0	\$0	\$0	\$0	\$0	\$0	\$14,251,770	\$76,454,147	\$3,490,083	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Contingencies	\$80,253,900	\$0	\$0	\$0	\$0	\$0	\$0	\$60,190,425	\$20,063,475	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$676,297,400	\$0	\$250,000	\$6,665,143	\$19,594,874	\$39,984,874	\$79,601,779	\$450,231,510	\$79,969,220	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Option 2A

Capital costs items	Total (\$)	Prior planning expenditure to state	Current year	Projections														
				Budget	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10				
					(\$m)	(\$m)	(\$m)	(\$m)	(\$m)	(\$m)	(\$m)	(\$m)	(\$m)	(\$m)	(\$m)			
Land	\$0.00	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Demolition costs	\$17,390,000	\$0	\$0	\$0	\$0	\$17,390,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Building costs	\$194,739,600	\$0	\$0	\$0	\$0	\$0	\$39,288,678	\$155,471,121	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Professional Fees	\$51,971,000	\$0	\$250,000	\$4,500,000	\$12,302,945	\$12,302,945	\$12,199,891	\$11,296,019	\$100,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
FF&E and ICT	\$36,010,000	\$0	\$0	\$0	\$0	\$0	\$0	\$29,175,000	\$5,835,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
M&E	\$22,280,000	\$0	\$0	\$0	\$0	\$0	\$0	\$18,566,667	\$3,713,333	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Health Infrastructure Management Fee	\$7,121,000	\$0	\$0	\$1,400,857	\$1,400,857	\$1,400,857	\$1,400,857	\$1,400,857	\$1,400,857	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Escalation	\$56,671,400	\$0	\$0	\$0	\$0	\$0	\$0	\$12,032,805	\$47,638,595	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Contingencies	\$53,032,500	\$0	\$0	\$0	\$0	\$0	\$0	\$46,613,125	\$6,419,375	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$441,215,600	\$0	\$250,000	\$4,900,852	\$13,703,397	\$31,093,397	\$64,801,727	\$312,131,860	\$14,234,446	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Figure 13: Cash Flow Summary for option 1A and 2A

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Capital Costs Item	Total (\$)	Prior passing expenditures to date	Current year	Projections																
				Budget	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10						
					2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33					
Land	\$0.00	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Demolition costs	\$17,390,000	\$0	\$0	\$0	\$0	\$0	\$17,390,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Building costs	\$218,431,600	\$0	\$0	\$0	\$0	\$0	\$44,045,875	\$174,386,722	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Professional Fees	\$57,775,000	\$0	\$250,000	\$3,500,000	\$13,893,601	\$15,863,621	\$13,640,378	\$12,997,431	\$1,500,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
FF&E and ICT	\$39,195,000	\$0	\$0	\$0	\$0	\$0	\$0	\$33,662,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
M&O	\$24,975,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$30,812,500	\$4,162,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Health Infrastructure Management Fee	\$8,026,000	\$0	\$0	\$1,578,885	\$1,578,885	\$1,578,885	\$1,578,885	\$1,578,885	\$1,578,885	\$1,578,885	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Escalation	\$68,342,400	\$0	\$0	\$0	\$0	\$0	\$0	\$13,377,885	\$52,964,514	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Contingencies	\$58,955,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$54,042,540	\$4,912,958	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$491,090,500	\$0	\$250,000	\$5,078,885	\$15,442,500	\$32,832,506	\$72,642,777	\$348,954,294	\$15,889,532	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Figure 14: Cash Flow Summary for Option 3A

A quarterly rebalancing exercise of HI's portfolio is carried out with the Ministry of Health to align rebalanced Cashflows more closely with Final Business Case and FIS Cashflow. As part of the Total Asset Management process, the Ministry of Health and Health Infrastructure will undertake portfolio level analysis to ensure that final allocations are as closely aligned to project requirements whilst staying within the approved Capital Program Limits.

GATEWAY/INVESTOR ASSURANCE REPORT

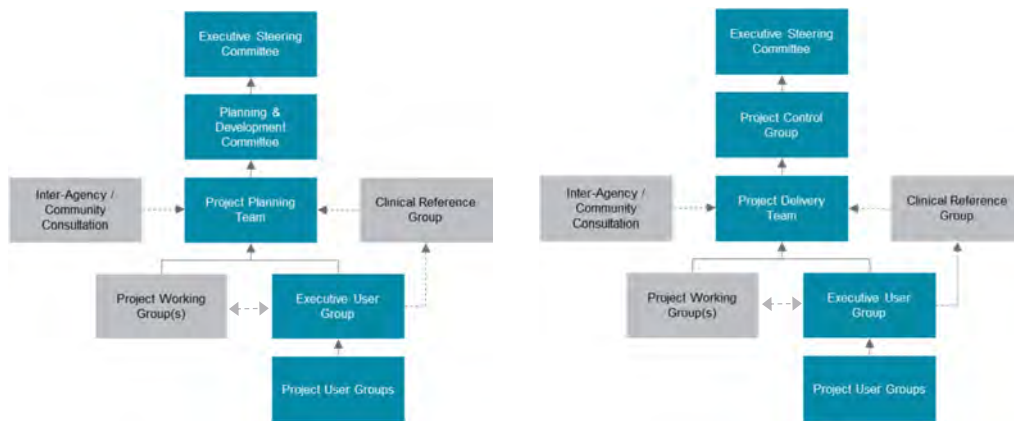
The Project has been registered with Infrastructure NSW and the Investor Assurance Framework, self-assessed as a Tier 2 project. The project will comply with all Investor Assurance requirements.

Governance

Governance structure will be developed and managed through the Health Infrastructure Governance Framework. This framework aligns with the NSW Health Process of Facility Planning and can be amended as agreed through the agencies.

Planning Phase Governance

Delivery Phase Governance



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PROJECT IMPLEMENTATION AND MILESTONES

Table 11: Project Implementation and Milestones (indicative)

HI Part	Part description	Target completion	Comment
Part 0	Project Initiation	Aug 2023	
Part 1	Master planning	Jan 2024	Revision / refresh of IDD Master Plan
Part 2	Feasibility Development	Sept 2024	Confirmation of scope
Part 3	Schematic Development	Jun 2025	
Part 4	Design Development	Feb 2026	
Part 5	Contract Documentation	Jun 2026	
Part 6	Tender, Evaluate and Award	Sept 2026	
Part 7	Construction Administration	Q4 2028	To be confirmed in Business Case stage
Part 8	Commissioning and Handover Demolition of existing buildings	Q1 2029 Q2 2029	To be confirmed in Business Case stage

Potential allocation of funds and timing of the allocation may require these milestones to be refined as planning progresses, and opportunities to expedite them or otherwise considered.

The delivery of the Project will commence with enabling and de-risking works as soon as is practicable, ensuring that risk and disruption to the operations of the facility are mitigated or reduced to make it safe to do so. This will facilitate a staged construction approach to commission services as soon as possible. These works may include, but are not limited to:

- Diversion and/or upgrade of services (electrical, gas, communications, water);
- Demolition of existing structures;
- Temporary or permanent relocation of car parking spaces;
- Changing traffic flows; and
- Remediation of land.

APPENDICES

Appendix 1 – Lidcombe Forensic Precinct Scoping Document

Appendix 2 – Capital Cost Estimates

Appendix 3 – Financial Impact Statement

Appendix 4 – Cost Benefit Analysis

Appendix 5 - Master Plan Report

Appendix 6 – Benefits Map

Appendix 7 – Lidcombe FASS Architectural Services Report and an Engineering Condition Assessment Report May 2019

Appendix 8 – Mineral Resources Building Structural Assessment Report: October 2022

APPENDIX 1

JOHNSTAFF



NSW Lidcombe Forensic Precinct

Scoping Document

SENSITIVE: CABINET

**Document Control**

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Acknowledgement to Country

Johnstaff acknowledges the Traditional Owners of the land across NSW whose cultures and customs have nurtured and continue to nurture this land. We would like to pay our respects to the Elders past, present and emerging, for they hold the memories, the traditions, the culture and hopes of Aboriginal and Torres Strait Islander peoples across the state.



1. Introduction

This paper describes the gap between current and desired future states. The document is the first phase of defining the scope for the Investment Decision Document (IDD) for a new Lidcombe Forensic Precinct (LFP).

The Lidcombe site is a staged redevelopment, with the first stage completed delivering the Forensic Medicine & Coroner's Court Complex (FMCCC). The next stage of redevelopment for the Lidcombe site is the joint infrastructure proposal between NSW Health Pathology (NSWHP) and NSW Police Force (NSWPF) to deliver a new LFP which will address current inefficiencies across both organisations.

The services being considered for the IDD are NSWHP Forensic & Analytical Science Service (FASS), NSWHP Specialised Services, and relevant areas of NSWPF Forensic Evidence & Technical Service Command (FETS). To complete the gap analysis and confirm the project scope, a desktop review of relevant documentation as well as a series of workshops, focus groups and site visits were undertaken through May and June 2022.

This paper confirms the project vision, aspirations, and scope for the new LFP. It will be used to inform the IDD.

2. Project Background

A Forensic Services Precinct Master Plan was developed in 2015, following the development site for the FMCCC located on the corner of Joseph Street and Main Avenue, which is the North West corner of the site. The intent of the Forensics Services Precinct Master Plan was to ascertain if the site was appropriate for a new building for forensic services that would deliver a world class forensic precinct for NSW.

The master plan considered the existing facilities onsite that currently provide the FASS service, the urban context, including civil works, existing site conditions, design challenges, opportunities, future potential partners and expansion zones. Stage 1 of the Forensic Services site was the development of the FMCCC, which was opened in 2019 and is the largest coroner's court and forensic medicine facility in Australia.

Between 2018 and 2021 NSWHP has undertaken several audits and developed several options and reports of the FASS buildings located at Lidcombe to address the ageing infrastructure to meet the FASS requirements in the short to medium term (10 years). Condition reports considered structural, engineering and BCA, as well as functional state, and noted the poor condition, age, and environmental risk to current buildings, services upgrades, structural elements and fire protection system upgrades for compliance. It was noted that were a number of assets which were well past their intended economic service life and should be scheduled for immediate replacement or upgrade, and that a key building had undergone incremental refurbishments and upgrades, any significant future refurbishment would need to consider a more holistic design strategy to provide a better future proof solution. The long-term view, beyond 10 years, is that a new facility is required.

NSWPF branches proposed in scope for this project are currently scattered across multiple sites, including costly leased facilities in poor condition. Inefficiencies and costs arise from courier use and staff travel time between sites. Co-location of multiple branches from 12 sites onto one site would provide functional, streamlined, and co-located service delivery.

An integrated joint infrastructure development is proposed, to co-locate NSWPF and NSWHP services with a purpose-built facility creating a Forensic Precinct at Lidcombe. This facility would provide FASS and FETS with the infrastructure and workspaces to support integration and collaboration of these specialist services and enable the delivery of forensic services under a more consultative and customer service focused model, with improved quality and timeliness.

Late 2021, there was a joint infrastructure committee meeting held between NSWHP, NSWPF and NSW Health Infrastructure (HI) where it was agreed that the next stage of the Lidcombe site redevelopment would be an integrated Forensic Precinct bringing together the forensic specialities of NSWHP and NSWPF. The redevelopment also agreed



to explore some of the NSWHP specialist services due to specialisation and synergies that could be gained being located together and centrally to the rest of NSW.

2.1 Desktop Review

Johnstaff undertook a desktop review of existing documentation to identify any gaps where further consultation was required to inform the submission of the IDD. The following table summarises the documents reviewed in chronological date order.

Business Case for Division of Analytical Laboratories, Health Infrastructure 30 September 2009	<p>The Business Case was developed to seek capital investment of \$23.73M (Estimated Total End Cost) to upgrade the facilities of the Division of Analytical Laboratories (DAL) briefed at 4,340m² Gross Floor Area. This would increase the capacity to meet existing and future demand for forensic biology and DNA analysis.</p> <p>The business case explored two main options:</p> <p>Option 1 - redevelop the Mineral Resource Building (acquired by NSW Health for \$4.6M) and make good the DAL Building. This was the preferred option</p> <p>Option 2 – new build on the Lidcombe site</p> <p>The business case notes that the Ad Hoc Committee of cabinet agreed that: DAL remains a business unit of NSW Health with a reporting line to the Director General.</p> <p>A management committee is established to provide oversight of service delivery improvement initiative including the capital investment.</p>	<p>NSW Health proposed the establishment of an NSW Forensic and Scientific Precinct on the Lidcombe site. The Precinct to be developed over a four-stage process including Forensic Pathology, Coroners Court, Forensic Biology/DNA Analysis and Public Health Analytical Laboratories (incorporating forensic toxicology, general chemistry, microbiology, molecular biology, drug and alcohol and trace analysis.</p> <p>Additional space is available should NSW Police Force Forensic Service Group choose to relocate to the site once the lease at Pemulwuy expires.</p>
Forensic Service Precinct Plan Health Infrastructure 7 December 2015	<p>A Forensic Services Precinct Master Plan was developed in 2015 to ascertain if the site was appropriate for a new building for Forensic Services that would deliver a world class forensic service for NSW.</p> <p>The plan was developed to understand the site, its constraints, and its strengths and how it would be best developed into a larger precinct accommodating state-wide facilities, becoming a world class forensics precinct over time.</p> <p>Site considerations included: urban context, existing site conditions design challenges and opportunities, priorities for potential partners within the site and</p>	<p>The report found that:</p> <p>The North West corner is the most appropriate location for the FMCCC</p> <p>There is no impediment to the Office of Environment and Heritage / EPA Laboratories (OEH) remaining in their current location</p> <p>There is sufficient space within the precinct to accommodate future expansions of FMCCC, FASS and potential other stakeholders and facilities.</p> <p>The location for a new FASS building is best located to the western side of the site (Mineral Resource Building)</p>



	access road options into and around the site.	Access to the site can be secured with dedicated public and secure entry points.
Request to Relocate Drug Toxicology Unit NSW Health Pathology 4 March 2018	<p>The Executive Director of Forensic & Analytical Science Service provided a briefing note to Executive Director, NSW Health Pathology requesting the relocation of the Drug Toxicology Unit (DTU) based at Macquarie Hospital, North Ryde to the FASS Lidcombe site.</p> <p>The key issues noted for relocating the DTU were:</p> <p>It's at capacity and not in a contemporary facility</p> <p>FASS pays a lease fee to Northern Sydney Local Health District for the operational and maintenance costs</p> <p>NSW Health Pathology have been requested to consider options to relocate the DTU off the Macquarie Hospital site</p> <p>There is a dislocation of service provision being located away from the other FASS services at Lidcombe</p>	<p>Options identified for the relocation of the DTU onto the Lidcombe site were:</p> <p>Relocation of the DTU to an offsite facility. No suitable offsite facility was proposed that would provide the key functional relationships with FASS and key stakeholders</p> <p>Relocation of the DTU to the FASS main building at Lidcombe. While this would provide greater efficiencies between the toxicology branch, the current infrastructure is aged with significant repair and maintenance issues and as such is not considered suitable to house the DTU</p> <p>Purpose built building on the Lidcombe site, potentially behind the new FMCCC, depending on the transition timeframe. This was the preferred option.</p>
Request for Infrastructure Assessment – Lidcombe Site NSW Health Pathology 4 April 2018	<p>The Executive Director of Forensic & Analytical Science Service provided a briefing note to Executive Director, NSW Health Pathology requesting the engagement of NSW Health Infrastructure to undertake an assessment of the existing infrastructure at the Lidcombe site. The assessments requested were Structural review, Services and BCA compliance.</p> <p>The note included the list of repairs required on the site as of 31 March 2018, valued at \$1.38M.</p> <p>The proposed assessment would inform the future planning on the Lidcombe site and support the progression of the Stage 2 redevelopment of the campus.</p>	<p>Sixteen infrastructure repairs were listed and prioritised into 3 categories – major (5), moderate (3), and minor (8).</p> <p>The major to moderate repairs included:</p> <p>Structural elements to Criminalistics lab (cracking walls), demountable building roof, concrete slab cracks around the buildings</p> <p>Service upgrades to the main building for electrical switchboards, chillers, and air compressors</p> <p>Fire protection system upgrades for compliance</p>
Drug Toxicology Unit User Requirement Brief – Architectural & Engineering Service Report NSW Health Pathology 22 May 2019	<p>The report was developed to outline the spatial requirements for the DTU considering growth and contemporary practices, planning and design.</p> <p>The report considered the consolidation of DTU on the Lidcombe site to gain operational efficiencies.</p> <p>The report reviewed current area (Gross Floor Area) and developed two scenarios</p>	<p>The major findings noted within the report were:</p> <p>The current physical environment is inefficient, as the current layout was designed for a clinical setting which is unsuitable for analytical practices</p> <p>The location of the DTU being separate from the FASS campus creates further operational inefficiencies</p>



	<p>without growth and with growth. The proposal total area required was: Existing DTU = 801m² (GFA) Without Growth = 1,114m² (GFA) – designed to meet contemporary lab design With Growth = 1,567m² (GFA)</p>	<p>Existing space does not have the capacity (floor space) to increase the number of analytical instruments immunoassay analysers, fluid handling platforms, LC/MS and GC/MS In 2019 DTU processed over 100,000 samples per annum, the projected growth was to see this doubled to 200,000 per annum. To meet the projected growth a larger footprint is required along with a contemporary and flexible lab design to enable automation. An integrated information system that facilitates end-to-end processing was also considered as part of the efficient design requirement</p>
<p>Drug Toxicology Unit Relocation Options Analysis – Architectural & Engineering Service Report NSW Health Pathology 23 May 2019</p>	<p>The report developed 3 options for relocating the DTU to the Lidcombe site. The options were: Option 1 – Refurbish FASS Main Building East Wing Level 1, including a new lift. This would displace the existing Microbiology Unit. The GFA required for this option was 800m² Option 2 – Greenfield site single storey standalone building to accommodate DTU only. The proposed location was North of the main building. The GFA for this option was 1,570m² Option 3 – Greenfield site two story standalone building to accommodate the DTU on ground floor and a cold shell level on lower ground (provides valuable decanting space). The proposed location was within the courtyard of the main building. The GFA for this option was 3,141m².</p> 	<p>No preferred option was documented, however, on review of the options analysis, it would appear that option 3 was assessed as having the greatest benefits followed by option 2. Option 1 was assessed with having far more disadvantages than benefits.</p>



<p>FASS Main Building Existing Laboratory Condition Assessment – Architectural Report NSW Health Pathology 23 May 2019</p>	<p>The report provided a condition assessment of the FASS main building located at Lidcombe as well as a comparison of how this facility against contemporary, best practices standard in laboratories. The main building accommodated the following groups:</p> <ul style="list-style-type: none"> Lower Ground Floor Forensic Bio Receipt Illicit Drug Analysis Unit Legionella Lab Ground Floor Forensic Toxicology Drugs & Driving Toxicology Illicit Drug Analysis Unit Trace Organics Evidence Recovery Unit Level 1 Forensic DNA Water Microbiology Clinical & Environmental Toxicology <p>The report was based on condition assessment undertaken by AG Coombs in February 2019 and reviewed internal laboratory spaces from architectural viewpoint only. External facades, roofing and structural were not reviewed as part of this report.</p> <p>The report assessed the laboratory spaces in terms of contemporary lab design, physical layout, quality and condition of finishes, general quality of space and amenity</p>	<p>The finishes assessment looked at provision of smooth, non-porous and easily cleanable surfaces (fixed and mobile), defects/ damage, quality, and integrity of seals as joints /junctions, and the containment of integrity at the room boundary. This section scored from 1 to 5: 1 = Replace, 2 = Refurbish, 3 – Functional, 4 = Good and 5 = Excellent</p> <p>The planning assessment looked at congestion in the lab, visual access and access to daylight and external views, quality of artificial lighting as well as room acoustics. This section was scored from 1 to 5: 1 = Poor, 2 = Uncomfortable, 3 = Fair, 4 = Good, 5 = Excellent</p> <p>The outcomes of the quality of the finishes and planning assessment showed that none of the laboratories meet best practice and the only lab that scored above 3 was the Forensic DNA due to quality of the finishes and planning compared to others.</p> <div> <p>Overall quality per zone chart</p> <p>Forensic DNA has scores the highest in the quality of finishes and planning compared to the others. If the existing spaces show some flexibility to allow for different sized analysis instruments to be housed it would have scored higher.</p> <p>These spaces have low quality of finishes and planning. These spaces do not meet the requirements of best practice laboratory environment.</p> </div> <div> <p>Legend & average scores table</p> <table border="1"> <thead> <tr> <th>Zone or Class</th> <th>Finishes</th> <th>Planning</th> <th>Zone or Class</th> <th>Finishes</th> <th>Planning</th> </tr> </thead> <tbody> <tr> <td>Clinical & Environmental Toxicology</td> <td>1.9</td> <td>2.4</td> <td>Water Microbiology</td> <td>1.7</td> <td>2.6</td> </tr> <tr> <td>Water Microbiology</td> <td>1.9</td> <td>2.3</td> <td>Evidence Recovery Unit</td> <td>1.9</td> <td>2.7</td> </tr> <tr> <td>Forensic DNA</td> <td>4.4</td> <td>3.7</td> <td>Forensic Bio Receipt</td> <td>3.0</td> <td>3.4</td> </tr> <tr> <td>Forensic Toxicology</td> <td>2.5</td> <td>2.8</td> <td>Control</td> <td>1.8</td> <td>3.4</td> </tr> <tr> <td>Drugs & Driving Toxicology</td> <td>2.8</td> <td>2.4</td> <td>Legionella Microbiology</td> <td>1.7</td> <td>3.2</td> </tr> <tr> <td>Illicit Drug Analysis Unit</td> <td>3.1</td> <td>2.8</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> </div>	Zone or Class	Finishes	Planning	Zone or Class	Finishes	Planning	Clinical & Environmental Toxicology	1.9	2.4	Water Microbiology	1.7	2.6	Water Microbiology	1.9	2.3	Evidence Recovery Unit	1.9	2.7	Forensic DNA	4.4	3.7	Forensic Bio Receipt	3.0	3.4	Forensic Toxicology	2.5	2.8	Control	1.8	3.4	Drugs & Driving Toxicology	2.8	2.4	Legionella Microbiology	1.7	3.2	Illicit Drug Analysis Unit	3.1	2.8			
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<p>Main Building Existing Laboratories Condition Assessment Report – Engineering Services NSW Health Pathology 21 May 2019</p>	<p>A condition assessment of the engineering services to the FASS Main Building, Lidcombe, was undertaken in February 2019. The engineering services assessed were:</p> <ul style="list-style-type: none"> Mechanical services including the central thermal plant, air handling units, split system air-conditioning, outside air ventilation systems, exhaust ventilation systems, mechanical electrical, automatic controls and fume hoods Electrical service including supply and authority metering, main switchboard, 	<p>The engineering services were assessed for their current condition, failure probability within 10 years, expected remaining life, and estimated replacement cost. Each item was scored between 1 to 5: 1 = Unserviceable, 2 = Poor, 3 = Fair, 4 = Good, 5 = Excellent</p> <p>The results of the assessment showed a range of asset conditions and ages, ranging from near new to original plant over 50 years ago. In general, the service was adequately functional, however, there were a number of assets which were well past their intended</p>																																										



	<p>distribution boards, lighting, exit and emergency lighting, telecommunications and data, security access control and CCTV, emergency power diesel generator / UPS</p> <p>Hydraulic services including potable cold-water systems, non-potable cold-water systems, centralised domestic hot water system, sanitary plumbing and sewer drainage, gas reticulation and irrigation water storage</p> <p>Fire Protection Services including automatic fire sprinkler system, fire detection, fire indicator panels, emergency warning and intercom system, portable fire extinguishers</p> <p>Laboratory gases overview</p>	<p>economic service life and should be scheduled for immediate replacement or upgrade.</p> <p>It was noted that the building has gone through incremental refurbishments and upgrades, any significant future refurbishment would need to consider a more holistic design strategy to provide a better future proof solution.</p>
<p>Destructive Hazardous Building Materials Assessment Mineral Resource Building Health Infrastructure May 2019</p>	<p>The report was undertaken to identify and assess the health risk posed by hazardous building materials which may be encountered during refurbishment works on site.</p>	<p>At the time of the report the following hazardous material were identified:</p> <p>Asbestos- containing material non-friable, and friable, synthetic mineral fibres, polychlorinated biphenyls, lead-containing paint, lead containing dust, and ozone depleting substances</p> <p>Most of the plants contain friable asbestos and should be restricted until these products are removed by a Class A licensed asbestos-removal contractor.</p>
<p>Heritage Assessment – Former Mineral Resources Building Health Infrastructure May 2019</p>	<p>The report was prepared to assist Health Infrastructure in determining the heritage significance of the Mineral Resource Building (MRB).</p>	<p>The report notes while the MRB is not listed on the NSW State Heritage Register, of the NSW Heritage Act 1977, it has a significance in terms of Brutalist Architecture and demonstrates a high degree of integrity as there have been no major alterations or additions to the building.</p> <p>The building has been vacant since 2000 and over that the time the building integrity has deteriorated greatly. The building condition is now so poor, that it cannot be accessed for any length of time and requires full Personal Protective Equipment.</p> <p>A new condition audit report is being commissioned as part of the IDD planning.</p>
<p>Capital Investment Proposal Infrastructure to develop the Forensic &</p>	<p>NSW Health Pathology developed a Capital Investment Proposal (CIP) in response to all the previous proposals.</p> <p>The CIP seeks a capital funding of \$276M (estimated capital cost) for a new purpose</p>	<p>The CIP considered two options within this paper one being refurbishment and the other being new build.</p> <p>The approved preferred option was the new build, since current facilities would not deliver a</p>



<p>Analytical Science Service for current and future critical, specialised services NSW Health Pathology 2021</p>	<p>built, contemporary facility for the FASS service, based on 17,000m2.</p>	<p>contemporary design for laboratories. Furthermore, a new build will address the aging infrastructure as identified in the previous condition audits.</p>
<p>Joint Infrastructure Proposal Investment Decision Document Draft Forensic Precinct, Lidcombe Campus Health Infrastructure October 2021</p>	<p>An Investment Decision Document (IDD) was drafted in late 2021 following an agreement that the next stage of the Lidcombe Precinct would be a joint infrastructure proposal for NSW Health Pathology FASS, NSW Health Pathology Specialised Services and NSW Police FETS.</p>	<p>The draft IDD outlines the current state of FASS and FETS. It also introduces the NSW Health Pathology Specialised Services being located onsite. The service drivers and benefits are described within the document. The options noted are from the CIP and is missing FETS and NSWHP Specialised Services requirements, thus requiring this phase of consultation and documentation.</p>
<p>Business Plans, FETS and CSSB, NSW Police 2021</p>	<p>Excerpts of relevant business plans for the Forensic Evidence & Technical Services Command and Crime Scene Services Branch</p>	<p>Vision, purpose and services scope for the command and branch are described, as well as crime trends over time.</p>
<p>Joint Infrastructure Proposal NSW Police / NSW Health Pathology December 2021</p>	<p>A briefing note was developed by NSW Health Pathology to NSW Health Secretary for a Joint Infrastructure proposal for a Forensic Precinct on the Lidcombe Campus. The brief proposed the following services: NSW Health Pathology FASS NSW Police Force FETS NSW Health Pathology specialised services for select Pathology Laboratory services (eg Anatomical processing hub, Liquid chromatography-mass spectrometry (LC-MS), genomics hub) and prototyping. This would align with a proposed innovation and research hub on the campus to be developed in partnership with universities University partners of Western Sydney University and University of Technology Sydney.</p>	<p>An Investment Decision Document (IDD) is required for this proposal for submission to NSW Treasury. Health Infrastructure will lead the IDD process. The Service and Capital Planning Branch, Ministry of Health have provided in principle support of this proposal. The document also notes facility issues of current NSW Police buildings including costly lease, poor condition, and service inefficiencies from disparate locations resulting in courier costs and staff travel between sites.</p>



2.2 Service Scope Description

The new Lidcombe Forensic Precinct is proposing the following services:

2.2.1 NSW Health Pathology

NSWHP FASS provides expert scientific and clinical services to NSW criminal and coronial justice system, Roads and Maritime Services, NSW Health, NSW Police, State Coroner, Corrective Services and others. FASS is the single provider of these services for the State.

FASS consists of two major scientific operational areas – Criminalistics and Forensic & Environmental Toxicology. These operational areas have several sub specialities summarised below.

Operational Area		
Criminalistics	Illicit Drugs Analysis Unit (IDAU)	The unit consists of an Illicit Drugs Laboratory and a Field Operation Unit. The Illicit Drugs section analyses samples of suspected prohibited substances, both chemical and botanical, seized mainly by the NSW Police to determine the identity and, in some cases, the purity of the substance. Only small samples taken from bulk seizures are received into the laboratory. The Field Operations section analyses samples from these scenes to determine whether manufacture has occurred and mechanism.
	Forensic Biology and DNA laboratory	The laboratory receives exhibits from a wide range of cases including property crime and crimes against person and is divided into four units - evidence recovery, DNA analysis, casework management and database management. Evidence recovery revolves around the examination of exhibits to determine the presence of biological substance. The DNA analysis Unit receives crime scene samples and person samples collected by NSW Police. The resultant DNA profile is compared to reference samples to determine if there is a match. Database matches are reported by the Database Management Unit. Interpretation, comparison to other profiles, preparation of court reports and the provision of expert evidence is provided through the expertise of the Casework Management Unit.
	Chemical Criminalistics Unit (CCU)	The CCU is responsible for the provision of advice, examination, chemical analysis and interpretation to NSW Police and the Judicial System regarding forensic evidence. Samples that the CCU examines include ignitable liquids, explosives/propellants/pyrotechnics, gunshot residues, chemical warfare agents, riot control agents, paint, glass, fibre, hair, textile damage and other unknown chemical substances.
Forensic & Environmental Toxicology	Forensic Toxicology Laboratory (FTL)	Provides the analysis of therapeutic and illicit drugs in post-mortem biological samples and non-biological exhibits. The samples relate to suspicious or unexplained deaths, homicides, deaths in custody and any other matters referred by the Coroner or Police. The laboratory also analyses samples from clinical samples referred by the Ministry of Health (MoH) from Emergency Department (ED) presentations with severe drug toxicity and where prescription, recreational or illicit substance use is suspected.



Drugs and Driving Toxicology Laboratory (DDTL)	Provides analysis of alcohol and drugs in biological fluids taken from persons involved in motor vehicle accidents, suspected of driving under the influence of drugs or randomly selected for roadside drug testing. The laboratory also tests for drug and/or alcohol involvement in more serious offences, such as homicide, robbery, rape and assault may also be investigated by the laboratory. The major stakeholder is the NSW Police Force.	
Clinical and Environmental Toxicology Laboratory (CETL)	Analyses water and other matrices for pesticides residues, algal toxins, disinfection by-products and other contaminants in drinking water throughout rural and regional NSW through the Drinking Water Monitoring Program. The laboratory also tests E-Cigarettes for nicotine for the Ministry of Health.	
Water Microbiology Laboratory	Tests a wide range of waters, primarily for compliance with public health regulations and have the capability to test for a range of microorganisms (including pathogens such as Salmonella and Thermophilic Campylobacter) for investigative purposes in the event of waterborne illness in NSW. In conjunction with the NSW Health Water Unit, the Laboratory provides a comprehensive Drinking Water Monitoring Program (DWMP) for water utilities throughout rural and regional NSW in which samples are monitored for microbiological compliance with the Australian Drinking Water Guidelines.	
Legionella Reference Laboratory	Legionella Reference Laboratory is responsible for conducting the surveillance of populations of Legionnaire's disease bacteria in water samples from public healthcare facilities throughout NSW. These samples include cooling towers, warm water systems, evaporative condensers, evaporative coolers, spa pools and hydrotherapy pools. Our FASS LRL collaborates with the state Public Health Unit to run the "The NSW Health Legionella Sampling Program". In addition, our LRL is the state environmental public health laboratory responsible for assisting NSW Health in the investigation of cases of Legionnaire's disease.	
Trace Inorganics Laboratory	Undertakes the chemical analysis of drinking water throughout rural and regional NSW through the Drinking Water Monitoring Program. The laboratory tests physical parameters (e.g. pH, turbidity and colour), nutrients (e.g. phosphorus, nitrate and nitrite) and heavy metals (e.g. lead, mercury and arsenic) for compliance with the Australian Drinking Water Guidelines. The Laboratory also undertakes monthly fluoride analysis of fluoridated drinking water supplies under the Fluoridation of Public Water Supplies Act 1957.	
Drug Toxicology Unit	A highly specialised laboratory providing drug testing of urine and oral fluid state-wide to clinical clients and government agencies routinely performing almost 100,000 drug tests annually. This work supports the reduction of the social and economic harms of drug misuse within the NSW community. Our staff work closely with the Department of Communities and Justice (Corrective Services, Community Corrections, Drug Courts, MERIT program), NSW Health, Australian Institute of Criminology, as well as other non-government organisations in the drug and alcohol treatment	



		sector. The laboratory also provides analyses to support clinical trials and research.

NSWHP Specialised Services that are proposed for the new LFP are summarised below:

Phenomics and Development Evaluation and Special Assay (DESA)	Phenomics is a highly specialised, low volume, high capital cost technology, which currently uses liquid chromatography and tandem mass spectrometry machines. NSWHP has established strong capability in this technology and aims to be a centre of excellence of the next decade, which will be enabled through a centralised hub located at Lidcombe. Centralised phenomics laboratories are the most successful due to their ability to combine many of the same assays currently run by decentralised NSWHP laboratories into a single location. Using this model, NSWHP will be able to develop special diagnostics assays (DESA), supporting clinical, research, innovation, and prototyping.
Genomics	This is a new service that will provide Statewide sequencing and prototyping. It will involve developing Transcriptomics, Methyl-omics, Proteomics and Functional assays to deliver an integrated Functional Genomics Hub. This will see the relocation of major components of the Statewide sequencing service closer to FASS which will allow for better integration of prototyping and research.
Centre for (Forensic) Innovation and Research Excellence	This is a new service that will provide a hub for prototyping, instrument validation, collaborative research, and education. The service will co-design research projects with Police, Universities, and Justice research partners and will build upon the existing forensic and pathology research portfolios.
Anatomical Pathology / Offsite Digital Processing	NSWHP are seeking to establish an Anatomical processing site at Lidcombe to establish off-hospital-site processing for non-urgent work. The digitally enabled processing at Lidcombe provides additional lab capacity (for select services), where existing sites cannot sustain growth. The proposed co-location of future equipment and staff would support workforce capacity building, as well as support innovation, prototyping and research.



2.2.2 NSW Police Force

NSWPF FETS has over 900 police and civilian staff who provide field, laboratory and analysis services to the NSWPF. The services provided are largely interdependent, with officers from the branches working together in field, sequencing exhibits between their sections and relying on the analysis results to inform their forensic investigations. This objective analysis is for NSW Health and Justice systems to help solve crimes.

FETS is also focused on targeted research and innovative development opportunities in collaboration with other forensic and educational institutions.

FETS consists of two major branches in scope – Crime Scene Services Branch and Identification Services Branch, with several sub specialities, which are summarised below.

Crime Scene Services Branch (CSSB)	<p>The CSSB consists of Scene of Crime Officers, management of exhibits and evidence and provides the provision of specialist services for field investigations.</p> <p>Crime Scene Investigators and Scene of Crime Officers (SOCO) investigate crime scenes from the ground up, collecting and analysing physical evidence. They perform tests on materials that may prove relevant to an investigation, document their findings, and give evidence in court. This involves range of specialist techniques and equipment including light sources, laser, chemicals, and powders.</p> <p>The branch also undertakes the scientific analysis, interpretation of evidence and presentation of evidence in court. This also involves advice and logistical support to the NSW Police response to chemical, biological, radiological, nuclear, and explosive incidents, and Disaster Victim Identification events.</p>
Identification Services Branch (ISB)	<p>The ISB consists of Fingerprint operations, Pharmacology service unit, Engineering Investigations Unit, Management of DNA results, Investigation of ballistics and management of weapons and vehicle investigations.</p> <p>The branch undertakes identification of persons through biometric means, fingerprints, and DNA to assist in criminal, incident, and coronial investigations. (It also performs criminal record and fingerprint-based background checking to assist in placing the 'right persons' in the 'right places' for specific jobs, visas, adoptions, and the like. Note: Criminal Records not in scope for this project)</p> <p>ISB provides forensic intelligence to assist solving crime across boundaries, linking crime across different evidence types.</p>



3. Project Vision and Aspirations

Two workshops were held in May / June 2022 to confirm the combined vision and aspirations for the new LFP. The workshop consisted of key stakeholders from NSWPF, NSWHP and HI.

The vision and aspirations were developed from the following key words with the descriptions below a reflection of the discussion.



Easier collaboration between agencies

Informal connections

Interoperability

Surge/flexibility

Continuity of evidence

Improving continuity (automation and new approaches)

IT documentation and activity tracking

Maintaining integrity of samples, testing, processes

Security and chain of custody of

Collocating expertise

Shared knowledge

Technology sharing

Cost effectiveness

Challenging barriers and the status quo

Optimising outcomes

Discovery

Environment/time/resources to explore scientific expertise

Expertise across disciplines being brought together

Research (translational) & Education

Provide "a safer NSW"

Public safety through prevention, disruption, and response

Optimal Hazardous chemical and sample handling

Staff safety

The outcome of the workshop was an agreed vision and a set of aspirations that would inform the planning and design principles. The vision and aspirations need to ensure that the project reflects:

- the unique and essential services to the community of NSW;
- the integration of two superior services;
- the scientific elements of the Precinct;
- it being a world class service providing the largest forensic service in Australia;
- advancing the safety of NSW through rapid and proactive utilisation of Information; and
- a sustainable solution through improved efficiency.



The Lidcombe Forensic Precinct Vision is

Precinct Vision

A world-leading precinct providing integrated and innovative forensic and scientific services to sustain and advance the health and safety of the NSW community

This is supported by the NSWHP purpose: “creating better health and justice systems” and the NSWPF vision for “a safer NSW”.

The FETS Command’s purpose is to “deliver a specialist forensic science and technical evidence policing capability to enable the prevention, disruption and response to crime”

The guiding aspirations have been broadly categorised between service / operational and design / infrastructure, noting that they are interconnected:

Service / operational	Integration	Deliver an integrated service for NSW, which assists rapid and proactive utilization of information (operational translation)
	Efficiency	Deliver efficient and effective services through synergy and collaborative interagency teams
	Contemporary	Strengthen networks and expertise for NSW by bringing specialists together
	Innovation	Promote discovery of new service models through translation research, prototyping and enhanced knowledge base
	Information and communications technology	Use information and communications technology to improve sample management (receipting, processing and storage), and reporting
	Research and Education	Promote research and education through university partnerships
Design/ infrastructure	Workflow	Promote seamless flows for staff and samples built around contemporary service models
	Collaboration	Deliver an environment which offers “bump” spaces enabling formal and informal collaboration
	Integrity	Provide design solutions that ensure the integrity of samples and maintains chain of custody
	Staff wellbeing	Deliver a healthy environment which offers spaces to support staff health and wellbeing, including culturally appropriate spaces
	Sustainable	Pursue operational and design initiatives that minimise the Project’s environmental impact – including NSW Pathology and NSW HI sustainability work
	Future proofing	Adopt future proofing strategies to meet the growing and changing service models



4. Current State Assessment and Drivers

The physical separation of the forensic services provided by FETS and FASS does not support a collaborative forensic response for NSW. This was highlighted during the FETS/FASS review in 2019, where a recommendation was made, suggesting the establishment of a Complex Forensic Evidence Management facility for the purposes of centralising knowledge, equipment and resources to ensure a consistent and high standard of examinations for major crime.

Current specialised services delivery is varied – some services are delivered on-hospital-site across multiple hospitals, others are outsourced to private providers.

4.1 NSW Health Pathology Forensic & Analytical Science Service (FASS)

FASS is located on the Lidcombe campus in ageing infrastructure that is nearing its end of life and is unable to provide contemporary laboratory design, leading to inefficiencies and inability to meet the growing forensic testing required for NSW.

As noted earlier in this report, over the past 4 – 5 years there have been several reports commissioned by NSWHP to consider how to address the ageing infrastructure and provide the expansion that is required to meet the forensic testing, analysis and reporting now and in the future.

4.1.1 Existing Infrastructure

In 1959, the then named Institute of Clinical Pathology and Medical Research (ICPMR) relocated from premises in Macquarie Street, Sydney to Lidcombe and in 1969, a 7,970m² facility with purpose-built laboratories was created on the Lidcombe site to form the Division of Analytical Laboratories (DAL). Since 1969 the buildings on the Lidcombe site which house FASS laboratories have received partial upgrades and refurbishments, however the campus as in today's environment is now facing a number of infrastructure issues.

The main building has received only minor to moderate enhancements since construction and as such many items are now requiring extensive overhaul, updating and replacement. With the expansion of scientific testing capabilities and subsequent provision of services, the building has had to undergo repurposing as appropriate but fundamentally due to the age of the building, any refurbishment activity has always been constrained by the structural, design and spatial limitations of the building.

In 2019 a building audit identified the below items that needed rectification:

- Overhaul of the Electrical System
- Replacement of Air Conditioning Chillers
- Replacement of Compressed Air System
- Upgrades to Fire Protection System
- Upgrades to Internal and External Lighting Systems
- Restoration of Building Roofing Structure

The rectification works were estimated in excess of \$10M to complete and will allow for the building's infrastructure to be able continue operations for 10 years, which is estimated to 2029. In assessing the capital cost, capacity issues and the lifespan of the works, the recommendation from all commissioned reports was to refurbish the Mineral Resource Building (MRB) on site for a new facility. The FASS Mineral Resources Building (MRB), located on the corner of Weeroona Rd, is a Health and NSW Health Pathology owned asset that was purchased for \$4.6M and has been abandoned for a number of years.



The MRB currently is in very poor condition having been abandoned in the late 1990's and not receiving any major maintenance activities since then. Capital constraints have meant that FASS is unable to perform any significant maintenance activities on the building and is currently only repairing minor critical items as they are identified. Previous investigations on the MRB as part of the 2009 MRB redevelopment project by NSW Health outlined that a significant capital amount would be required for restoration due to the poor condition of the buildings' internal structure and systems, of which the latter is also non-compliant under current building safety codes.

Previous inspections determined that the current MRB critical issues are:

- Leaking roof membrane
- Poor electrical wiring and broken water piping
- Lack of an appropriate and compliant fire safety system
- Possible deterioration of the asbestos linings

For the IDD a further condition report is being commissioned to assess the viability of retaining the building.

4.2 NSW Pathology Specialised Services

Of the specialist services proposed in scope for this project, current service provision is varied and limited:

- Genomics – components of genomics are located across the state, and this project proposes to collocate major components to provide a more comprehensive statewide service.
- Anatomical pathology – AP services are provided at multiple major hospitals across the state and are anticipated to be at capacity within the next 5-10 years.
- Phenomics – Provision of phenomics is currently restricted due to capacity limitations, and the project plans to establish a new service
- Centre for (Forensic) Innovation and Research – a range of research partnerships currently occur throughout research portfolios across the state, however no formalised and coordinated service exists. A new service will expand the types of innovation and research currently available, and will strengthen collaboration

NSWHP currently has 18 AP laboratories that service all NSW Health Hospitals. The growth in AP demands due to significant hospital redevelopments, cancer incidence, population growth, and surgeries will require significant growth in AP space requirements across the state. Projected activity has placed stresses on AP laboratory capacity to meet the demand with limited on hospital sites. An example of this is the spatial constraints of the Liverpool Laboratory Redevelopment, which services SWSLHD Hospitals. To meet projected demand, NSWHP will need to either acquire additional space at Liverpool or acquire space in Campbelltown to build a new AP Laboratory. Hospital space is premium, and the Lidcombe Precinct provides an opportunity for off-hospital campus processing and digital pathology to support AP across NSW Health. The provision of AP at Lidcombe would require all FTE's in current AP laboratories to move to the Lidcombe Precinct on a 24/7 roster.



NSWHP Specialised Services that are proposed for the new LFP are summarised below:

Service	Description
Phenomics	This is a new service and will establish a Development, Evaluation and Special Assay (DESA) hub.
Genomics	Current service provision occurs across 6 NSW hospital sites, and include pathogen genomics, statewide data sequencing service, cancer genomics, and rare diseases. This project proposes a new service that will provide Statewide sequencing and prototyping. It will involve developing Transcriptomics, Methyl-omics, Proteomics and Functional assays to deliver an integrated Functional Genomics Hub. This will see the relocation of major components of the Statewide sequencing service closer to FASS which will allow for better integration of prototyping and research.
Centre for (Forensic) Innovation and Research	This is a new service that will provide a hub for prototyping, instrument validation, collaborative research, and education. The service will co-design research projects with Police, Universities, and Justice research partners and will builds upon the existing forensic and pathology research portfolios.
Anatomical Pathology / Offsite Digital Processing	NSWHP are seeking to establish an Anatomical processing site at Lidcombe to establish off-hospital-site processing for non-urgent work. The digitally enabled processing at Lidcombe provides additional lab capacity (for select services), where existing sites cannot sustain growth. The proposed co-location of future equipment and staff would support workforce capacity building, as well as support innovation, prototyping and research.

4.3 NSW Police Forensic Evidence & Technical Service Command (FETS)

FETS currently occupy multiple sites across the metropolitan area that provide in field, laboratory and analysis services to the NSWPF. Currently these services are provided across disparate locations which creates inefficiencies. Courier services are required to transport exhibits between sites, which impacts turnaround times.

These sections include:

- Pemulwuy Crime Scene Zone – 6-20 Clunies Ross Street, Pemulwuy
- Sydney Crime Scene Zone – Level 5, Sydney Police Centre
- Pharmacology Services Unit – Level 5, Sydney Police Centre
- Ballistics Investigation Section – Level 5, Sydney Police Centre
- Fingerprint Operations – Level 4, Police Headquarters
- DNA Results Management Unit – Level 4, Police Headquarters
- Engineering Investigation Unit – 7 Stokes Avenue, Alexandria

CSSB also have SOCO's located at Burwood, Chatswood, Penrith and Campbelltown police stations as there is insufficient space at Pemulwuy or the Sydney Crime Scene section to accommodate the 40 officers.

The other branches within FETS, High Tech Crime, Technical Evidence & Science Branch and the Metropolitan Exhibit & Miscellaneous Property Centre are located at Potts Hill. This is only a short distance from the Forensic Precinct at Lidcombe, and should the forensic facility be approved, this would house the majority of the FETS services in close proximity to each other, centrally located within the metropolitan area.



4.3.1 Existing Infrastructure

The site at Pemulwuy is a rented facility and is not owned by the NSWPF. The current rental agreement expires in August 2024. NSWPF pay \$967,066.45 pa excluding GST to occupy this site. The building is circa 1960's and has not had any substantial renovations or refurbishments in over 15 years. As such, the laboratories are aging, require significant ongoing maintenance and refurbishment to meet the demands of current use and NATA requirements, particularly with the recent addition of drug examinations. With the rental agreement due for re-negotiation in 2024, CSSB will be seeking an alternate site to relocate to, given the current deficiencies with the building, or would be seeking significant upgrades to the current site if no other suitable accommodation can be identified.

The Engineering Investigation Section (EIS) co-shares the facility at Alexandria with Rescue and Bomb Disposal Unit (RBDU). The RBDU have indicated that their site space at Alexandria is insufficient for both RBDU and EIS. EIS have to date been unable to locate a more suitable location so have remained on site. Whilst the site is adequate, there would be benefits in relocating EIS to share a common space with CSSB, so assets such as the vehicle hoists and garage spaces could be consolidated and used more efficiently, saving significant costs associated with assets, servicing and maintenance.

Whilst the other sites are adequate to meet current operational demands there would be substantial benefits in co-locating the forensic services and functions into one location and returning valuable floor space at PHQ and the SPC to the NSWPF.

The separation of services also provides for a number of inefficiencies such as the requirement to have a daily courier service (TOLL) engaged to provide a metropolitan overnight delivery of exhibits collected by CSSB to FASS. This overnight service adds significant delays to turn around times and costs on average \$20K pa to maintain.

4.4 Drivers & Implications of Continuing with Status Quo

Drivers impacting NSW Health Pathology and NSW Police service provision include:

Ability to provide full scope of services is limited by dislocated services	Current dislocation of services limits the ability to provide a full scope of services – for example, by collocating liquid chromatography and tandem mass spectrometry (LC-MS/MS), QLD Pathology has been able to expand their test menu beyond what NSWHP currently offers.
Demand for testing is growing	Insufficient capacity on existing sites to accommodate growth in demand for testing
Future service planning aims are better achieved when NSW Police and NSW Pathology are collocated	Future service planning for NSW Pathology and NSW Police aims to identify emerging drug trends in NSW and develop early warning systems to drive evidence-based policing and drug health policy and practices in NSW. Collocating the staff of both organisations would greatly support this.
Key functional relationships are not met, and limit results	Key functional relationships between NSW Police and NSW Pathology are not met with current service locations, limiting the ability to collaborate on results
There are staff and technology inefficiencies	Current dislocation of services impacts on efficiency of both staff and technology
Current dislocation of services pose risks	Due to dislocation of services, staff transport samples between buildings and across campuses/sites – this poses a risk to sample security, sample integrity and staff safety.



There are issues retention of highly specialised staff	There are issues with staff retention across the scientific community in Australia – collocating specialist highly-skilled staff would improve staff collaboration, recruitment and retention
Use of external providers raises costs and result return time	Limited availability of certain tests results in expensive and lengthy processes to arrange patients test results from overseas providers. Planned future service provision would meet local (and ideally further) needs in-house while avoiding costs of external providers.
There is an opportunity to position NSW as a leader in forensics	Southern hemisphere provision of specialised services is relatively new, limited and presents an opportunity to position NSW as a leader in translational research and service provision to new regions.
Current development of new assays is slow	Current development of new assays is slow due to dislocation and inefficiencies. This project scope would therefore provide NSWHP with a competitive advantage over other labs such as private.
Costs of procurement, management, and maintenance of technology are duplicated	Current technology is dislocated and duplicates the management of highly specialised machines. Collocating a critical mass of machines can save costs on procurement, management, and maintenance.
Risks due to current asset condition	Business continuity is at risk if current infrastructure condition results in shut down periods – for some specialised services, NSW Pathology is the only provider for the entire state – interruptions would impact investigations, court matters, and therefore present risk to community health and safety
Existing assets have undergone a variety of improvements	Existing assets have undergone a variety of improvements and refurbishments over recent years, and would achieve value being replaced and/or consolidated.
Existing operations have high costs of couriers and staff travel	Existing operations have high costs of couriers and staff travel. Project provides opportunity to avoid courier costs and decrease staff travel between sites, thereby increasing the amount of time staff spend in the field.

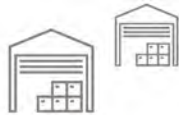
The implications of continuing with the current service spread across over 13+ sites include:





A summary of the current to future state is shown below:

NSW Police FETS
12 separate locations



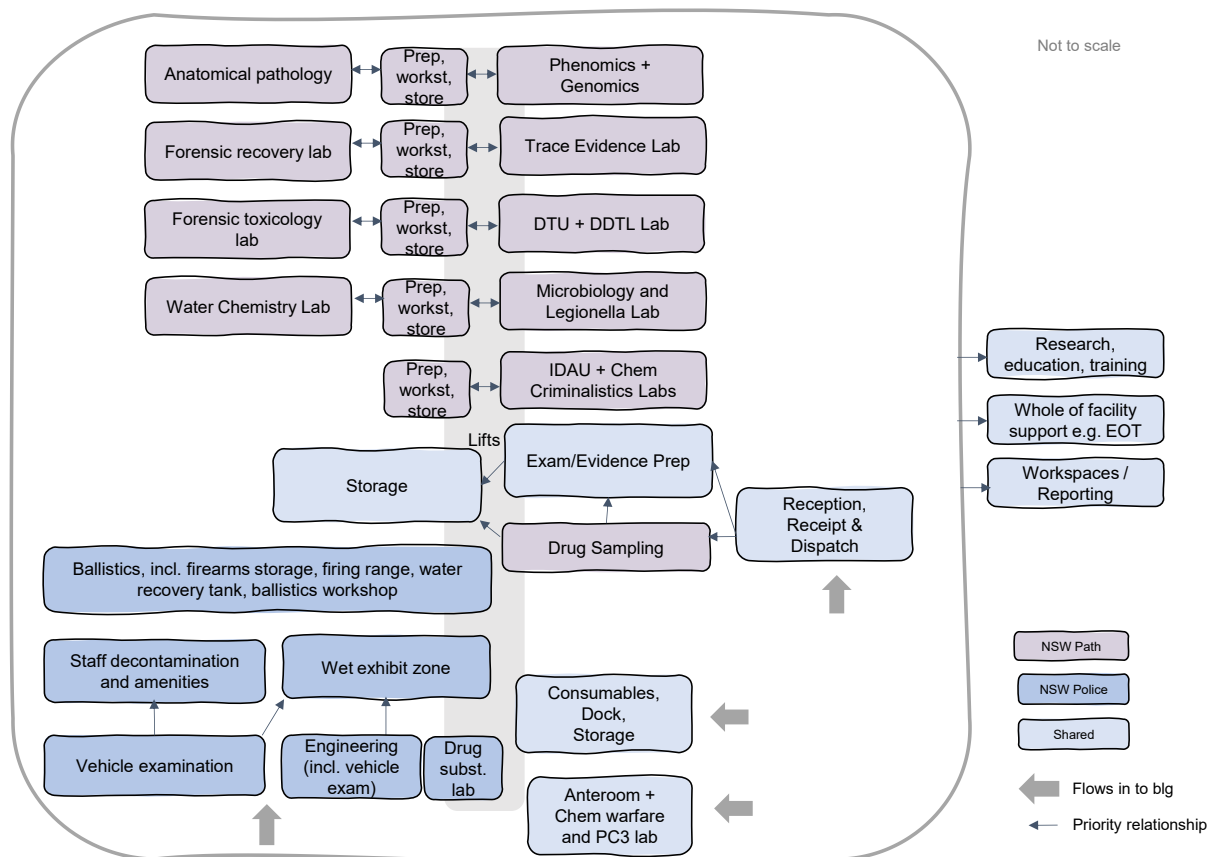
NSW Pathology FASS &
Specialised Services





5. Desired Future State

A purpose-built forensic facility within the Forensic Precinct at Lidcombe would provide FASS, FETS, and specialised services with the infrastructure and workspaces to undertake joint forensic examinations, research and collaboration. A design centred on the principles of integration and collaboration, would enable the delivery of forensic services under a more consultative and customer service focused model and would improve the quality and timeliness of forensic examinations. It would also reach critical mass for specialist services, giving NSW greater access to services, supporting retention of expertise, and supporting synergies between specialised and forensic services.



The centralisation of FETS would amount to relocation of 449 staff from twelve separate work locations into one. This would improve the efficiency and effectiveness of these critical services. The LFP will provide NSWPF with a world class forensic service and facility that will influence and aid investigations ranging from volume and organised crime to terrorism offences.

The site aims to provide a facility which would:

- Enable collaborative and innovative service delivery between NSWHP, NSWPF, and Education Providers
- Build positive work environments that bring out the best in everyone



5.1 Projected FTE

Service/ Team	Current FTE	Indicative Future FTE
NSW Police Force		
<ul style="list-style-type: none"> - Pemulwuy - CSSB - Police Headquarters (FETS Executive, Fingerprint operations, DNA Management, ISB Command) - Sydney Police Centre (ISB) - Alexandria – Engineering Investigation Unit - SOCOS (Burwood, Chatswood, Penrith, Campbelltown) 	451	513
NSW Health Pathology FASS		
<ul style="list-style-type: none"> - Lidcombe Executive Offices / Administration / Training / ICT / Quality / Finance / HR / Data / Comms - Lidcombe Facility / Asset Management - Lidcombe Integrations Science – Receipt Unit - Lidcombe Criminalistics – Illicit Drugs Analysis Unit - Lidcombe Criminalistics – Forensic Biology and Forensic DNA - Lidcombe Criminalistics – Chemical Criminalistics Unit - Lidcombe Forensic & Environmental Toxicology Unit Forensic Toxicology Lab - Lidcombe Forensic & Environmental Toxicology Unit Drugs & Driving Toxicology Lab - Lidcombe Forensic & Environmental Toxicology Unit Water Microbiology Lab - Lidcombe Forensic & Environmental Toxicology Unit Legionella Reference Lab - Lidcombe Forensic & Environmental Toxicology Unit Trace Inorganics Lab - Lidcombe Forensic & Environmental Toxicology Unit Clinical and Environment Toxicology Laboratory - Macquarie Hospital Forensic & Environmental Toxicology Unit, Drug Toxicology Unit - Centre for (Forensic) Innovation and Research 	291	470
NSW Health Pathology Specialised Services		
<ul style="list-style-type: none"> - Specialised Service Genomics - Specialised Service Phenomics - Specialised Service Anatomical Pathology / Digital Processing 	120	189
NSW Health Pathology Subtotal	411	659
TOTAL	862	1,172



5.2 Summary Scope Tables – m2, FTE, Car Parking

Car Park Numbers

The car park numbers have been developed based on the Cumberland Development Control Plan (DCP) for industry redevelopments, which calculates 1.3 car space per 100m² / Gross Floor Area (GFA), equating to circa 34,500m² (Net Floor Area + T&E). Based on this calculation, the estimated staff car park spaces are 449, plus 86 police fleet vehicles. For the IDD the proposed car park provision is 540 car parking spaces.

The car park numbers will need to be tested in the next stage of planning and will include consideration of Transport NSW partnership, alternate green travel plans as well as the car park being managed by a third-party provider.

The following table summarises the current and future requirements for the proposed services in terms of square metres, FTE's and fleet vehicles and staff car parking.

Current	M2			FTE		NSW PF Vehicles and Staff car spaces		
	Current m2	NSWHP CIP m2	Proposed Project m2 excl.T&E	Current FTE	Future FTE	Current NSWPF Vehicles	Future NSWPF Vehicles	Estimated car spaces
NSW PF FETS								
FETS - Pemulwuy	2,900							
<i>Headquarters</i>	<i>1,400</i>							
<i>Syd Police Centre</i>	<i>1,840</i>		5,030	451	513			
<i>Alexandria</i>	<i>528</i>							
<i>SOCOs</i>	<i>400</i>							
NSW PF FETS subtotal	7,068		5,030	451	513	60	86	
NSW HP FASS								
NSW HP FASS	10,018	19,097	9,188	291	470			
NSW HP Specialised Services	1,500	4,000	4,620	120	189			
NSW HP subtotal	10,018	23,097	13,808	411	659			
Shared subtotal								
			6,146					
Grand Total	18,586		24,984	862	1,173	60	86	455

Note: *Italic* figures for FETS are estimates based on current FTE @ 10 m²/person

Note: table assumes current m² excludes T&E. For comparison, the grand total also excludes T&E

Note: NSW HP Specialised Services requested areas of 4,000m² excluded 189 FTE. The FTE has been included in the proposed project m².

Note: vehicle sizes - require at least 5 double length and width spaces for Mercedes Sprinter and Trailers



6. Benefits

Non-quantifiable benefits for the project have been described above. Potential measures have been listed below.

No	Service issues / problems	Outcome area	Benefits - Service outcomes	Project outputs / scope	Potential benefits indicator/s
1	Current poor asset condition results in: a. WHS incidences b. sample/evidence loss through couriers	Safety - compliance	Reduced WHS and lost sample incidences	Building and design meets WHS requirements and provides safe, secure access for sample intake and couriers	Decrease in WHS incidences and/or lost sample incidences
2	Current poor asset condition and inappropriate flow results in testing errors	Better value care – increased efficiency	Less time taken for quality assurance and error resolution	Functional layout supports workflows	Faster sample processing time
3	Staff and couriers spend a lot of time delivering samples and evidence	Better value care – increased output of cost efficiency	Less travel/delivery time results in lower courier costs and more time for staff to be doing front line work	Collocation of laboratories and work spaces – sites across Sydney are combined	Decrease in courier use and/or cost Increase in front line work % vs. travel %
4	Current poor asset condition and inappropriate flow results in testing errors	Safety - compliance	Less testing and sample errors	Functional layout supports workflows	Reduced error percentage
5	Current services are split across sites with aging infrastructure, and maintenance roles are duplicated across sites	Sustainable – financial performance	Maintenance efficiencies through scale and collocation Increased capacity and efficiency to meet demand at acute facilities, i.e. AP	Co-locating multiple sites together in one building Newer assets Decreasing staff and space requirements at acute facilities i.e. AP	Reduced whole-of-life-cycle costs Reduced rent costs Reduced building management costs
6	Current services are split across sites - staff and couriers spend a lot of time	Sustainable – environmental	Cessation of travel across multiple sites	Co-locating multiple sites together in one building	CO2 emission reductions



No	Service issues / problems	Outcome area	Benefits - Service outcomes	Project outputs / scope	Potential benefits indicator/s
	traveling between sites				
7	Refurbishing current buildings for new advances in laboratories has been expensive and inefficient	Sustainable – adaptability	Flexibility for future changes in scope and technology	Flexible laboratory design	Satisfaction with lab design, and avoided refurbishment costs
8	Strategic direction and opportunity to improve collaboration between NSWHP and NSW Police	Sustainable – new model of delivery	Improved collaboration between NSWHP and NSW Police, in line with strategic directions	Building physically collocates and design encourages interaction between NSWHP and NSW Police services	Increased joint authorship research Decreased time of validation, translation of practice Improved recovery rates
9	Current work environment does not support collaboration, information sharing, or retention of high-quality research staff	Better value care	Improved translation of research outcomes	Building supports modern working environment and team collaboration/sharing of expertise	New services are brought online

7. Next Steps

Next steps for the project include:

- Endorsement of project scope through project governance
- Develop and endorse a preferred site location via the refreshed master plan
- Develop supporting documentation for the IDD, including investment options, Financial Impact Statement, and identification of key benefits via the Cost Benefit Analysis



Appendices - NSW Health Pathology's Scope Requirements

Note: provided by NSW Health Pathology prior to September 2022, any information may be superseded by subsequent endorsed project documentation.

Appendix – NSW Health Pathology's Scope Requirements - Anatomical Pathology (Digitally enabled reporting)

Note: provided by NSW Health Pathology prior to September 2020, any information may be superseded by subsequent endorsed project documentation.

Brief Description of the service - Laboratory Centre (Anatomical Pathology)

- The proposal is to provide additional laboratory facilities and capacity on the Lidcombe campus, supported by digitally enabled reporting.
- The key driver for this is critical capacity issues at some metropolitan labs, where there is insufficient space available on Hospital campuses to accommodate growth in demand for Pathology into the near future.
- To alleviate some of the demand, it is proposed that low complexity, non-urgent specimens / samples that are already being transferred from smaller and / or regional sites to larger metropolitan laboratories could instead be transferred to a new Laboratory on the Lidcombe campus.
- This would provide NSWHP with the opportunity to meet current and future demand for off-site processing of some pathology laboratory functions, by developing a new metropolitan Laboratory centre for the NSWHP Network.
- The proposed focus for the Laboratory centre is an Anatomical Processing (AP) hub.
- As Lidcombe is the only site owned by NSWHP, this campus plays a key role in meeting the future capacity needs for pathology services. Many Hospital campuses have not been able to readily accommodate Pathology's requirements for enhanced capacity to meet future demand. The development of a laboratory on the Lidcombe site could assist LHD's in managing growth impacts by shifting a proportion of non-urgent work to this site for processing and potentially reduce the on-site laboratory footprint.
- Digital reporting is an essential component of this proposal to ensure scanned digital whole slide images are reported on in a timely manner, noting that clinical pathologists will need to provide on-site supervision as well as maintain Hospital-based clinical links.

Current State Assessment

Key service drivers for the redevelopment (what isn't working?)

- Sustained growth and redevelopment of hospital services continues to drive further demand on the pathology laboratory. Growth in demand is significant and many labs are not able to expand to accommodate this growth. Most metro labs will be processing twice as much work within 10 years.
- Adequate staffing will be as much of an issue as having adequate space.
- On average ~36% of activity processed in Metro Labs comes from off-site activity, and up to 50% at some of the larger labs is off-site. This represents a significant volume of work. Providing a site for off-site processing



could assist in managing some of this demand, providing a central lab to undertake some aspects of work that is less time critical. This would provide opportunities for digital distribution of AP reporting much needed capacity for Laboratories that have not had any significant local expansion or enhancements despite increasing work.

Base case implications (what are the implications with continuing with the current state?)

- The current situation of insufficient capacity within many Hospital-based Pathology laboratories will continue. These laboratories will be unable to meet the growing demand for pathology services, which is on average growing at 3-4% per annum, on par with ED growth, and impacted by the growth of the aged population, chronic conditions. This will impact on throughput, turnaround times, delays in reporting of patient results, and inability to meet KPIs.
- Capacity will be tested through the projected increased use of effective diagnostic tests such as biomarkers in histopathology in addition to technological advances requiring new equipment or sophisticated processing methodologies and services.

Desired Future State

What is the future state?

- The establishment of a new laboratory centre on the Lidcombe campus for Anatomical Pathology, with digitally enabled reporting, to process activity that is already being transferred from smaller and regional sites. This will include specimens as well as blocks, so the Lab will be providing 'cut up', processing and digitally enabled reporting. This represents a full AP lab set up, with grossing stations, tissue processing¹, microtomy and staining (and associated infrastructure / ventilation / chemical storage requirements) as well as the need for whole slide scanning to enable remote pathology reporting of slides.
- This will provide much needed capacity at metropolitan laboratories that would otherwise be receiving these specimens. Making this capacity available can delay the need of costly future onsite laboratory refurbishments and redevelopments of the anatomical pathology laboratories.
- Careful triaging will be required to ensure complex or time-sensitive specimens continue to be transferred to existing metro sites.
- Maintenance of clinical links with MDT and Hospital clinicians will be important, and ensuring that the 'journey of the specimen' does not become disconnected from the clinical team. Local tissue processing and cut up will still be required at all laboratories. Onsite IHC (immunohistochemistry) will still be required.
- Digitally enabled reporting is essential for this model and requires the additional step of whole slide scanning of each glass slide and other digital infrastructure and IT support to enable remote digital reporting.
- Onsite clinical supervision is necessary to maintain accreditation requirements, so some Pathologist offices / reporting rooms will be required, but most reporting will be virtual/digital.
- AP remains a highly manual, labour-intensive laboratory area, and requires significant space for tissue processors, embedding stations, multiple microtomes, stainers, scanners, grossing stations etc. Ventilation requirements, and safe storage of chemicals and flammables are also significant.

¹ Grossing stations and Tissue processing rooms both require ventilation.



Key works streams – samples and staff

- Lab areas (wet or dry)
- Support areas
- Office areas
- Samples - come from smaller hospital sites and regional areas.

Key zones (flexible design)

- Specimen reception / receipt area (shared)
- Laboratory
 - Dedicated lab areas
 - Cut up
 - Wet (ventilated) specimen storage
 - Tissue processing
 - Histology / embedding
 - Microtomy
 - Staining (IHC, HE and Specials)
 - Scanning
 - Stores
 - Equipment
 - Consumables
 - Reagents
 - Slide and block store
 - Dangerous Goods (flammables, corrosives, etc.)
 - Cold Storage (Patient samples and Reagents)
 - Digital storage of scanned whole slide images.
- Clinical reporting
 - Reporting areas
 - Adjacent zone for reporting, close proximity to lab to monitor equipment
 - Most reporting will be virtual, but digitally enabled onsite capacity is also required
- Staff work areas
- Sufficient lab capacity for surge activity, research, training and prototyping

Key functional relationships / synergies

- Specimen reception area (can be shared with other labs) → *direct / ready* access to Lab
- Dedicated lab areas – direct adjacencies
- Fridge / freezer store (cool room) → located within or directly adjacent
- Stores – equipment, consumables, reagents → located within the Lab
- Staff work areas (workstations) → within the lab
- Reporting rooms → *direct / ready* access to the lab



- noting on-site supervision is required but most reporting will be done remotely
- Adjacencies to other labs / services →
 - Anticipated links with Forensic Medicine Coroners Court Complex for *tissue processing*.
- Flexible design to future proof
- Sufficient capacity for surge activity (providing NSWHP Network redundancy), research, training and prototyping

Workforce requirements

- Current workforce – based on bench marking against RNSH and RPA Anatomical Pathology laboratories, it has been estimated that the current work force would be approximately 50 FTE in 2022.
- Future workforce – min. 15-year timeframe (2032-37+) – future workforce profile is projected to be 80 FTE based on an annual compound growth of 3%, which equals 56% over 15 years, and a 4% annual compound growth rate, which equals 80% growth over 15 years, and noting that Anatomical Pathology is still a very manual discipline where advances in technology are not producing workforce efficiencies. Proposed workforce would include on-site clerical staff, scientific and technical officers, with on-site supervision by Pathologists.

Benefits to the project by the service being located within the LFP

- Co-location on the Forensics campus will support collaboration and strengthen service links with FASS, and particularly FMCCC on the Lidcombe campus.
- Potentially - Imaging Mass Spec could be relevant for AP
- Links with Forensic Medicine Coroners Court Complex for tissue processing
- Lidcombe campus is the only land NSWHP owns and is therefore a critical asset to support the provision of future service capacity requirements for Pathology services into the future. As most pathology activity needs to be provided on a hospital campus, only select clinical services can be managed elsewhere. The establishment of a Laboratory Centre for Anatomical Pathology processing to manage low complexity, non-urgent specimens and samples will allow some activity already being transferred for processing to be redirected to Lidcombe. This will alleviate pressure on busy metropolitan labs that will increasingly struggle to meet future demand.
- Digital Anatomical Pathology could also support Anatomical Pathologists to work across not only tertiary hospitals but also some major metropolitan hospitals, to build capacity, improve clinical interactions and support MDT's.


Suggested spatial requirements – note: superseded by endorsed SOA

Phenomics Lab Key Zones	Room / Space	Approx. sqm (current)	Approx. sqm (future)	Comments
Specimen reception	Specimen reception (Central Specimen Reception)		Extra sqm not included in 1,350m2	-Could be shared
Specimen preparation				
Lab (wet)	Fresh tissue area, Dedicated area for tissue cut up (with ventilation) Tissue processing area (with ventilation and fire safe/proof) Chemical / flammable storage, preparation and decanting Wet specimen storage area (with ventilation) Tissue embedding and sectioning stations Staining areas – routine H&E, special stains, Immunohistochemistry Case assembly Whole slide imaging area Adjacent / additional lab capacity for research and training Workstations /offices for microscopic reporting		70-75% 945 to 1013m2	Flexible design; Workstations within room; Specific exhaust, air handling, chemical requirements etc.
Lab (dry)	Reporting spaces - Scientific and Pathologist (Dry-lab) Staff work areas Dedicated equipment, storage Offices for pathologist microscopic or digital reporting		25-30% 338 to 405m2	Reporting spaces could be shared; digitally enabled
Support services - Shared	Logistics, couriers, sendaways Stores and supplies Staff amenities Meeting rooms		shared	Shared with other Lab services on the campus
Office areas	Open plan collaboration and breakout spaces		shared	Shared with other Lab services on the campus
Total			1,350m2	



Guideline - Design Requirements for Anatomical Pathology Departments (NSWHP)

A histopathology laboratory must accommodate the following components:

- Specimen reception/accession area/administrative area which may include report transcription, secretarial and managerial staff
- Fresh tissue area, including microscopic reporting space
- Dedicated area for tissue cut up, which includes facilities for pathologist macroscopic dictation and cassette printing (with ventilation)
- Tissue processing area (with ventilation)
- Chemical storage, preparation and decanting (with ventilation)
- Specimen (Wet) storage area (with ventilation)
- Tissue embedding
- Microtomy (sectioning stations)
- Staining area includes both routine staining (haematoxylin and eosin) and special stains
- Immunohistochemistry staining area
- Case assembly, checking and case allocation
- Whole slide imaging area



Appendix - NSW Health Pathology's Scope Requirements – Genomics Hub

Note: provided by NSW Health Pathology prior to September 2020, any information may be superseded by subsequent endorsed project documentation.

Brief Description of the service

NSW Health Pathology is a leader in clinical genetic services and research. Our services perform more than 80,000 genetic and genomic tests each year to reveal new insights into rare genetic diseases, cancer, and infectious disease caused by pathogens. Genomics and Genetics have played an essential role in healthcare for decades and recent advances in technology present new opportunities to enhance the way we assess disease risk and diagnose disease. This cutting-edge technology has greatly reduced the time to diagnosis and enabled predictive, precision medicine which means patients can seek customised treatment early and, with their clinicians, make more informed decisions about their care.

As a direct result of genomic technology, the health system is entering a new era of personalised precision medicine based on accurate diagnosis and focused therapy. With its current expertise in genomics, NSW Health Pathology (NSWHP) has a unique opportunity to position itself as NSW's premier provider of high-quality, clinically relevant and professional genomic diagnostic services to health providers and their patients. In achieving this, it can become a leading contributor to national and international innovation in genomics and precision medicine.

Genomics testing occurs predominantly at six sites within NSWHP: Royal North Shore Hospital (RNSH), John Hunter Hospital (JHH), Prince of Wales Hospital (POWH), Royal Prince Alfred Hospital (RPAH), Concord Hospital and Westmead Hospital, and soon, Liverpool Hospital. These tests are available through the usual referral pathways, and further details can be found on the NSWHP statewide catalogue. The Genomics State-wide Sequencing services are situated in Randwick (POWH) and Newcastle (JHH).

Increasingly, there will be a transition of routine molecular and cytogenetic testing to genomic technologies and a greater reliance on genomics for all current genetic testing across rare diseases, cancer and pathogen testing.

NSWHP is building on partnerships with service providers, clinicians, researchers, industry and consumers to achieve the NSW Health vision for clinical genomics which is articulated through the NSW Health Genomics Strategy.

Our Genomic services offer four areas of speciality service:

- Rare Diseases

We provide clinical genetic testing services to diagnose the approximately 10,000 known rare genetic disorders, many of which are life-threatening or chronically debilitating. This testing includes Whole Exome Sequencing and Whole Genome Sequencing to examine all 20,000 human genes for mutations or variations in a single test.

- Cancer Genomics

There are a number of cancers that have a higher risk in certain families, such as breast and bowel cancer, and Genomics can, in many cases, predict an individual's risk within such a high-risk family of developing cancer. This information can then be used to monitor for early signs of cancer and, if detected, initiate earlier clinical management strategies.

Our Cancer Genomics teams are developing faster, more comprehensive tests to find gene variations linked to both hereditary and non-hereditary cancers, including breast, ovarian, bowel cancer, lung cancer, and melanoma.



Increasingly, Genomics can also predict how a person's cancer will respond to treatment, such as targeted drug therapies and oncologists can match patients to more effective treatments, often with fewer side effects and greater efficacy.

- **Pathogen Genomics**
Pathogen Genomics assists Public Health services in understanding better the origin of pathogen-based disease outbreaks and how they mutate into new strains and spread. In turn, this information helps us limit the spread of infectious diseases in the community.
- **State-wide Data Sequencing Service**
This service provides Whole Exome Sequencing and Whole Genome Sequencing and disseminates this genomic data across the State. A service has been established at Randwick, with the second service being commissioned at Newcastle.

Service description – Genomics Hub

This proposal is to establish a premier diagnostic genomics facility, the first of its kind for NSWHP supporting high throughput complex testing, analytics, clinical reporting, research and development.

- A genomics hub would provide a sustainable, high-tech, high throughput centre for specialised genomic services, with extensive cloud-based data linkages. Such a genomics hub that incorporates the continual development of technologies is critical to clinical genomics as current technologies have a five-year or less life cycle.
- There is significant research interest (and funding) in this emerging field which aligns with the proposed training and research focus on the campus. In the area of Genomics, NSWHP is a partner in multiple MRFF proposals, including functional genomics, newborn screening, reproductive genomics, pathogen genomics (COVID-19) and the establishment of diverse population genomic datasets.
- There is also an opportunity for partnership models/linkages with Universities (UWS, UTS); plus student training – in the clinical, scientific, and bioinformatics
- There are currently no NSWHP Genomics Labs or indeed few across Australia that provide significant functional genomics, which comprises transcriptomics, proteomics and functional assays, all of which are required to unlock information that relates genetic diversity to human disease and promises to deliver more actionable results for more patients.
- Consolidating the above functions on one campus will provide the critical mass and highly skilled technical expertise for establishing a Functional Genomics service within a Genomics hub. There is a potential synergy with LC-MS for proteomics which is also flagged for the campus.
- There is strong synergy with the forensics DNA laboratory for developing new approaches to criminalistics utilising genomics, such as emerging applications of forensic genomic genealogy.

The overall goal is to establish a diagnostic genomics facility that provides high throughput, high complexity DNA and RNA sequencing, including analytics and clinical reporting with scope to expand as the Genomics landscape changes.

- This service would consolidate highly specialised equipment, clinical, scientific, and bioinformatics staff, as part of the diagnostic genomics facility, on a 'neutral' campus with the capacity to meet future demand for this technology.



Current State Assessment

Key service drivers for the redevelopment (what isn't working?)

- There are currently speciality services in NSW providing genetic/genomic services, with no space available to accommodate growth in demand for these rapidly expanding services.
- There is a small pool of highly specialised staff working across these sites, making it challenging to build workforce capacity and sustainability.
- Research and development is fragmented across the services.

Base case implications (what are the implications of continuing with the current State?)

- Insufficient capacity on existing sites to accommodate growth in demand for critical new technology
- A small team of highly skilled technical staff, split across multiple sites, sharing expertise, workforce capacity and capability development, and recruitment and retention strategies cannot be harnessed while the team are working in separate locations.
- Duplication of resources and capacity to implement new technologies will limit development without the creation of a Genomics Hub.

Desired Future State²

What is the future State?

- A diagnostic Genomics Facility with DNA/RNA sequencing, data analytics and reporting for specialised genomic services in rare diseases, cancer genomics and pathogen genomics with appropriate clinical and scientific supervision and staffing:
 - Scope to expand or modify the service as the Genomics landscape changes (as it definitely will). Potential to include:
 - statewide newborn screening (currently at CHW- SCHN), including biochemical screening – would require an additional footprint not presently included and requires stakeholder engagement at an early stage.
 - Research and development for genomics technologies
 - Capacity on the Lidcombe campus to allow growth to be consolidated on a 'neutral' campus, providing a critical mass of highly specialised equipment (with associated cost benefits related to procurement and maintaining equipment) as well as building workforce capacity, attracting and retaining highly specialised technical and clinical staff by providing contemporary, purpose-built facilities for leading technology.
 - Data infrastructure capacity will support the high-tech networks and data analytics required for this service and the development of analytics tools.
 - In addition to the scientific and clinical team, a bioinformatics team and Dev Ops team would be located within the same campus.

² <https://www.vcgs.org.au/> Victorian Clinical Genetic Services – example of the proposed model



- A diagnostic genomics service does not need to be located on hospital campuses where space for services that interface with site-based hospital services have priority. However, high connectivity will be required to disseminate genomic data to individual sites that maintain close clinical connections.
 - *Lidcombe is ideal as it will collocate Genomics with* Forensic medicine's DNA laboratory and digital AP. Both may contribute to the development of better approaches and applications of genomics to forensics and cancer genomic testing.
 - On-site clinical supervision is required to provide an end-to-end service which includes sequencing, analytics and clinical reporting as per accreditation standards.
- **Key works streams – samples and staff**

Samples – are referred from NSW, Interstate, or abroad. The timeframe for diagnostic genomic reporting differs depending on the application and ranges from a few days to several weeks.

The service would require the option to operate seven days/week, with the requirement for out-of-hours access for a call-out for urgent sample processing.

Workstreams - There are three critical workstreams proposed to provide end-to-end DNA/RNA sequencing, from analytics through to clinical reporting, with support from genetic counsellors and remote reporting staff as appropriate.

1) high throughput sequencing for routine requests (sustainable “BAU” model) with analytics and clinical reporting

2) flexible “research & development” space for next-generation technology simulation and prototyping (e.g. long lead sequencing) and translational research

- current and potential significant research funding for specific projects with a range of University and Industry partners³ – e.g. comprehensive tumour profiling

3) future Functional Genomics

- biological Lab with cell culture and model system capacity
- proteomics development capacity (synergy with LC-MS)
- massively parallel reporter gene assays for functional assessment

Key zones (flexible design)

- Specimen reception / receipt area
 - Specimen reception area (shared)
 - Transfer to dedicated genomics specimen reception to identify requirements that have been met to transfer requests onto the work list (could be co-located within CSR or transferred into the Genomics Lab)
- Laboratory (wet/dry)
 - Key areas in the Genomics Lab:

³ Omico - a nationwide network of research and treatment centres that facilitates, supports and promotes clinical trials in genomic cancer medicine. Central to this is the use of molecular screening for the prevention and treatment of cancer. Omico - Outsmarting Cancer Together - Omico



- Due to the nature of Genomics work and compliance requirements, the lab instruments and processing layout requires a one-directional workflow. Air pressure regulation is used to promote the flow of air away from pre-PCR areas, i.e. positive air pressure in pre-PCR relative to negative in post-PCR areas. Air should not flow from post PCR or processing areas to pre PCR. Air should also not flow from post PCR to processing areas.
- Sample processing laboratory
 - DNA/RNA isolation with a dedicated room for robotics
 - Processing of FFPE slides for cancer testing
 - Access to AP processing of tumour samples/biopsies
 - Separate area for RNA processing and reverse transcription
- Pre-PCR and Day 1 library preparation
 - Pre- and post- PCR areas must be separated from each other (separate rooms or clear distinction between zones) and separate from the other areas.
 - Reagent area (DNA and sample-free area)
 - Dedicated room for robotics
- Post PCR amplification and Day 2 library preparation
 - Dedicated room for robotics
- Sequencing (separate space, flexible design)
 - Separate room with climate control, UPS and any other requirements for instruments
 - *Future requirements – flexible design*
- Fridge/ freezer area
 - Area with a large number of fridges/freezers (-20, -80, liquid Nitrogen for cell storage).
 - Coolroom for reagents adjacent to pre PCR area with separate airflow, compactus in coolroom for efficient storage.
- Stores
 - Equipment
 - Consumables
 - Reagents
 - Compactus design / conveyor system / electronic ordering for general stores – automation (JHH example) robotic delivery
 - Barcoding/links w Fusion
- Clinical reporting
 - Reporting areas
 - Adjacent zone for reporting, in close proximity to Lab
 - Some reporting can be virtual, but onsite capacity is required
 - Complex reporting requires quiet space with a separate area for small conversations between staff and access to high connectivity and computing capability
 - Data informatics
 - comprising high-tech IT infrastructure to analyse large volumes of data; cloud-based storage with the distribution of reports to referring doctors. Critical to this service will be the provision of high-spec IT requirements.



- bioinformatics team (?4-5 FTE) – currently at the corporate office, but co-location with the Lab will support analysis troubleshooting
- development engineers (?4-5 FTE)
- **Key functional relationships / synergies**
 - Specimen reception area (can be shared with other labs) → direct / ready access
 - Transfer to “genetic specimen reception.”
 - Genomics Lab with dedicated spaces to maintain discreet, one-way workflows between lab areas (separate pre-PCR and post-PCR) as well as separation of processing and sequencing equipment
 - Fridge/freezer store (?cool room) → located adjacent/within the Wet Lab with consideration to airflows to minimise cross-contamination
 - Stores – equipment, consumables, reagents →situated within the Lab (or direct access?)
 - Staff work areas (workstations) → direct access to the wet Lab; ideally line of sight to equipment
 - Reporting rooms → direct access to the wet Lab; collaboration between teams
 - Adjacencies to other labs/services →
 - DNA testing / Forensic medicine →direct/ready access would be ideal - priority
 - Phenotyping (Proteomics, Functional Genomics) → ready access (future scenario)
 - Flexible design to future proof
- **Workforce requirements**
 - The current workforce is located across several services (sites)
 - Future workforce – min. 15-year timeframe (2031-36+)
 - The proposed workforce would see a pooling of expertise across existing laboratories into one coordinated service. This would consolidate the majority of the current workforce, plus additional capacity on the Lidcombe site. (not co-locating Newcastle staff)
 - Manager, Pathologists, Clinical Supervisor (on-site), Scientific staff, Genetic Counsellors (virtual clinics only, not client face-to-face; requires quiet areas for sensitive conversations), Informatics team, ICT DevOps, Admin, Call centre functions
- **Benefits to the project by the service being located within the Lidcombe Forensic Precinct**
 - Co-location with Forensic Medicine will facilitate the development of Genomics related to forensic applications and is likely to promote closer collaborations with LCMS for functional genomics and dAP for genomic tumour testing.
 - Links with DNA services (FASS) - exploring the use of genomics to help solve crimes and determine the cause of death in some unexplained cases. For Eg forensic genetic genealogy project
 - There is a potential synergy with LC-MS for proteomics which is flagged for the campus.
 - Having a statewide genomics service will deliver a range of benefits to patients, clinicians and staff:
 - Supports rapid implementation and translation of new knowledge and technologies
 - Ensures clinicians and their patients have better access to our genomics expertise regardless of geographic boundaries
 - Reduces unnecessary duplication and ensures we make the most of our resources
 - Enable a broader range of clinically relevant testing
 - Enables NSWHP to lead and support genomics research and innovations
 - Provides exciting new opportunities and career paths for highly specialised staff



Appendix - NSW Health Pathology's Scope Requirements – Phenomics and DESA Hub

Note: provided by NSW Health Pathology prior to September 2020, any information may be superseded by subsequent endorsed project documentation.

Brief Description of the service

Phenomics and DESA Hub (Development, Evaluation and Special Assay)

- (LC-MS/MS)
- Liquid chromatography and tandem mass spectrometry (LC-MS/MS) is a highly specialised, low volume, high capital cost technology with incomparable sensitivity and specificity for a growing number of critical pathology tests.
- NSWHP has established strong capability in LC-MS/MS over the last decade and aims to be a centre of excellence in the next decade.
- To date, LC-MS/MS assays performed by NSWHP have been in-house IVDs, requiring highly skilled staff to develop, validate and maintain. Centralisation of these tests has not been feasible due to lack of suitable premises, rapid turn-around-time (TAT) requirements on several of the assays (e.g., immunosuppressant drugs), as well as knowledge and skills being distributed across multiple sites with no unified state-wide workforce and planning.
- At the same time, international research into the use of LC-MS/MS in clinical care has shown the potential for this technology to be a major pillar in the future of personalized medicine. For NSWHP to leverage this technology will require further upskilling of the current LC-MS/MS workforce to be capable of applying more complex testing methodologies.
- In addition, this technology will require extensive clinical validation as reference intervals and decision limits developed in the past for immunoassays or other chemical methods are not directly transferable to the new technology and will therefore need to be reviewed and re-established for correct interpretation of test results. This activity will require close collaboration with clinicians and setting up clinical studies to establish the best assay cut-offs for improved diagnostics.
- The proposal supports co-location and expansion of NSWHP's LC-MS/MS instrumentation in a single location for statewide use, creating a Phenomics and DESA Hub (Development, Evaluation and Special Assay), located on the Lidcombe campus and aligned with existing MS services provided by FASS and the Drug Toxicology Unit (also proposed for relocation to Lidcombe).
- This is supported by international and national evidence of highly successful business models based on integrated Clinical Mass Spectrometry (CMS) services. Globally and locally, the most prominent and successful CMS laboratories use a centralised model. At the Mayo Clinic, samples requiring specialised LC-MS analysis are collected from around the country and the world and processed in a 65,000 square foot central facility in Minnesota ([link](#)). Similarly, prominent diagnostic providers such as ARUP Laboratories ([link](#)) and Quest Diagnostics centralise their mass spectrometry laboratories to benefit from the advantages outlined in this document. In Australia, the most prominent Clinical Mass Spectrometry laboratory is operated by Pathology Queensland. This laboratory combines many of the same assays currently run by decentralised NSWHP (and other public) laboratories into a single location. Using this model, Queensland Pathology has been able to expand their test menu beyond what NSWHP currently offers, drawing in patient samples from across Australia and interest from around the world ([link](#)).



- In the wider SE Asian region, Clinical Mass Spectrometry is still in the relatively early stages, operating under a similar model to NSWHP. This has limited the growth of the technique in SE Asia and provides an opportunity for NSWHP to offer clinical mass spectrometry services to this region.
- In addition, currently samples for esoteric testing, unavailable in Australia, need to be sent overseas which is extremely expensive (often thousands of dollars per test), not covered by Medicare, and therefore patients often do not get the right test or get these with gross delay simply due to the complexity and costs of shipping specimens overseas.
- Rationalising and centralizing high capital cost infrastructure captures economies of scale, particularly for relatively low volume specialist services, currently delivered by various laboratories often using different methods with lower sensitivity and specificity throughout the State.
- It also co-locates skilled technical staff to support collaboration with industry and research, build capacity, enhance recruitment and retention, and align with proposed training and research functions on the campus.
- This proposal would enable NSWHP to take the lead in research and innovation for this internationally growing area of technology, providing added-value services to clinicians, industry and researchers.
- The statewide DFSA Unit (Development, Evaluation and Special Assay) will support advanced development work to be collaboratively undertaken to develop special diagnostic assays, supporting Research and Innovation (R&I), as well as prototyping of new equipment and advancements in the LC-MS/MS field.
- LC-MS/MS services through phenomics biomarker testing also complement genomic data and therefore align with future plans for Functional Genomics on the Lidcombe site.
-

Current State Assessment

Key service drivers for the redevelopment (what isn't working?)

Complex technology that needs focused resource and investment

- Due to the broad application of LC-MS/MS and the implication of such testing, there is an imperative to drive research and development of LC-MS/MS methods into routine operation. This translational research approach will support 'business as usual' at local sites.
- NSWHP have four clinical and five FASS LC-MS/MS labs with multiple analysers that are used across the state. There is an established governance structure to ensure research and developmental activities are rigorously evaluated and undertaken in a coordinated fashion to the highest professional standards in the future.
- These efforts are currently still fragmented and need to be coordinated. Currently the LC-MS/MS pilots⁴ and state-wide coordination are overseen by the Chemical Pathology Clinical Director at Prince of Wales Hospital (on top of routine clinical/managerial responsibilities).
- Research opportunities could see clinical grade assay development and validation across a range of molecules, not just the current scenario of a subset of small volume tests, which would provide significant clinical value.
- There is a small pool of highly specialised technical staff working across sites, making it difficult to build workforce capacity and efficient use of staff resources.

⁴ LC-MS/MS pilot project commenced in 2019 to oversee, co-ordinate, rationalize and authorize development and training in new technology. A governance structure was established to ensure rational distribution of testing across sites (efficient use of human and infrastructure resources) and promote mass spectrometry opportunities in other specialties and for research



Resource intensive technology

- At present LC-MS/MS is resource intensive because most tests are in-house IVDs (in vitro diagnostics) that require high level of technical expertise until a new test is fully validated and meets the standards of laboratory accreditation. However, it is expected that once method development is better coordinated and state-wide procedures are developed, this process will be more efficient.
- Due to the required high level of expertise, R&D, full method validation and evaluation are undertaken centrally, while routine testing (“business as usual”) is delivered via a decentralized testing model, using semi-automated LC-MS/MS analysers where possible.

Base case implications (what are the implications with continuing with the current state?)

- Ongoing inefficient use of resource intensive processes and complex governance to coordinate development and evaluation work across numerous sites.
- Inability to harness opportunities and efficiencies associated with centralising expensive, high-tech equipment.
- Inability to provide continuity of service without suitable back-up for various methods currently done in isolated laboratories to meet the medical needs for rapid TATs.
- Small number of highly skilled technical staff, split across sites. Sharing of expertise, workforce capacity development, recruitment and retention strategies not able to be harnessed while staff are working in separate locations.
- Slow progress in developing new assays and deploying them into clinical use which could lead to competitive disadvantage for NSWHP in the medical testing marketplace.

Desired Future State⁵

Creation of a Phenomics and DESA Hub on the Lidcombe campus:

- centralisation of specialised LC-MS/MS activities particularly in relation to research, development and evaluation, to harness the benefits of a coordinated and streamlined approach for this high cost, resource intensive equipment, and highly specialised staff.
- make NSWHP a centre of excellence in clinical, forensic and toxicological mass spectrometry that is recognized at national and international level, thus generating more business and attracting more customers
- coordinated approach to service and development, and support for LC-MS/MS relevant research at all MS lab sites
- speeds up the development of new assays on LC-MS/MS platforms, thus providing NSWHP with a competitive advantage over other states/private labs
- Integrates the lab with prototyping and applied research functions (with capacity for these functions to be provided adjacent to the Lab to streamline integration and application)
- Supports the development of new MS methods and education to NSWHP staff
- facilitates workforce recruitment and retention, staff training, capacity building, professional development, and research
- centralised process for future procurement of LC-MS/MS instruments



- centralised maintenance and repair of LC-MS/MS instrumentation and reduction of those costs
- opportunity to generate new business, e.g., by offering services for clinical research and diagnostic service for trials that bring in additional revenue for future developments
- scale up testing in special niche areas
- facilitate research and innovation and attract more research grants
- Can generate new revenue and avoided cost of send-away tests
- Significantly reduce costs of existing tests
- Opportunities for test/service consolidation (reduce duplication, multiplication of testing) across sites

Key works streams – samples and staff

Samples - come from across the state and inter-state.

Key zones (flexible design)

- Specimen reception / receipt area
 - Specimen reception area (shared)
- Laboratory (wet/dry)
 - Specimen prep zone (could be shared)
 - Equipment rooms
 - Noting acoustic, exhaust requirements, circulation
 - Stores
 - Equipment
 - Consumables
 - Reagents
- Clinical reporting
 - Reporting areas
 - Adjacent zone for technical authorization of reports, close proximity to lab to monitor equipment
 - *Some reporting, including clinical validation and release of test results could be virtual, but onsite capacity is also required*
- Staff work areas (DESA Manager, DESA pathology director/clinical and research lead, workstations)
- sufficient lab capacity for surge activity, research, training and prototyping

Key functional relationships / synergies

- Specimen reception area (can be shared with other labs) → *direct / ready* access to Lab
- Specimen processing area (can be shared with other LC-MS/MS Labs except for criminalistics which requires special handling of exhibits) → *direct access to Lab*
- Equipment room (Lab) – adjacent to specimen processing
- Fridge / freezer store / cool room → *located within or directly adjacent*
- Stores – equipment, consumables, reagents → *located within (or direct access to) the Lab*
- Staff work areas (workstations) → *direct access to the lab; ideally line of sight to equipment - TBC*
- Reporting rooms → *direct / ready access to the lab; collaboration between teams*
- Adjacencies to other labs / services →
 - *FASS LC-MS/MS Labs → direct / ready access would be ideal to support staff collaboration and training*
 - *Proteomics, Functional Genomics → ready access (future scenario)*



- *Flexible design to future proof*
- Sufficient capacity for surge activity, research, training and prototyping

Workforce requirements

- Current workforce — 21 FTE, including DESA manager, across four hospital labs, using 9 LC-MS/MS systems. Approximately 2.5 FTE per instrument.
- Future workforce – min. 15-year timeframe (2031-36+) – future workforce profile consists of 40 staff, including DESA pathology director and DESA manager with 38 staff operating 15 LC-MS/MS systems.
 - Future LC-MS/MS testing will generate vastly more complex data with multiple analytes in a diagnostic panel requiring AI and machine learning along with additional data curation by highly skilled human operators.
 - Workload balance likely to shift from sample preparation/extraction to post-analytical, however FTE per instrument likely to remain constant or grow.
 - Assume increased growth of LC-MS/MS technology in NSWHP as immunology and haematology disciplines embrace new MS-based approaches to pathology testing currently being published as research methods.
 - Assumes current LC-MS/MS systems will be replaced with updated technology as each reaches end of useful lifespan (10-15 years).
- Proposed workforce would see pooling of expertise across existing laboratories into one coordinated service. This would consolidate most of the current workforce, plus additional capacity on the Lidcombe si

Benefits to the project by the service being located within the Lidcombe Forensic Precinct

- Co-location on the Forensics campus will support close collaboration and strengthen existing service links with LC-MS/MS services (FASS, DTU) on the Lidcombe campus.
- Supports ongoing collaboration with NSW Police, as part of a government initiative, to identify emerging drug trends in NSW and develop early warning systems to drive evidence-based policing and drug health policy and practices in NSW.
- Will promote closer collaborations between genetics and LCMS to develop functional genomics.
- Establishing a Phenomics and DESA Hub will deliver a range of benefits to patients, clinicians and staff:
 - Supports rapid implementation and translation of new knowledge and technologies
 - Reduces unnecessary duplication and ensures we make the most of our resources
 - Enable a broader range of clinically relevant testing
 - Enables NSWHP to lead and support phenomics research and innovations
 - Provides exciting new opportunities and career paths for highly specialised staff



Spatial requirements

Phenomics Lab Key Zones	Room / Space	Approx sqm (current)	Approx sqm (future)	Comments
Specimen reception	<ul style="list-style-type: none"> - Specimen reception (Central Specimen Reception) - 		Extra sqm not included in 600m2	-Could be shared
Specimen reception	<ul style="list-style-type: none"> - Could be shared (LC-MS/MS) 			
Lab (wet) / Equipment room	<ul style="list-style-type: none"> - Equipment (LC-MS/MS, sample preparation automation) - Workstations within equipment room (adjacent to equipment) - Fridge / freezers/cold room including reagent preparation - Adjacent / additional lab capacity for prototyping and research 		450m2	<p>Flexible design</p> <p>Workstations within room; Separate reporting area (shared)</p> <p>Equipment is very noisy, w specific acoustic, exhaust, air handling requirements etc.</p>
Lab (dry)	<ul style="list-style-type: none"> - <i>Reporting spaces - Scientific and Pathologist (Dry-lab)</i> - Staff work areas - <i>Data infrastructure</i> - Dedicated equipment, storage 		200m2	Reporting spaces could be shared
Support services - Shared	<ul style="list-style-type: none"> - Logistics, couriers, sendaways - Stores and supplies - Staff amenities - Meeting rooms - DESA Hub – requirements to be detailed - 		shared	Shared with other Lab services on the campus
Office areas	<ul style="list-style-type: none"> - Offices for manager, senior clinical staff - Workstation area for Lab staff - Open plan collaboration and breakout spaces - 		shared	<p><i>Shared with other Lab services on the campus</i></p> <p><i>Close proximity to lab preferred</i></p>
Other				
Sub-total				
Total			650m2	



Additional information

LC-MS/MS provides NSWHP with the opportunity to establish a new pathology testing methodology to:

- improve the detection and quantification of a wide range of biomarkers and analytes, that either cannot be currently detected/quantified by other routine methods or improve the accuracy of testing. This is expected to improve the speed at which diagnosis can be made, improve the accuracy of diagnosis and improve the treatment of patients by better monitoring of therapies.
- Generate significant savings for the health system by providing accurate diagnostic and prognostic information, diverting patients away from costly medical and surgical interventions.
- generate new revenue by providing funding options for some tests that are currently not funded or by reducing tests that are currently sent away to other labs (private and interstate) external to NSWHP;
- deliver some special tests at a fraction of cost and much earlier than current platforms are able and offer these to external/interstate users as well, thus providing competitive advantage to NSWHP in the testing market.

Expected benefits of this cutting-edge technology for our patients and stakeholders:

- **Higher quality of analysis and much higher specificity**
 - Hormones (e.g. steroids, biogenic amines, thyroid hormones). Current routine laboratory methods lack the accuracy required.
 - Improve detection and accuracy of trace and toxic elements –eg arsenic and lead, potential to lead to more accurate treatment
 - Metabolomics - systematic study of biochemical pathways that lead to the accumulation of metabolites that can be used as biomarkers of disease processes (e.g. MMA, homocysteine, ADMA and SDMA in cardiovascular diseases, Krebs cycle metabolites in cancer, newborn screening).
 - Proteomics (e.g., IGF-1, thyroglobulin, hepcidin, haemoglobinopathies, Lipoprotein (a))
- **Improve early detection, diagnosis and monitoring of some specific tumours in children.**
- **Reduces the cost of testing** – e.g., vitamin A, D, E, K consumables currently on automated platforms cost dollars per test, LC-MS/MS consumable costs are cents per test
- **Provide clinicians with a greater diagnostic clarity in the setting of illicit drug use, toxicology and drugs of abuse for patients.** Improve diagnosis and clinical management options to clinicians
- **Improve specific drug treatment and reduce adverse drugs effects and cost of expensive treatments by better monitoring of therapeutic drugs** e.g., immunosuppressants, anti-psychotics, anti-fungal, anti-retroviral drugs, new and merging monoclonal antibody therapies
- **Pharmacogenomics** – tailoring drug therapy to a person's genetic make up
- **Detection of protein/peptide fingerprinting** Undertake testing to assess for genetic issues eg mutation analysis in myeloproliferative disorders, DNA methylation gene expression analysis
 - Cross disciplinary applications – e.g., identification of microorganisms including the SARS-CoV-2 virus and other respiratory viruses within one assay panel
 - This technology can also be applied to tissue sections

The three LC-MS/MS pilots at RNSH, RPA and POW demonstrated:

- **Broad applicability**
 - Currently predominantly Chemical Pathology (neuroendocrine tumor diagnosis, many drug metabolites and hormones and vitamins)
 - Applicable to haematology (haemoglobinopathy)
 - Immunology (potential to replace EPG/IEPG, biological agent monitoring)
 - Microbiology (monitoring antiviral and antifungal therapy, viral protein identification)
 - Anatomical pathology (tumor identification, characterization)
- **Potential to transform pathology testing:**
 - Further Translational Research and Development opportunities
 - Improved accuracy and higher sensitivity for the detection of analytes compared to current testing platforms
 - LC-MS/MS is being automated by some major vendors and could become NSWHP leading testing platform in the future due to the improvements in test sensitivity and cost reduction of testing
 - Potential for NSWHP to be recognized as leader in clinical mass spectrometry



- Financial
 - Can generate new revenue and avoided cost of send-away tests
 - Significantly reduce costs of existing tests
 - Reduction of instrumentation maintenance and repair costs through co-location
 - Opportunities for test/service consolidation (reduce duplication, multiplication of testing) across sites

FASS (not formally a pilot project but carried out the below method developments):

Two clinical and forensic service tests:

1. Drug screen, of over 300 illicit drugs and medications
2. Drug quantitation, of over 80 drugs and medications

These assays are used for coronial case work as well as for the Prescription, Recreational and Illicit Substance Evaluation (PRISE) program. Part of an initiative of the NSW Government to identify emerging drug trends in NSW and develop early warning systems to drive evidence-based policing and drug health policy and practices in NSW.



Appendix - NSW Health Pathology's Scope Requirements – Centre for Innovation, Research and Prototyping

Note: provided by NSW Health Pathology prior to September 2020, any information may be superseded by subsequent endorsed project documentation.

Brief Description of the service

The proposed **Centre for Innovation, Research and Prototyping** will provide a forensic-focused hub for collaborative research, education, simulation and prototyping. It will comprise 3 components - the Prototyping Hub, Research Hub and Training Hub. These spaces will be closely aligned to the clinical services on the Lidcombe campus, to support applied, translational research and simulation.

- This is anticipated to be a shared, collaborative space with flexible design to accommodate a range of services – an innovation hub, university requirements, training, and applied research. University areas would range from post-graduate research students/projects with access to specialized facilities, undergraduate research students observing real forensic scientific processes, internships, development and delivery of industry short courses, industry in-put to university degrees, technology and in-field testing evaluation test bed.
- This initiative is aligned with the NSWHP Strategic Priority 05 (KPI d.) “*Our involvement in dedicated centres for innovation and excellence, in concert with LHDs and justice partners, will serve as effective hubs for collaborative research, education and simulation*”.
- The desired future state is one where NSWHP and the site has the capability and capacity to co-design, research and innovate in partnership with NSWHP communities.

The Prototyping Hub

Prototyping aligns with NSWHP Strategic Priority 05 (KPI a.) “Increased number of staff-led innovations translated into timely actions that improve patient and community outcomes” and Strategy 5.3 Space to innovate: Through creating dedicated spaces and programs to continually question, innovate and improve our services through experimentation and doing things differently. The Prototyping Hub also aligns with Strategy 3.3 Connected Communities of Care: By bringing together partners in health and justice to redesign and drive new and better service models, outcomes and experiences for all our communities (and research strategy).

Creating simulation laboratories will support NSWHP to standardise practice, speed technology adoption and advance translational research. To operate as a state-wide integrated service model, NSWHP laboratories need standardised operating protocols, centralised education, and harmonised technology. In addition, to keep pace with scientific and technology change, NSWHP needs to have a permanent base where innovations can be trialled.

Building simulation environments that bring staff together to test and train on new technology assists in creating this standardisation. It also facilitates a more rapid deployment methodology as technology can be validated centrally for the whole state rather than the disparate in laboratory validation that happens now across 64 sites. In addition, a simulation laboratory will provide the opportunity to bring leading scientists and researchers together in an environment to collaborate and speed the translation of research into improved clinical practice. A temporary Health Prototyping Facility is being created at Macquarie Park but due to lease costs, a permanent prototyping facility at Lidcombe would be the preferred option.

Research Hub

The creation of a statewide Research Hub aligns with NSWHP Strategic Priority 05 (KPI c.) “Growth in the number of our state-aligned and affiliated research priorities will increase and improve new practice changes and outcomes”



In alignment to [NSWHP's Research Strategy Towards 2025 \(RS\)](#), NSWHP aims to be a leader in clinical practice (applied) research, delivering reliable, high-quality solutions and approaches that are grounded in evidence and value for the people of NSW. This research hub will;

- Expand on the existing forensic research portfolio based at FASS, helping to deliver on research of strategic significance ([our research areas of focus p23](#)) (RS Initiative 2)
- in collaboration with Police, Universities, and Justice research partners, enable NSWHP the opportunity to co-design research projects (RS Initiative 3) and support co-investment into research where resources are shared between partners, including expertise, data, technology, and equipment (RS Initiative 11).
- provide an opportunity for off-site processing and overflow of service delivery for a consistent high quality, statewide service (RS Initiative 4).
- share new knowledge and support skills transfer (RS Initiative 7).
- support workforce training and development, retention and succession planning, given the highly specialised nature of forensic work (RS Initiative 8)

Ultimately this will provide NSWHP with the opportunity to be a world leader in the use of emerging technologies conducting R&D in genomics, phenomics and mass spectrometry. This supports both the commitment to drive change through investment in the Research Flagship #2: Genomics and Research Flagship #3: PoCT (p23), and the LC-MS/MS consortium.

Training Hub

There is no existing capacity to provide training support and competence assessment in most laboratories, particularly in regional and rural laboratories.

While training could be provided at other sites, this requires the allocation of additional space and staff for this purpose in NSWHP GX laboratories. However, many of these laboratories are at capacity, and it isn't feasible to accommodate the space allocation needed for training.

An offsite training hub at Lidcombe provides an opportunity to secure a dedicated training space, avoiding competition for space on Hospital campuses. This would be augmented with the single LIMS (a state-wide information management system), uniform processes and a single quality information management system¹.

While digitally enabled, there would still be a requirement for scientists to be visiting Lidcombe for their learning/competency assessment

Current State Assessment

Key service drivers for the redevelopment (what isn't working?)

- Due to physical constraints for most GX laboratories, there is insufficient capacity and no identified statewide location that could provide and coordinate translational research, innovation and prototyping
- Research and development activities are fragmented across existing services, making it difficult and duplicative of effort to coordinate this.
- NSWHP does not have any dedicated space in the state to support it's 5,000+ strong workforce. Providing this Hub at Lidcombe, on land owned by NSWHP, is a more cost-effective option than negotiating leased space on an acute hospital site.

Base case implications (what are the implications with continuing with the current state?)



- Insufficient capacity on existing Hospital sites will continue to limit NSWHP's ability to accommodate research, innovation, simulation, and training space
- Inability to undertake simulation and prototyping aligned with existing laboratory services, which is the preferred context, especially for translational research
- Missed opportunity to harness the highly skilled technical staff and technology on a forensic campus, and collaborative research with partners
- Duplication of resources and capacity to implement new technologies

Desired Future State

Partnering with Universities (UWS, UTS) provides a significant opportunity to harness the teaching and research capacity associated with the provision of services on a statewide, highly specialised Forensic Precinct.

The Forensic Precinct on the Lidcombe campus will support innovation, research and prototyping through partnerships with Universities, NSW Police Force, and other agencies, to provide world class leadership in Forensic Services. Significant benefits and impacts are anticipated:

- Collaborative, translational research expected to transform scientific and medical approaches and specialisation.
- Harnessing staff skills as world-leading, renowned experts in technology-enabled science and clinical diagnostics.
- Workforce development, succession planning, mentoring and staff retention supported by research, training, and innovation opportunities, ensuring sustainability of these highly specialised skill sets
- Improved service configuration and equipment testing through prototyping and future-service simulation.
- Agile, flexible and collaborative environments to enable strategic partnerships and collaboration.
- Opportunity for data sharing across jurisdictions and other collaborative opportunities e.g., UTS Proto-Space
- This would also be a key workforce strategy, given the highly specialised skillset associated with this workforce. Staff retention is enhanced with opportunities for research and development and staff training.
- Alignment to the Greater Sydney Commission's⁶ to create a metropolis of three cities, creating precincts that bring together Health and Education.

Key works streams – samples and staff

Samples - *come from across the state.*

Key zones (flexible design)

- Reception / Pre-Analytical Zone
 - Specimen reception area (shared)
- Laboratories
 - Laboratory zones – adjacent to existing lab areas, providing additional flex capacity for research, innovation and prototyping. Research laboratory spaces to be split over several floors and integrated into scientific/clinical workflows. Prototyping space to be dedicated flexible laboratory space in one area.
 - Training space (aligned with lab zones)
 - including sufficient lab capacity for surge activity, research, training and prototyping
- Lab support areas
 - Stores – Equipment, consumables, reagents
 - Clinical Reporting areas (shared) - *some reporting will be virtual/remote*

⁶ [A Metropolis of Three Cities | Greater Sydney Commission \(greatercities.au\)](https://www.greatercities.au)



- Staff areas (*Manager, workstations*)

Key functional relationships / synergies

- Specimen reception area (shared with other labs) → *direct / ready* access to Lab
- Specimen processing area (shared with other Labs) → *direct access to Lab*
- Lab (wet / dry) – adjacent to key laboratory areas / zones to provide sufficient capacity for surge activity, research, training and prototyping
- Lab Support Area
 - Fridge / freezer store (shared with other Labs) → located within or directly adjacent
 - Stores – equipment, consumables, reagents (shared with other Labs) → located within the Lab (or direct access?)
 - Central cleaning
- Staff areas (shared with other Labs) → direct access to the lab
 - Reporting rooms / office space (shared with other Labs) → direct / ready access to the laboratory, collaboration between teams
- Flexible design to future proof

Workforce requirements

- Current workforce – Currently Prototyping, research and training occurs in many different areas of NSWHP. There is no set current workforce profile. However, given the size of NSWHP and many different stakeholders FASS, NSW Police and Universities (& students) we can assume this hub could have up to 70 FTE staff at any one time during peak periods which would also cover students, academia, research staff as well as prototyping functions including other Health partners such as eHealth, HealthShare, Health Infrastructure and LHD's and specialty networks.
- Future workforce – min. 15 year timeframe (2031-36+) – future workforce profile will be driven by new technology and innovations along with new models of care driven by population growth, NSWHP activity growth, Hospital redevelopments and will need flexible design and spaces to support future demands.
- Proposed workforce could see pooling of expertise across existing services into one coordinated service. This would larger scale statewide projects and consolidate the current workforce, plus additional capacity on the Lidcombe site.

Benefits to the project by the service being located within the LFP

- Expands on existing research, innovation and training already occurring with FASS
- Partnering with Universities (UWS, UTS) and NSW Police Force, there is a unique opportunity for NSWHP to provide world class leadership in Forensic Services, driven by innovation, research and prototyping.
- Could expand partnership opportunities beyond Health and Police, to include Justice, DPIE and other Government agencies
- Broad-reaching improvements for Health and Justice, numerous stakeholders⁷ and the community

Spatial requirements

⁷ Stakeholders include NSW Police, Department of Communities and Justice, NSW Health Public Health Units, Community Corrections, Corrective Services, Roads and Maritime Services, War Graves Commission, NSW Coroner, NSW Health clinical units, NSW Health Environmental Health Unit, NSW Health Drug and Alcohol Programs, Australian Facility for Taphonomic Experimental Research, Rural and Regional NSW Councils, Australian Institute of Criminology



- Lab areas (wet and dry)
- Support areas
- Office areas

Research / Simulation Lab Key Zones	Room / Space	Approx sqm (current)	Approx sqm (future)	Comments
Specimen reception / Pre-Analytical Zone	<ul style="list-style-type: none"> - Specimen reception (Central Specimen Reception) - Logistics, couriers, sendaways 		Shared	shared
Laboratories	<ul style="list-style-type: none"> - <i>Adjacent / additional lab capacity for <u>research</u></i> - <i>Adjacent / additional lab capacity for <u>simulation and prototyping</u></i> - Training Hub 		870m2 380m2 50m2	Flexible design with moveable partitions, flexible furniture; New instrumentation testing; Engineering services: Three-phase power, extraction, AC; Moveable fridges, freezers and benches
Lab	<ul style="list-style-type: none"> - Training Hub 		50m2	
Support Areas (Lab)	<ul style="list-style-type: none"> - Dedicated equipment, storage - Stores and supplies - 		shared	Shared with other Lab services on the campus
Staff Areas	<ul style="list-style-type: none"> - Offices for manager, staff - Workstations for visiting staff and partners including vendors, Universities etc - Open plan collaboration and breakout spaces - Staff amenities - meeting rooms 		shared	<i>Shared with other Lab services on the campus</i>
Other	<u>Teaching spaces</u> – access to tutorial, breakout, conferencing, lecture style areas, supported by wi-fi enablement – shared with University		Shared	
Sub-total				
Total			1,300m2	



AUSFG agreed circulation requirements for laboratory areas (32% for lab areas & 25% - Staff Area only)

5. Additional information

Prototyping and simulation centre

Within NSWHP, various methods of prototyping happen within Point of Care Testing (PoCT), some ICT projects and some laboratory redevelopments. The development of a dedicated prototyping centre would support the following benefits:

- Developing patient-facing service models and training for collections
- Exploring new platforms and equipment (e.g. digital pathology)
- Developing and demonstrating new layouts, ways of working
- Testing the connectivity of integrated laboratory components
- Testing new service configurations
- Assessing instruments as part of tenders
- Testing robots and AI
- Creating an over-flow laboratory

Building simulation environments has a number of anticipated benefits:

- o Establishing a flexible exemplary diagnostics simulation and innovation laboratory, a simulation centre for ICT and translational research and collaboration space.
- o Provides an opportunity to control how a prototyping space is used
- o May be an option to develop a fee-for-service model as a revenue stream (e.g., as is used by others, such as Alfred Health).
- o Combine the Prototyping Hub with the Research Hub maximises utilisation and associated efficiencies
- o Provides a 'neutral' campus for co-locating state-wide functions, avoiding direct or obvious links to a specific LHD or Hospital site

APPENDIX 2

Lidcombe Forensic Precinct

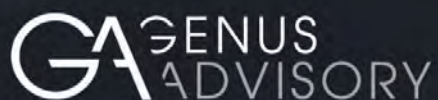
Investment Decision Estimate

Prepared By: Barry Woollam / Matthew Mead

Reviewed By: Barry Woollam

GA Document Ref: 221103_Lidcombe_IDD_CP_V2

Issue Date: 3 November 2022



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Lidcombe Forensic Precinct

Investment Decision Estimate - Options Summary

3 November 2022



Department/ Unit	Option 1A	Option 2A	Option 3A	Option 4A
Key Data				
New Build	38,476 m2	23,209 m2	26,426 m2	14,575 m2
Refurbishment	0 m2	0 m2	0 m2	0 m2
Total Area	38,476 m2	23,209 m2	26,426 m2	14,575 m2
Car Parking	533 Spaces	360 Spaces	398 Spaces	258 Spaces
Acquisition Costs	No	No	No	n/a
New Build Works	\$ 123,747,000	\$ 75,617,000	\$ 86,221,000	\$ 47,159,000
Refurbishment Works	\$ -	\$ -	\$ -	\$ -
Nett Building Costs	\$ 123,747,000	\$ 75,617,000	\$ 86,221,000	\$ 47,159,000
Engineering Services Infrastructure	\$ 62,333,000	\$ 38,353,000	\$ 42,921,000	\$ 26,052,000
Preparatory Works, Site Works and External Works	\$ 56,718,100	\$ 46,390,600	\$ 49,151,600	\$ 43,020,600
Relocation and Temporary Accommodation	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 500,000
NETT CONSTRUCTION COST	\$ 243,798,100	\$ 161,360,600	\$ 179,293,600	\$ 116,731,600
Allowances, Overheads, Margin & Locality	\$ 65,582,000	\$ 43,271,000	\$ 48,127,000	\$ 31,195,000
ESD Initiatives & Insurances	\$ 11,635,000	\$ 7,498,000	\$ 8,401,000	\$ 5,260,000
GROSS CONSTRUCTION COST	\$ 321,015,100	\$ 212,129,600	\$ 235,821,600	\$ 153,186,600
Fees	\$ 78,649,000	\$ 51,971,000	\$ 57,775,000	\$ 37,531,000
FF&E/MME/ICT	\$ 88,817,000	\$ 57,290,000	\$ 64,170,000	\$ 40,240,000
Land Acquisition & Legal Costs	\$ -	\$ -	\$ -	\$ -
External Funding Contributions	\$ -	\$ -	\$ -	\$ -
Sub-Total (excl GST)	\$ 488,481,100	\$ 321,390,600	\$ 357,766,600	\$ 230,957,600
Escalation	\$ 96,195,400	\$ 59,671,400	\$ 66,342,400	\$ 43,065,400
Contingencies	\$ 80,253,900	\$ 53,032,500	\$ 58,955,500	\$ 38,296,600
Sub-Total (excl GST)	\$ 664,930,400	\$ 434,094,500	\$ 483,064,500	\$ 312,319,600
HI Management Costs	\$ 11,367,000	\$ 7,121,000	\$ 8,026,000	\$ 4,895,000
ESTIMATED TOTAL PROJECT COST INCLUDING ESCALATION (Excl GST)	\$ 676,297,400	\$ 441,215,500	\$ 491,090,500	\$ 317,214,600
<i>Rounded</i>	<i>\$ 676,300,000</i>	<i>\$ 441,300,000</i>	<i>\$ 491,100,000</i>	<i>\$ 317,300,000</i>

Lidcombe Forensic Precinct
Investment Decision Estimate - Option 1A
3 November 2022



Department / Unit	Bed No's / Factors	H.P.U. Area	Unit	Rate	Car Parking	Refurbishment	Main Works	Total
Area Schedule	Department	T&E	Contingency	TOTAL				
New Build	24,984	9,994	3,498	38,476				
Refurbishment	-	-	-	-				
Total Area	24,984	9,994	3,498	38,476				
BUILD WORKS (based on SoA_IDD_V2.2)		24,984			\$ -	\$ -	\$ 81,872,000	\$ 81,872,000
New Building Works:								
Full scope: NSWHP(FASS and Specialist Services)								
•Criminalistics								
•Forensic and environmental toxicology								
•Bhenomics								
•Genomics								
•Anatomical Pathology								
•Planning for (Forensic) Innovation and Research/Specialist Services and FETS								
FASS		9,188	New	\$ 3,400	\$ -	\$ -	\$ 31,239,000	\$ 31,239,000
NSWHP Specialist Services		4,620	New	\$ 3,400	\$ -	\$ -	\$ 15,708,000	\$ 15,708,000
FETS		5,030	New	\$ 3,400	\$ -	\$ -	\$ 17,102,000	\$ 17,102,000
Shared Areas		6,146	New	\$ 2,900	\$ -	\$ -	\$ 17,823,000	\$ 17,823,000
Refurbishment Works								
Refurbishment of Existing Hospital								
		-	Refurb	\$ 3,200	\$ -	\$ -	\$ -	\$ -
Total H.P.U. Area/Cost	0	24,984		\$ 3,277	\$ -	\$ -	\$ 81,872,000	\$ 81,872,000
TRAVEL & ENGINEERING & SOA PLANNING CONTINGENCY								
New Build	Factor	13,492			\$ -	\$ -	\$ 41,875,000	\$ 41,875,000
Travel & Engineering (40%)	24,984	9,994	New	\$ 3,000	\$ -	\$ -	\$ 29,982,000	\$ 29,982,000
Planning Contingency (10%)	34,978	3,498	New	\$ 3,400	\$ -	\$ -	\$ 11,893,000	\$ 11,893,000
Refurb								
Travel & Engineering (0%)	-	-	Refurb	\$ 2,550	\$ -	\$ -	\$ -	\$ -
Planning Contingency (10%)	-	-	Refurb	\$ 3,200	\$ -	\$ -	\$ -	\$ -
TOTAL BUILDING WORKS		38,476		\$ 3,217	\$ -	\$ -	\$ 123,747,000	\$ 123,747,000
ENGINEERING SERVICES INFRASTRUCTURE								
Mechanical Services Infrastructure								
Allowance for Mechanical Infrastructure Services (incl. new chillers)								
		1	Item	\$ 3,079,000	\$ -	\$ -	\$ 3,079,000	\$ 3,079,000
Medical Gas Infrastructure Upgrade / Connection		1	Item	\$ 1,540,000	\$ -	\$ -	\$ 1,540,000	\$ 1,540,000
Pneumatic Tube System		1	Item	\$ -	\$ -	\$ -	\$ -	Assume not required
Electrical Services Infrastructure								
Electrical Infrastructure (Consumer Mains, Main Switchboards, Sub Main Cables to DB's, Mechanical, Lifts & Hydraulic Control Boards, Power Factor Correction, Metering, Earthing & DB's)								
		1	Item	\$ 6,926,000	\$ -	\$ -	\$ 6,926,000	\$ 6,926,000
Extra over allowance for electrification		1	Item	\$ 5,780,000	\$ -	\$ -	\$ 5,780,000	\$ 5,780,000
Substations		1	Item	\$ 4,620,000	\$ -	\$ -	\$ 4,620,000	\$ 4,620,000
Generators		1	Item	\$ 2,886,000	\$ -	\$ -	\$ 2,886,000	\$ 2,886,000
Communications & Security Services								
Allowance for ICT & Security Infrastructure works including wireless network, DAS Wi-Fi, Telco/NBN Feeds, etc.								
		1	Item	\$ 5,772,000	\$ -	\$ -	\$ 5,772,000	\$ 5,772,000
VOIP		1	Item	\$ -	\$ -	\$ -	\$ -	Incl in ICT Below
External Fire Services								
Dry Fire Services Infrastructure								
		1	Item	\$ 1,347,000	\$ -	\$ -	\$ 1,347,000	\$ 1,347,000
Wet Fire Services (incl. Tanks and Pumps)		1	Item	\$ 1,540,000	\$ -	\$ -	\$ 1,540,000	\$ 1,540,000
Fire Hydrant Infrastructure		1	Item	\$ 578,000	\$ -	\$ -	\$ 578,000	\$ 578,000
BCA Upgrade								
Allowance for BCA works to refurbished areas								
		1	Item	\$ -	\$ -	\$ -	\$ -	\$ -
External Hydraulic Services								
Water mains connection								
		1	Item	\$ 60,000	\$ -	\$ -	\$ 60,000	\$ 60,000
Water supply reticulation		1	Item	\$ 120,000	\$ -	\$ -	\$ 120,000	\$ 120,000
Sewer reticulation pits & connection		1	Item	\$ 120,000	\$ -	\$ -	\$ 120,000	\$ 120,000
Sewer pumping station		1	Item	\$ -	\$ -	\$ -	\$ -	\$ -
Irrigation system		1	Item	\$ 40,000	\$ -	\$ -	\$ 40,000	\$ 40,000
LPG tanks regulators, meters and pipework to building		1	Item	\$ 60,000	\$ -	\$ -	\$ 60,000	\$ 60,000
External Stormwater Drainage								
Stormwater infrastructure pipework & pumps								
		1	Item	\$ 150,000	\$ -	\$ -	\$ 150,000	\$ 150,000
Stormwater pipelines to Internal Roads & off-street parking		1	Item	\$ 125,000	\$ -	\$ -	\$ 125,000	\$ 125,000
Stormwater Retention Tank / bioswale; plus associated works		1	Item	\$ 390,000	\$ -	\$ -	\$ 390,000	\$ 390,000
Vertical Transportation								
Lifts:								
- Passenger / Public / Clinical Lifts (4-5 Levels)		4	No.	\$ 1,100,000	\$ -	\$ -	\$ 4,400,000	\$ 4,400,000
- Back of House Lifts (4-5 Levels)		2	No.	\$ 500,000	\$ -	\$ -	\$ 1,000,000	\$ 1,000,000
Building Management System								
Building Management System								
		1	Item	\$ 390,000	\$ -	\$ -	\$ 390,000	\$ 390,000
Special Provisions								
Kitchen Equipment								
		1	Item	\$ 300,000	\$ -	\$ -	\$ 300,000	\$ 300,000
Allowance for Cool Rooms		1	Item	\$ 150,000	\$ -	\$ -	\$ 150,000	\$ 150,000
Mortuary Fridge		1	Item	\$ 10,000	\$ -	\$ -	\$ 10,000	\$ 10,000
Grease Arrestor		1	Item	\$ -	\$ -	\$ -	\$ -	Assume not required
ESD Provisions								
Allowance for ESD initiatives to meet DGN58 5 Star Green Star equivalency requirements								
		1	Item	\$ 10,590,000	\$ -	\$ -	\$ 10,590,000	\$ 10,590,000
Premium Infrastructure Upgrades								
Allowance for extension of mains services to site boundary								
		1	Item	\$ 350,000	\$ -	\$ -	\$ 350,000	\$ 350,000
Allowance for decontamination requirements		1	Item	\$ 50,000	\$ -	\$ -	\$ 50,000	\$ 50,000
Allowance for stormwater / culvert / civil premium		1	Item	\$ 250,000	\$ -	\$ -	\$ 250,000	\$ 250,000
Allowance for extra over infrastructure services requirements including N+1 requirements, mechanical infrastructure premium for labs, ballistics, security, etc.		1	Item	\$ 6,740,000	\$ -	\$ -	\$ 6,740,000	\$ 6,740,000
Builders Work in Connection with Services								
Builders Work								
		5.0%		5.0%	\$ -	\$ -	\$ 2,970,000	\$ 2,970,000
Total Engineering Services Infrastructure				\$ 1,621	\$ -	\$ -	\$ 62,333,000	\$ 62,333,000

Lidcombe Forensic Precinct
Investment Decision Estimate - Option 1A
3 November 2022



Department / Unit	Bed No's / Factors	H.P.U. Area	Unit	Rate	Car Parking	Refurbishment	Main Works	Total
PREPARATORY WORKS, SITE WORKS AND EXTERNAL WORKS								
Demolition Works					\$ 11,704,000	\$ -	\$ 5,686,000	\$ 17,390,000
Grub up and dispose of roads / pavements / footpaths to:								
- Building Development Zone		1	Item	\$ 936,000	\$ -	\$ -	\$ 936,000	\$ 936,000
- Car Park Stage 1		1	Item	\$ 504,000	\$ 504,000	\$ -	\$ -	\$ 504,000
- Car Park Stage 2		1	Item	\$ 690,000	\$ 690,000	\$ -	\$ -	\$ 690,000
- Future Expansion		1	Item	\$ 720,000	\$ 720,000	\$ -	\$ -	\$ 720,000
Demolition of existing buildings:								
- Building Development Zone		1	Item	\$ 2,500,000	\$ -	\$ -	\$ 2,500,000	\$ 2,500,000
- Car Park Stage 1		1	Item	\$ 250,000	\$ 250,000	\$ -	\$ -	\$ 250,000
- Car Park Stage 2		1	Item	\$ 2,700,000	\$ 2,700,000	\$ -	\$ -	\$ 2,700,000
- Future Expansion		1	Item	\$ 2,990,000	\$ 2,990,000	\$ -	\$ -	\$ 2,990,000
Allowance for in building contamination removal:								
- Building Development Zone		1	Item	\$ 2,250,000	\$ -	\$ -	\$ 2,250,000	\$ 2,250,000
- Car Park Stage 1		1	Item	\$ 50,000	\$ 50,000	\$ -	\$ -	\$ 50,000
- Car Park Stage 2		1	Item	\$ 1,800,000	\$ 1,800,000	\$ -	\$ -	\$ 1,800,000
- Future Expansion		1	Item	\$ 2,000,000	\$ 2,000,000	\$ -	\$ -	\$ 2,000,000
Site Preparation					\$ 287,100	\$ -	\$ 7,712,000	\$ 7,999,100
Site strip to:								
- Building Development Zone		9,360	Item	\$ 15	\$ -	\$ -	\$ 140,000	\$ 140,000
- Car Park Stage 1		5,040	Item	\$ 15	\$ 75,600	\$ -	\$ -	\$ 75,600
- Car Park Stage 2		6,900	Item	\$ 15	\$ 103,500	\$ -	\$ 0	\$ 103,500
- Future Expansion		7,200	Item	\$ 15	\$ 108,000	\$ -	\$ -	\$ 108,000
Bulk excavation in OTR from stripped level (assumed 5m deep to Building Development Zone due to basement)								
E/O Bulk excavation in rock (assumed 20%)		9,400	m3	\$ 90	\$ -	\$ -	\$ 846,000	\$ 846,000
E/O for disposal of excess soil off-site		46,800	m3	\$ 20	\$ -	\$ -	\$ 936,000	\$ 936,000
E/O for disposal of excess rock off-site (Assumed not required)		9,400	m3	\$ 40	\$ -	\$ -	\$ 376,000	\$ 376,000
Bulk filling with imported off-site material		-	m3	\$ 85	\$ -	\$ -	\$ -	\$ -
Allowance for in ground contamination removal (assumed 30% GSW)		14,040	m3	\$ 250	\$ -	\$ -	\$ 3,510,000	\$ 3,510,000
Allowance for relocation / diversion of services		1	Item	\$ 500,000	\$ -	\$ -	\$ 500,000	\$ 500,000
Piling Works					\$ -	\$ -	\$ 2,410,000	\$ 2,410,000
RC Piles / Substructure premium		24,100	m2	\$ 100	\$ -	\$ -	\$ 2,410,000	\$ 2,410,000
Carparking					\$ 14,174,000	\$ -	\$ 200,000	\$ 14,374,000
Ongrade Car Parking		20	space	\$ 10,000	\$ -	\$ -	\$ 200,000	\$ 200,000
Multi-Storey Car Parking		541	space	\$ 25,000	\$ 13,525,000	\$ -	\$ -	\$ 13,525,000
Extra over allowance for EV charging station (20% MSCP spaces)		108	space	\$ 6,000	\$ 649,000	\$ -	\$ -	\$ 649,000
Roads, Paths & Paving					\$ -	\$ -	\$ 3,662,000	\$ 3,662,000
Allowance for internal road network including kerbs, gutters, etc.		2,000	m2	\$ 300	\$ -	\$ -	\$ 600,000	\$ 600,000
Service Yard		500	m2	\$ 200	\$ -	\$ -	\$ 100,000	\$ 100,000
Allowance for concrete footpaths		1	Item	\$ 962,000	\$ -	\$ -	\$ 962,000	\$ 962,000
Allowance for RMS / Council roads upgrades including line marking, roundabout, slip lane, gutters, etc.		1	Item	\$ 2,000,000	\$ -	\$ -	\$ 2,000,000	\$ 2,000,000
Retaining Walls					\$ -	\$ -	\$ 875,000	\$ 875,000
Allowance for miscellaneous retaining walls		500	m2	\$ 750	\$ -	\$ -	\$ 375,000	\$ 375,000
Shoring walls		1,000	m2	\$ 500	\$ -	\$ -	\$ 500,000	\$ 500,000
Boundary Walls & Fences					\$ -	\$ -	\$ 150,000	\$ 150,000
Allowance for boundary walls, security fencing & gates		1	Item	\$ 150,000	\$ -	\$ -	\$ 150,000	\$ 150,000
Outbuildings & Covered Ways					\$ -	\$ -	\$ 1,125,000	\$ 1,125,000
Canopies - Main Entry		1	Item	\$ 500,000	\$ -	\$ -	\$ 500,000	\$ 500,000
Canopies - Ancillary		1	Item	\$ 100,000	\$ -	\$ -	\$ 100,000	\$ 100,000
Allowance for Covered Walkways		750	m2	\$ 500	\$ -	\$ -	\$ 375,000	\$ 375,000
Services Compounds (i.e. Power Enclosure)		150	m2	\$ 1,000	\$ -	\$ -	\$ 150,000	\$ 150,000
Landscaping & Conservation Works					\$ -	\$ -	\$ 2,033,000	\$ 2,033,000
Landscaping - General / Seeding		7,500	m2	\$ 35	\$ -	\$ -	\$ 263,000	\$ 263,000
Hard & Soft Landscape works		1	Item	\$ 1,000,000	\$ -	\$ -	\$ 1,000,000	\$ 1,000,000
External Building & Site Signage		38,480	m2	\$ 20	\$ -	\$ -	\$ 770,000	\$ 770,000
Ancillary Works					\$ -	\$ -	\$ -	\$ -
Compliance Works to existing buildings beyond refurbishment scope		-	Item	\$ -	\$ -	\$ -	\$ -	Assumed not required
Special Provisions					\$ -	\$ -	\$ 6,700,000	\$ 6,700,000
Allowance for enclosed connections to existing buildings		500	m2	\$ 3,500	\$ -	\$ -	\$ 1,750,000	\$ 1,750,000
Allowance for NCC/BCA 2022 requirements		1	Item	\$ 3,850,000	\$ -	\$ -	\$ 3,850,000	\$ 3,850,000
Extra over for Ballistics Firing Range including Bullet Water Recovery Tank, etc.	FETS	1	Item	\$ 1,100,000	\$ -	\$ -	\$ 1,100,000	\$ 1,100,000
Allowance for works community parkland / landscape works		1	Item	\$ -	\$ -	\$ -	\$ -	Assumed not required
Total Preparatory Works, Site Works & External Works				\$ 1,475	\$ 26,165,100	\$ -	\$ 30,563,000	\$ 56,718,100
Relocation Costs & Temporary Accommodation					\$ -	\$ -	\$ 1,000,000	\$ 1,000,000
Relocation Costs, Decanting, Temporary Accommodation		1	Item	\$ 1,000,000	\$ -	\$ -	\$ 1,000,000	\$ 1,000,000
Total Relocation & Temporary Accommodation				\$ 26	\$ -	\$ -	\$ 1,000,000	\$ 1,000,000
NET CONSTRUCTION COST (NCC)				\$ 6,337	\$ 26,165,100	\$ -	\$ 217,633,000	\$ 243,798,100
Preliminaries & Other Allowances					\$ 6,254,000	\$ -	\$ 59,328,000	\$ 65,582,000
Preliminaries	Car Park	Refurb	Main Works	% of NCC	\$ 4,710,000	\$ -	\$ 43,527,000	\$ 48,237,000
Margin	5.00%	5.00%	5.00%	% of NCC	\$ 1,544,000	\$ -	\$ 13,058,000	\$ 14,602,000
Staging Costs	0.00%	5.00%	1.00%	% of NCC	\$ -	\$ -	\$ 2,743,000	\$ 2,743,000
Locality Factor	0.00%	0.00%	0.00%	% of NCC	\$ -	\$ -	\$ -	\$ -
GROSS CONSTRUCTION COST (GCC) excluding ESD & Insurance				\$ 32,419,100	\$ -	\$ 276,961,000	\$ 309,380,100	
GCC / m2				\$1,997/m2	\$0/m2	\$7,198/m2		
HI Additional Costs					\$ 58,000	\$ -	\$ 11,577,000	\$ 11,635,000
ESD Initiatives Allowances	Car Park	Refurb	Main Works	% of GCC	\$ -	\$ -	\$ 11,078,000	\$ 11,078,000
Principles Insurance	0.18%	0.18%	0.18%	% of GCC	\$ 58,000	\$ -	\$ 499,000	\$ 557,000
GROSS CONSTRUCTION COST (GCC)				\$ 32,477,100	\$ -	\$ 288,538,000	\$ 321,015,100	
PROJECT COSTS								
Fees & Other Costs					\$ 7,957,000	\$ -	\$ 70,692,000	\$ 78,649,000
Consultant Fees	Car Park	Refurb	Main Works	% of GCC	\$ 5,846,000	\$ -	\$ 51,937,000	\$ 57,783,000
Historic Consultant Fees	0	0	Item	\$ -	\$ -	\$ -	\$ -	\$ -

Lidcombe Forensic Precinct
Investment Decision Estimate - Option 1A
3 November 2022



Department / Unit	Bed No's / Factors	H.P.U. Area	Unit	Rate	Car Parking	Refurbishment	Main Works	Total
VECI / ECI Costs (excl. Consultants)	0.00%	0.00%	0.00%	% of GCC	\$ -	\$ -	\$ -	\$ -
Authority Fees & Charges	1.50%	1.50%	1.50%	% of GCC	\$ 487,000	\$ -	\$ 4,328,000	\$ 4,815,000
LHD Costs	1.50%	1.50%	1.50%	% of GCC	\$ 487,000	\$ -	\$ 4,328,000	\$ 4,815,000
Other Stakeholder Resource Costs	1.50%	1.50%	1.50%	% of GCC	\$ 487,000	\$ -	\$ 4,328,000	\$ 4,815,000
Commission & Start Up	2.00%	2.00%	2.00%	% of GCC	\$ 650,000	\$ -	\$ 5,771,000	\$ 6,421,000
Furniture, Fittings & Equipment	Car Park	Refurb	Main Works		\$ 812,000	\$ -	\$ 88,005,000	\$ 88,817,000
Furniture, Fittings & Equipment - General	1.50%	0.00%	13.00%	% of GCC	\$ 487,000	\$ -	\$ 37,510,000	\$ 37,997,000
Furniture, Fittings & Equipment - Major Specialist Equipment	0.00%	0.00%	12.00%	% of GCC	\$ -	\$ -	\$ 34,625,000	\$ 34,625,000
Furniture, Fittings & Equipment - ICT	1.00%	0.00%	5.00%	% of GCC	\$ 325,000	\$ -	\$ 14,427,000	\$ 14,752,000
Cultural & Artworks	0.00%	0.00%	0.50%	% of GCC	\$ -	\$ -	\$ 1,443,000	\$ 1,443,000
Land Acquisition / Property Settlements / Temporary Leasing					\$ -	\$ -	\$ -	\$ -
Land Acquisition Costs		1	Item	\$ -	\$ -	\$ -	\$ -	Excluded
Acquisition Costs & Legals / Rezoning requirements / etc		1	Item	\$ -	\$ -	\$ -	\$ -	Excluded
External Funding Contribution					\$ -	\$ -	\$ -	\$ -
External Funding					\$ -	\$ -	\$ -	Excluded
TOTAL PROJECT COST (TPC) EXCLUDING ESCALATION (Excl GST)				\$ 12,696	\$ 41,246,100	\$ -	\$ 447,235,000	\$ 488,481,100
Escalation (to Midpoint of Construction)					\$ 9,750,000	\$ -	\$ 86,445,400	\$ 96,195,400
Base Date Oct-22	Start	Finish	Midpoint					
Escalation to Completion	Q4'26	Q4'28	Q4'27		\$ 9,750,000	\$ -	\$ 86,445,400	\$ 96,195,400
Contingencies	Car Park	Refurb	Main Works		\$ 8,119,400	\$ -	\$ 72,134,500	\$ 80,253,900
Planning Contingency	5.00%	5.00%	5.00%	% of GCC	\$ 1,623,900	\$ -	\$ 14,426,900	\$ 16,050,800
Design Contingency	5.00%	5.00%	5.00%	% of GCC	\$ 1,623,900	\$ -	\$ 14,426,900	\$ 16,050,800
Construction Contingency	5.00%	5.00%	5.00%	% of GCC	\$ 1,623,900	\$ -	\$ 14,426,900	\$ 16,050,800
Client Contingency	10.00%	10.00%	10.00%	% of GCC	\$ 3,247,700	\$ -	\$ 28,853,800	\$ 32,101,500
NET END COST (NETC) (Excl GST)					\$ 59,115,500	\$ -	\$ 605,814,900	\$ 664,930,400
HI Management Costs	Car Park	Refurb	Main Works		\$ 107,000	\$ -	\$ 11,260,000	\$ 11,367,000
Management Costs			2.04%		\$ 107,000	\$ -	\$ 11,260,000	\$ 11,367,000
ESTIMATED TOTAL PROJECT COST INCLUDING ESCALATION (Excl GST)					\$ 59,222,500	\$ -	\$ 617,074,900	\$ 676,297,400
Rounded					\$ 59,200,000	\$ -	\$ 617,100,000	\$ 676,300,000

Lidcombe Forensic Precinct
Investment Decision Estimate - Option 2A
3 November 2022



Department / Unit	Bed No's / Factors	H.P.U. Area	Unit	Rate	Car Parking	Refurbishment	Main Works	Total
Area Schedule	Department	T&E	Contingency	TOTAL				
New Build	15,071	6,028	2,110	23,209				
Refurbishment	-	-	-	-				
Total Area	15,071	6,028	2,110	23,209				
BUILD WORKS (based on SoA_IDD_V2.2)		15,071			\$ -	\$ -	\$ 50,359,000	\$ 50,359,000
New Building Works:								
NSWHP(FASS and Specialist Services)								
-Criminalistics								
-Forensic and environmental toxicology								
-Bhenomics								
-Genomics								
-Anatomical Pathology								
-Planning for /Forensic/ Innovation and Research/Specialist Services and FETS								
FASS		7,696	New	\$ 3,400	\$ -	\$ -	\$ 26,166,000	\$ 26,166,000
NSWHP Specialist Services		5,610	New	\$ 3,400	\$ -	\$ -	\$ 19,074,000	\$ 19,074,000
FETS		-	New	\$ 3,400	\$ -	\$ -	\$ -	\$ -
Shared Areas		1,765	New	\$ 2,900	\$ -	\$ -	\$ 5,119,000	\$ 5,119,000
Refurbishment Works								
Refurbishment of Existing Hospital		-	Refurb	\$ 3,200	\$ -	\$ -	\$ -	\$ -
Total H.P.U. Area/Cost	0	15,071		\$ 3,342	\$ -	\$ -	\$ 50,359,000	\$ 50,359,000
TRAVEL & ENGINEERING & SOA PLANNING CONTINGENCY								
New Build	Factor	8,138			\$ -	\$ -	\$ 25,258,000	\$ 25,258,000
Travel & Engineering (40%)	15,071	6,028	New	\$ 3,000	\$ -	\$ -	\$ 18,084,000	\$ 18,084,000
Planning Contingency (10%)	21,099	2,110	New	\$ 3,400	\$ -	\$ -	\$ 7,174,000	\$ 7,174,000
Refurb								
Travel & Engineering (0%)	-	-	Refurb	\$ 2,550	\$ -	\$ -	\$ -	\$ -
Planning Contingency (10%)	-	-	Refurb	\$ 3,200	\$ -	\$ -	\$ -	\$ -
TOTAL BUILDING WORKS		23,209		\$ 3,259	\$ -	\$ -	\$ 75,617,000	\$ 75,617,000
ENGINEERING SERVICES INFRASTRUCTURE								
Mechanical Services Infrastructure					\$ -	\$ -	\$ 2,786,000	\$ 2,786,000
Allowance for Mechanical Infrastructure Services (incl. new chillers)	1	Item		\$ 1,857,000	\$ -	\$ -	\$ 1,857,000	\$ 1,857,000
Medical Gas Infrastructure Upgrade / Connection	1	Item		\$ 929,000	\$ -	\$ -	\$ 929,000	\$ 929,000
Pneumatic Tube System	1	Item		\$ -	\$ -	\$ -	\$ -	Assume not required
Electrical Services Infrastructure					\$ -	\$ -	\$ 12,199,000	\$ 12,199,000
Electrical Infrastructure (Consumer Mains, Main Switchboards, Sub Main Cables to DB's, Mechanical, Lifts & Hydraulic Control Boards, Power Factor Correction, Metering, Earthing & DB's)	1	Item		\$ 4,178,000	\$ -	\$ -	\$ 4,178,000	\$ 4,178,000
Extra over allowance for electrification	1	Item		\$ 3,490,000	\$ -	\$ -	\$ 3,490,000	\$ 3,490,000
Substations	1	Item		\$ 2,790,000	\$ -	\$ -	\$ 2,790,000	\$ 2,790,000
Generators	1	Item		\$ 1,741,000	\$ -	\$ -	\$ 1,741,000	\$ 1,741,000
Communications & Security Services					\$ -	\$ -	\$ 3,482,000	\$ 3,482,000
Allowance for ICT & Security Infrastructure works including wireless network, DAS Wi-Fi, Telco/NBN Feeds, etc.	1	Item		\$ 3,482,000	\$ -	\$ -	\$ 3,482,000	\$ 3,482,000
VOIP	1	Item		\$ -	\$ -	\$ -	\$ -	Incl in ICT Below
External Fire Services					\$ -	\$ -	\$ 2,091,000	\$ 2,091,000
Dry Fire Services Infrastructure	1	Item		\$ 813,000	\$ -	\$ -	\$ 813,000	\$ 813,000
Wet Fire Services (incl. Tanks and Pumps)	1	Item		\$ 929,000	\$ -	\$ -	\$ 929,000	\$ 929,000
Fire Hydrant Infrastructure	1	Item		\$ 349,000	\$ -	\$ -	\$ 349,000	\$ 349,000
BCA Upgrade					\$ -	\$ -	\$ -	\$ -
Allowance for BCA works to refurbished areas	1	Item		\$ -	\$ -	\$ -	\$ -	\$ -
External Hydraulic Services					\$ -	\$ -	\$ 400,000	\$ 400,000
Water mains connection	1	Item		\$ 60,000	\$ -	\$ -	\$ 60,000	\$ 60,000
Water supply reticulation	1	Item		\$ 120,000	\$ -	\$ -	\$ 120,000	\$ 120,000
Sewer reticulation pits & connection	1	Item		\$ 120,000	\$ -	\$ -	\$ 120,000	\$ 120,000
Sewer pumping station	1	Item		\$ -	\$ -	\$ -	\$ -	\$ -
Irrigation system	1	Item		\$ 40,000	\$ -	\$ -	\$ 40,000	\$ 40,000
LPG tanks regulators, meters and pipework to building	1	Item		\$ 60,000	\$ -	\$ -	\$ 60,000	\$ 60,000
External Stormwater Drainage					\$ -	\$ -	\$ 515,000	\$ 515,000
Stormwater infrastructure pipework & pumps	1	Item		\$ 150,000	\$ -	\$ -	\$ 150,000	\$ 150,000
Stormwater pipelines to Internal Roads & off-street parking	1	Item		\$ 125,000	\$ -	\$ -	\$ 125,000	\$ 125,000
Stormwater Retention Tank / bioswale; plus associated works	1	Item		\$ 240,000	\$ -	\$ -	\$ 240,000	\$ 240,000
Vertical Transportation					\$ -	\$ -	\$ 3,240,000	\$ 3,240,000
Lifts:								
- Passenger / Public / Clinical Lifts (assume 3-4 Levels)	4	No.		\$ 660,000	\$ -	\$ -	\$ 2,640,000	\$ 2,640,000
- Back of House Lifts (assume 3-4 Levels)	2	No.		\$ 300,000	\$ -	\$ -	\$ 600,000	\$ 600,000
Building Management System					\$ -	\$ -	\$ 240,000	\$ 240,000
Building Management System	1	Item		\$ 240,000	\$ -	\$ -	\$ 240,000	\$ 240,000
Special Provisions					\$ -	\$ -	\$ 460,000	\$ 460,000
Kitchen Equipment	1	Item		\$ 300,000	\$ -	\$ -	\$ 300,000	\$ 300,000
Allowance for Cool Rooms	1	Item		\$ 150,000	\$ -	\$ -	\$ 150,000	\$ 150,000
Mortuary Fridge	1	Item		\$ 10,000	\$ -	\$ -	\$ 10,000	\$ 10,000
Grease Arrestor	1	Item		\$ -	\$ -	\$ -	\$ -	Assume not required
ESD Provisions					\$ -	\$ -	\$ 6,390,000	\$ 6,390,000
Allowance for ESD initiatives to meet DGN58 5 Star Green Star equivalency requirements	1	Item		\$ 6,390,000	\$ -	\$ -	\$ 6,390,000	\$ 6,390,000
Premium Infrastructure Upgrades					\$ -	\$ -	\$ 4,720,000	\$ 4,720,000
Allowance for extension of mains services to site boundary	1	Item		\$ 350,000	\$ -	\$ -	\$ 350,000	\$ 350,000
Allowance for decontamination requirements	1	Item		\$ 50,000	\$ -	\$ -	\$ 50,000	\$ 50,000
Allowance for stormwater / culvert / civil premium	1	Item		\$ 250,000	\$ -	\$ -	\$ 250,000	\$ 250,000
Allowance for extra over infrastructure services requirements including N+1 requirements, mechanical infrastructure premium for labs, ballistics, security, etc.	1	Item		\$ 4,070,000	\$ -	\$ -	\$ 4,070,000	\$ 4,070,000
Builders Work in Connection with Services					\$ -	\$ -	\$ 1,830,000	\$ 1,830,000
Builders Work		5.0%	5.0%		\$ -	\$ -	\$ 1,830,000	\$ 1,830,000
Total Engineering Services Infrastructure				\$ 1,653	\$ -	\$ -	\$ 38,353,000	\$ 38,353,000

Lidcombe Forensic Precinct
Investment Decision Estimate - Option 2A
3 November 2022



Department / Unit	Bed No's / Factors	H.P.U. Area	Unit	Rate	Car Parking	Refurbishment	Main Works	Total
PREPARATORY WORKS, SITE WORKS AND EXTERNAL WORKS								
Demolition Works					\$ 11,704,000	\$ -	\$ 5,886,000	\$ 17,390,000
Grub up and dispose of roads / pavements / footpaths to:								
- Building Development Zone	1	Item	\$ 936,000	\$ -	\$ -	\$ 936,000	\$ 936,000	
- Car Park Stage 1	1	Item	\$ 504,000	\$ 504,000	\$ -	\$ -	\$ 504,000	
- Car Park Stage 2	1	Item	\$ 690,000	\$ 690,000	\$ -	\$ -	\$ 690,000	
- Future Expansion	1	Item	\$ 720,000	\$ 720,000	\$ -	\$ -	\$ 720,000	
Demolition of existing buildings:								
- Building Development Zone	1	Item	\$ 2,500,000	\$ -	\$ -	\$ 2,500,000	\$ 2,500,000	
- Car Park Stage 1	1	Item	\$ 250,000	\$ 250,000	\$ -	\$ -	\$ 250,000	
- Car Park Stage 2	1	Item	\$ 2,700,000	\$ 2,700,000	\$ -	\$ -	\$ 2,700,000	
- Future Expansion	1	Item	\$ 2,990,000	\$ 2,990,000	\$ -	\$ -	\$ 2,990,000	
Allowance for in building contamination removal:								
- Building Development Zone	1	Item	\$ 2,250,000	\$ -	\$ -	\$ 2,250,000	\$ 2,250,000	
- Car Park Stage 1	1	Item	\$ 50,000	\$ 50,000	\$ -	\$ -	\$ 50,000	
- Car Park Stage 2	1	Item	\$ 1,800,000	\$ 1,800,000	\$ -	\$ -	\$ 1,800,000	
- Future Expansion	1	Item	\$ 2,000,000	\$ 2,000,000	\$ -	\$ -	\$ 2,000,000	
Site Preparation					\$ 183,600	\$ -	\$ 7,712,000	\$ 7,895,600
Site strip to:								
- Building Development Zone	9,360	Item	\$ 15	\$ -	\$ -	\$ 140,000	\$ 140,000	
- Car Park Stage 1	5,040	Item	\$ 15	\$ 75,600	\$ -	\$ -	\$ 75,600	
- Car Park Stage 2	7,200	Item	\$ 15	\$ 108,000	\$ -	\$ -	\$ 108,000	
Bulk excavation in OTR from stripped level (assumed 5m deep to Building Development Zone due to basement)								
E/O Bulk excavation in rock (assumed 20%)	46,800	m3	\$ 30	\$ -	\$ -	\$ 1,404,000	\$ 1,404,000	
E/O for disposal of excess soil off-site	9,400	m3	\$ 90	\$ -	\$ -	\$ 846,000	\$ 846,000	
E/O for disposal of excess rock off-site (Assumed not required)	46,800	m3	\$ 20	\$ -	\$ -	\$ 936,000	\$ 936,000	
Bulk filling with imported off-site material	9,400	m3	\$ 40	\$ -	\$ -	\$ 376,000	\$ 376,000	
Allowance for in-ground contamination removal (assumed 30% GSW)	-	m3	\$ 85	\$ -	\$ -	\$ -	\$ -	
Allowance for relocation / diversion of services	14,040	m3	\$ 250	\$ -	\$ -	\$ 3,510,000	\$ 3,510,000	
	1	Item	\$ 500,000	\$ -	\$ -	\$ 500,000	\$ 500,000	
Piling Works					\$ -	\$ -	\$ 1,460,000	\$ 1,460,000
RC Piles / Substructure premium	14,600	m2	\$ 100	\$ -	\$ -	\$ 1,460,000	\$ 1,460,000	
Carparking					\$ 9,432,000	\$ -	\$ 200,000	\$ 9,632,000
Ongrade Car Parking	20	space	\$ 10,000	\$ -	\$ -	\$ 200,000	\$ 200,000	
Multi-Storey Car Parking	360	space	\$ 25,000	\$ 9,000,000	\$ -	\$ -	\$ 9,000,000	
Extra over allowance for EV charging station (20% MSCP spaces)	72	space	\$ 6,000	\$ 432,000	\$ -	\$ -	\$ 432,000	
Roads, Paths & Paving					\$ -	\$ -	\$ 3,281,000	\$ 3,281,000
Allowance for internal road network including kerbs, gutters, etc.								
Service Yard	2,000	m2	\$ 300	\$ -	\$ -	\$ 600,000	\$ 600,000	
Allowance for concrete footpaths	500	m2	\$ 200	\$ -	\$ -	\$ 100,000	\$ 100,000	
Allowance for RMS / Council roads upgrades including line marking, roundabout, slip lane, gutters, etc.	1	Item	\$ 581,000	\$ -	\$ -	\$ 581,000	\$ 581,000	
	1	Item	\$ 2,000,000	\$ -	\$ -	\$ 2,000,000	\$ 2,000,000	
Retaining Walls					\$ -	\$ -	\$ 875,000	\$ 875,000
Allowance for miscellaneous retaining walls	500	m2	\$ 750	\$ -	\$ -	\$ 375,000	\$ 375,000	
Shoring walls	1,000	m2	\$ 500	\$ -	\$ -	\$ 500,000	\$ 500,000	
Boundary Walls & Fences					\$ -	\$ -	\$ 150,000	\$ 150,000
Allowance for boundary walls, security fencing & gates	1	Item	\$ 150,000	\$ -	\$ -	\$ 150,000	\$ 150,000	
Outbuildings & Covered Ways					\$ -	\$ -	\$ 775,000	\$ 775,000
Canopies - Main Entry	1	Item	\$ 350,000	\$ -	\$ -	\$ 350,000	\$ 350,000	
Canopies - Ancillary	1	Item	\$ 75,000	\$ -	\$ -	\$ 75,000	\$ 75,000	
Allowance for Covered Walkways	500	m2	\$ 500	\$ -	\$ -	\$ 250,000	\$ 250,000	
Services Compounds (i.e. Power Enclosure)	100	m2	\$ 1,000	\$ -	\$ -	\$ 100,000	\$ 100,000	
Landscaping & Conservation Works					\$ -	\$ -	\$ 1,727,000	\$ 1,727,000
Landscaping - General / Seeding	7,500	m2	\$ 35	\$ -	\$ -	\$ 263,000	\$ 263,000	
Hard & Soft Landscape works	1	Item	\$ 1,000,000	\$ -	\$ -	\$ 1,000,000	\$ 1,000,000	
External Building & Site Signage	23,210	m2	\$ 20	\$ -	\$ -	\$ 464,000	\$ 464,000	
Ancillary Works					\$ -	\$ -	\$ -	\$ -
Compliance Works to existing buildings beyond refurbishment scope	-	Item	\$ -	\$ -	\$ -	\$ -	\$ -	
Special Provisions					\$ -	\$ -	\$ 3,205,000	\$ 3,205,000
Allowance for enclosed connections to existing buildings	250	m2	\$ 3,500	\$ -	\$ -	\$ 875,000	\$ 875,000	
Allowance for NCC/BCA 2022 requirements	1	Item	\$ 2,330,000	\$ -	\$ -	\$ 2,330,000	\$ 2,330,000	
Extra over for Ballistics Firing Range including Bullet Water Recovery Tank, etc.	FETS	Item	\$ 1,100,000	\$ -	\$ -	\$ -	Not required	
Allowance for works community parkland / landscape works	1	Item	\$ -	\$ -	\$ -	\$ -	Assumed not required	
Total Preparatory Works, Site Works & External Works				\$ 1,999	\$ 21,319,600	\$ -	\$ 25,071,000	\$ 46,390,600
Relocation Costs & Temporary Accommodation					\$ -	\$ -	\$ 1,000,000	\$ 1,000,000
Relocation Costs, Decanting, Temporary Accommodation	1	Item	\$ 1,000,000	\$ -	\$ -	\$ 1,000,000	\$ 1,000,000	
Total Relocation & Temporary Accommodation				\$ 44	\$ -	\$ -	\$ 1,000,000	\$ 1,000,000
NET CONSTRUCTION COST (NCC)				\$ 6,953	\$ 21,319,600	\$ -	\$ 140,041,000	\$ 161,360,600
Preliminaries & Other Allowances					\$ 5,096,000	\$ -	\$ 38,175,000	\$ 43,271,000
Preliminaries	18.00%	18.00%	20.00%	% of NCC	\$ 3,838,000	\$ -	\$ 28,008,000	\$ 31,846,000
Margin	5.00%	5.00%	5.00%	% of NCC	\$ 1,258,000	\$ -	\$ 8,402,000	\$ 9,660,000
Staging Costs	0.00%	5.00%	1.00%	% of NCC	\$ -	\$ -	\$ 1,765,000	\$ 1,765,000
Locality Factor	0.00%	0.00%	0.00%	% of NCC	\$ -	\$ -	\$ -	\$ -
GROSS CONSTRUCTION COST (GCC) excluding ESD & Insurance					\$ 26,415,600	\$ -	\$ 178,216,000	\$ 204,631,600
<i>GCC / m2</i>					<i>\$2,446/m2</i>	<i>\$0/m2</i>	<i>\$7,679/m2</i>	
HI Additional Costs					\$ 48,000	\$ -	\$ 7,450,000	\$ 7,498,000
ESD Initiatives Allowances	0.00%	4.00%	4.00%	% of GCC	\$ -	\$ -	\$ 7,129,000	\$ 7,129,000
Principles Insurance	0.18%	0.18%	0.18%	% of GCC	\$ 48,000	\$ -	\$ 321,000	\$ 369,000
GROSS CONSTRUCTION COST (GCC)				\$ 26,463,600	\$ -	\$ 185,666,000	\$ 212,129,600	
PROJECT COSTS								
Fees & Other Costs					\$ 6,483,000	\$ -	\$ 45,488,000	\$ 51,971,000
Consultant Fees	18.00%	18.00%	18.00%	% of GCC	\$ 4,763,000	\$ -	\$ 33,420,000	\$ 38,183,000
Historic Consultant Fees	0	0	Item	\$ -	\$ -	\$ -	\$ -	
VECI / ECI Costs (excl. Consultants)	0.00%	0.00%	0.00%	% of GCC	\$ -	\$ -	\$ -	\$ -

Lidcombe Forensic Precinct
 Investment Decision Estimate - Option 2A
 3 November 2022



Department / Unit	Bed No's / Factors	H.P.U. Area	Unit	Rate	Car Parking	Refurbishment	Main Works	Total
Authority Fees & Charges	1.50%	1.50%	1.50%	% of GCC	\$ 397,000	\$ -	\$ 2,785,000	\$ 3,182,000
LHD Costs	1.50%	1.50%	1.50%	% of GCC	\$ 397,000	\$ -	\$ 2,785,000	\$ 3,182,000
Other Stakeholder Resource Costs	1.50%	1.50%	1.50%	% of GCC	\$ 397,000	\$ -	\$ 2,785,000	\$ 3,182,000
Commission & Start Up	2.00%	2.00%	2.00%	% of GCC	\$ 529,000	\$ -	\$ 3,713,000	\$ 4,242,000
Furniture, Fittings & Equipment	Car Park	Refurb	Main Works		\$ 662,000	\$ -	\$ 56,628,000	\$ 57,290,000
Furniture, Fittings & Equipment - General	1.50%	0.00%	13.00%	% of GCC	\$ 397,000	\$ -	\$ 24,137,000	\$ 24,534,000
Furniture, Fittings & Equipment - Major Specialist Equipment	0.00%	0.00%	12.00%	% of GCC	\$ -	\$ -	\$ 22,280,000	\$ 22,280,000
Furniture, Fittings & Equipment - ICT	1.00%	0.00%	5.00%	% of GCC	\$ 265,000	\$ -	\$ 9,283,000	\$ 9,548,000
Cultural & Artworks	0.00%	0.00%	0.50%	% of GCC	\$ -	\$ -	\$ 928,000	\$ 928,000
Land Acquisition / Property Settlements / Temporary Leasing					\$ -	\$ -	\$ -	\$ -
Land Acquisition Costs		1	Item	\$ -	\$ -	\$ -	\$ -	Excluded
Acquisition Costs & Legals / Rezoning requirements / etc		1	Item	\$ -	\$ -	\$ -	\$ -	Excluded
External Funding Contribution					\$ -	\$ -	\$ -	\$ -
External Funding					\$ -	\$ -	\$ -	Excluded
TOTAL PROJECT COST (TPC) EXCLUDING ESCALATION (Excl GST)				\$ 13,848	\$ 33,608,600	\$ -	\$ 287,782,000	\$ 321,390,600
Escalation (to Midpoint of Construction)					\$ 7,540,000	\$ -	\$ 52,131,400	\$ 59,671,400
<i>Base Date Oct-22</i>	Start	Finish	Midpoint					
Escalation to Completion	Q4'26	Q2'28	Q3'27		\$ 7,540,000	\$ -	\$ 52,131,400	\$ 59,671,400
Contingencies	Car Park	Refurb	Main Works		\$ 6,616,000	\$ -	\$ 46,416,500	\$ 53,032,500
Planning Contingency	5.00%	5.00%	5.00%	% of GCC	\$ 1,323,200	\$ -	\$ 9,283,300	\$ 10,606,500
Design Contingency	5.00%	5.00%	5.00%	% of GCC	\$ 1,323,200	\$ -	\$ 9,283,300	\$ 10,606,500
Construction Contingency	5.00%	5.00%	5.00%	% of GCC	\$ 1,323,200	\$ -	\$ 9,283,300	\$ 10,606,500
Client Contingency	10.00%	10.00%	10.00%	% of GCC	\$ 2,646,400	\$ -	\$ 18,566,600	\$ 21,213,000
NET END COST (NETC) (Excl GST)					\$ 47,764,600	\$ -	\$ 386,329,900	\$ 434,094,500
HI Management Costs	Car Park	Refurb	Main Works		\$ 107,000	\$ -	\$ 7,014,000	\$ 7,121,000
Management Costs			2.04%		\$ 107,000	\$ -	\$ 7,014,000	\$ 7,121,000
ESTIMATED TOTAL PROJECT COST INCLUDING ESCALATION (Excl GST)					\$ 47,871,600	\$ -	\$ 393,343,900	\$ 441,215,500
<i>Rounded</i>					\$ 47,900,000	\$ -	\$ 393,400,000	\$ 441,300,000

Lidcombe Forensic Precinct
Investment Decision Estimate - Option 3A
3 November 2022



Department / Unit	Bed No's / Factors	H.P.U. Area	Unit	Rate	Car Parking	Refurbishment	Main Works	Total
Area Schedule	Department	T&E	Contingency	TOTAL				
New Build	17,160	6,864	2,402	26,426				
Refurbishment	-	-	-	-				
Total Area	17,160	6,864	2,402	26,426				
BUILD WORKS (based on SoA_IDD_V2.2)		17,160			\$ -	\$ -	\$ 57,462,000	\$ 57,462,000
New Building Works:								
NSWHP(FASS and Specialist Services)								
•Criminalistics								
•Forensic and environmental toxicology								
•Bhenomics								
•Genomics								
•Anatomical Pathology								
•Planning for (Forensic) Innovation and Research/Specialist Services and FETS								
FASS		7,696	New	\$ 3,400	\$ -	\$ -	\$ 26,166,000	\$ 26,166,000
NSWHP Specialist Services		-	New	\$ 3,400	\$ -	\$ -	\$ -	\$ -
FETS		7,699	New	\$ 3,400	\$ -	\$ -	\$ 26,177,000	\$ 26,177,000
Shared Areas		1,765	New	\$ 2,900	\$ -	\$ -	\$ 5,119,000	\$ 5,119,000
Refurbishment Works								
Refurbishment of Existing Hospital								
		-	Refurb	\$ 3,200	\$ -	\$ -	\$ -	\$ -
Total H.P.U. Area/Cost	0	17,160		\$ 3,349	\$ -	\$ -	\$ 57,462,000	\$ 57,462,000
TRAVEL & ENGINEERING & SOA PLANNING CONTINGENCY								
New Build								
Travel & Engineering (40%)	Factor	9,266			\$ -	\$ -	\$ 28,758,000	\$ 28,759,000
Planning Contingency (10%)	17,160	6,864	New	\$ 3,000	\$ -	\$ -	\$ 20,592,000	\$ 20,592,000
	24,024	2,402	New	\$ 3,400	\$ -	\$ -	\$ 8,167,000	\$ 8,167,000
Refurb								
Travel & Engineering (0%)	-	-	Refurb	\$ 2,550	\$ -	\$ -	\$ -	\$ -
Planning Contingency (10%)	-	-	Refurb	\$ 3,200	\$ -	\$ -	\$ -	\$ -
TOTAL BUILDING WORKS		26,426		\$ 3,263	\$ -	\$ -	\$ 86,221,000	\$ 86,221,000
ENGINEERING SERVICES INFRASTRUCTURE								
Mechanical Services Infrastructure								
Allowance for Mechanical Infrastructure Services (incl. new chillers)								
Medical Gas Infrastructure Upgrade / Connection	1	Item		\$ 2,115,000	\$ -	\$ -	\$ 2,115,000	\$ 2,115,000
Pneumatic Tube System	1	Item		\$ 1,058,000	\$ -	\$ -	\$ 1,058,000	\$ 1,058,000
				\$ -	\$ -	\$ -	\$ -	Assume not required
Electrical Services Infrastructure								
Electrical Infrastructure (Consumer Mains, Main Switchboards, Sub Main Cables to DB's, Mechanical, Lifts & Hydraulic Control Boards, Power Factor Correction, Metering, Earthing & DB's)								
Extra over allowance for electrification	1	Item		\$ 4,757,000	\$ -	\$ -	\$ 4,757,000	\$ 4,757,000
Substations	1	Item		\$ 3,970,000	\$ -	\$ -	\$ 3,970,000	\$ 3,970,000
Generators	1	Item		\$ 3,180,000	\$ -	\$ -	\$ 3,180,000	\$ 3,180,000
				\$ 1,982,000	\$ -	\$ -	\$ 1,982,000	\$ 1,982,000
Communications & Security Services								
Allowance for ICT & Security Infrastructure works including wireless network, DAS Wi-Fi, Telco/NBN Feeds, etc.								
VOIP	1	Item		\$ 3,964,000	\$ -	\$ -	\$ 3,964,000	\$ 3,964,000
				\$ -	\$ -	\$ -	\$ -	Incl in ICT Below
External Fire Services								
Dry Fire Services Infrastructure								
Wet Fire Services (incl. Tanks and Pumps)	1	Item		\$ 925,000	\$ -	\$ -	\$ 925,000	\$ 925,000
Fire Hydrant Infrastructure	1	Item		\$ 1,058,000	\$ -	\$ -	\$ 1,058,000	\$ 1,058,000
				\$ 397,000	\$ -	\$ -	\$ 397,000	\$ 397,000
BCA Upgrade								
Allowance for BCA works to refurbished areas								
	1	Item		\$ -	\$ -	\$ -	\$ -	\$ -
External Hydraulic Services								
Water mains connection								
Water supply reticulation	1	Item		\$ 60,000	\$ -	\$ -	\$ 60,000	\$ 60,000
Sewer reticulation pits & connection	1	Item		\$ 120,000	\$ -	\$ -	\$ 120,000	\$ 120,000
Sewer pumping station	1	Item		\$ 120,000	\$ -	\$ -	\$ 120,000	\$ 120,000
Irrigation system	1	Item		\$ 40,000	\$ -	\$ -	\$ 40,000	\$ 40,000
LPG tanks regulators, meters and pipework to building	1	Item		\$ 60,000	\$ -	\$ -	\$ 60,000	\$ 60,000
External Stormwater Drainage								
Stormwater infrastructure pipework & pumps								
Stormwater pipelines to Internal Roads & off-street parking	1	Item		\$ 150,000	\$ -	\$ -	\$ 150,000	\$ 150,000
Stormwater Retention Tank / bioswale; plus associated works	1	Item		\$ 125,000	\$ -	\$ -	\$ 125,000	\$ 125,000
				\$ 270,000	\$ -	\$ -	\$ 270,000	\$ 270,000
Vertical Transportation								
Lifts:								
- Passenger / Public / Clinical Lifts (assume 3-4 Levels)	4	No.		\$ 660,000	\$ -	\$ -	\$ 2,640,000	\$ 2,640,000
- Back of House Lifts (assume 3-4 Levels)	2	No.		\$ 300,000	\$ -	\$ -	\$ 600,000	\$ 600,000
Building Management System								
Building Management System								
	1	Item		\$ 270,000	\$ -	\$ -	\$ 270,000	\$ 270,000
Special Provisions								
Kitchen Equipment								
Allowance for Cool Rooms	1	Item		\$ 300,000	\$ -	\$ -	\$ 300,000	\$ 300,000
Mortuary Fridge	1	Item		\$ 150,000	\$ -	\$ -	\$ 150,000	\$ 150,000
Grease Arrestor	1	Item		\$ 10,000	\$ -	\$ -	\$ 10,000	\$ 10,000
				\$ -	\$ -	\$ -	\$ -	Assume not required
ESD Provisions								
Allowance for ESD initiatives to meet DGN58 5 Star Green Star equivalency requirements								
	1	Item		\$ 7,270,000	\$ -	\$ -	\$ 7,270,000	\$ 7,270,000
Premium Infrastructure Upgrades								
Allowance for extension of mains services to site boundary								
Allowance for decontamination requirements	1	Item		\$ 350,000	\$ -	\$ -	\$ 350,000	\$ 350,000
Allowance for stormwater / culvert / civil premium	1	Item		\$ 50,000	\$ -	\$ -	\$ 50,000	\$ 50,000
Allowance for extra over infrastructure services requirements including N+1 requirements, mechanical infrastructure premium for labs, ballistics, security, etc.	1	Item		\$ 250,000	\$ -	\$ -	\$ 250,000	\$ 250,000
				\$ 4,630,000	\$ -	\$ -	\$ 4,630,000	\$ 4,630,000
Builders Work in Connection with Services								
Builders Work								
		5.0%		5.0%	\$ -	\$ -	\$ 2,050,000	\$ 2,050,000
Total Engineering Services Infrastructure				\$ 1,625	\$ -	\$ -	\$ 42,921,000	\$ 42,921,000

Lidcombe Forensic Precinct
 Investment Decision Estimate - Option 3A
 3 November 2022



Department / Unit	Bed No's / Factors	H.P.U. Area	Unit	Rate	Car Parking	Refurbishment	Main Works	Total	
PREPARATORY WORKS, SITE WORKS AND EXTERNAL WORKS									
Demolition Works									
Grub up and dispose of roads / pavements / footpaths to:									
- Building Development Zone					\$ 11,704,000	\$ -	\$ 5,686,000	\$ 17,390,000	
- Car Park Stage 1									
- Car Park Stage 2									
- Future Expansion									
Demolition of existing buildings:									
- Building Development Zone									
- Car Park Stage 1									
- Car Park Stage 2									
- Future Expansion									
Allowance for in building contamination removal:									
- Building Development Zone									
- Car Park Stage 1									
- Car Park Stage 2									
- Future Expansion									
Site Preparation									
Site strip to:									
- Building Development Zone									
- Car Park Stage 1									
- Car Park Stage 2									
Bulk excavation in OTR from stripped level (assumed 5m deep to Building Development Zone due to basement)									
E/O Bulk excavation in rock (assumed 20%)									
E/O for disposal of excess soil off-site									
E/O for disposal of excess rock off-site (Assumed not required)									
Bulk filling with imported off-site material									
Allowance for in-ground contamination removal (assumed 30% GSW)									
Allowance for relocation / diversion of services									
Piling Works									
RC Piles / Substructure premium									
Carparking									
On-grade Car Parking									
Multi-Storey Car Parking									
Extra over allowance for EV charging station (20% MSCP spaces)									
Roads, Paths & Paving									
Allowance for internal road network including kerbs, gutters, etc.									
Service Yard									
Allowance for concrete footpaths									
Allowance for RMS / Council roads upgrades including line marking, roundabout, slip lane, gutters, etc.									
Retaining Walls									
Allowance for miscellaneous retaining walls									
Shoring walls									
Boundary Walls & Fences									
Allowance for boundary walls, security fencing & gates									
Outbuildings & Covered Ways									
Canopies - Main Entry									
Canopies - Ancillary									
Allowance for Covered Walkways									
Services Compounds (i.e. Power Enclosure)									
Landscaping & Conservation Works									
Landscaping - General / Seeding									
Hard & Soft Landscape works									
External Building & Site Signage									
Ancillary Works									
Compliance Works to existing buildings beyond refurbishment scope									
Special Provisions									
Allowance for enclosed connections to existing buildings									
Allowance for NCC/BCA 2022 requirements									
Extra over for Ballistics Firing Range including Bullet Water Recovery Tank, etc.	FETS								
Allowance for works community parkland / landscape works									
Total Preparatory Works, Site Works & External Works					\$ 1,860	\$ 22,315,600	\$ -	\$ 28,836,000	\$ 49,151,600
Relocation Costs & Temporary Accommodation									
Relocation Costs, Decanting, Temporary Accommodation									
Total Relocation & Temporary Accommodation					\$ 38	\$ -	\$ -	\$ 1,000,000	\$ 1,000,000
NET CONSTRUCTION COST (NCC)					\$ 6,785	\$ 22,315,600	\$ -	\$ 158,978,000	\$ 179,293,600
Preliminaries & Other Allowances									
Preliminaries									
Margin									
Staging Costs									
Locality Factor									
GROSS CONSTRUCTION COST (GCC) excluding ESD & Insurance									
GCC / m2					\$ 27,649,600	\$ -	\$ 199,771,000	\$ 227,420,600	
HI Additional Costs									
ESD Initiatives Allowances									
Principles Insurance									
GROSS CONSTRUCTION COST (GCC)					\$ 27,699,600	\$ -	\$ 208,122,000	\$ 235,821,600	
PROJECT COSTS									
Fees & Other Costs									
Consultant Fees									
Historic Consultant Fees									
VECI / ECI Costs (excl. Consultants)									

Lidcombe Forensic Precinct
 Investment Decision Estimate - Option 3A
 3 November 2022



Department / Unit	Bed No's / Factors	H.P.U. Area	Unit	Rate	Car Parking	Refurbishment	Main Works	Total
Authority Fees & Charges	1.50%	1.50%	1.50%	% of GCC	\$ 415,000	\$ -	\$ 3,122,000	\$ 3,537,000
LHD Costs	1.50%	1.50%	1.50%	% of GCC	\$ 415,000	\$ -	\$ 3,122,000	\$ 3,537,000
Other Stakeholder Resource Costs	1.50%	1.50%	1.50%	% of GCC	\$ 415,000	\$ -	\$ 3,122,000	\$ 3,537,000
Commission & Start Up	2.00%	2.00%	2.00%	% of GCC	\$ 554,000	\$ -	\$ 4,162,000	\$ 4,716,000
Furniture, Fittings & Equipment	Car Park	Refurb	Main Works		\$ 692,000	\$ -	\$ 63,478,000	\$ 64,170,000
Furniture, Fittings & Equipment - General	1.50%	0.00%	13.00%	% of GCC	\$ 415,000	\$ -	\$ 27,056,000	\$ 27,471,000
Furniture, Fittings & Equipment - Major Specialist Equipment	0.00%	0.00%	12.00%	% of GCC	\$ -	\$ -	\$ 24,975,000	\$ 24,975,000
Furniture, Fittings & Equipment - ICT	1.00%	0.00%	5.00%	% of GCC	\$ 277,000	\$ -	\$ 10,406,000	\$ 10,683,000
Cultural & Artworks	0.00%	0.00%	0.50%	% of GCC	\$ -	\$ -	\$ 1,041,000	\$ 1,041,000
Land Acquisition / Property Settlements / Temporary Leasing					\$ -	\$ -	\$ -	\$ -
Land Acquisition Costs		1	Item	\$ -	\$ -	\$ -	\$ -	Excluded
Acquisition Costs & Legals / Rezoning requirements / etc		1	Item	\$ -	\$ -	\$ -	\$ -	Excluded
External Funding Contribution					\$ -	\$ -	\$ -	\$ -
External Funding					\$ -	\$ -	\$ -	Excluded
TOTAL PROJECT COST (TPC) EXCLUDING ESCALATION (Excl GST)				\$ 13,538	\$ 35,176,600	\$ -	\$ 322,590,000	\$ 357,766,600
Escalation (to Midpoint of Construction)					\$ 7,890,000	\$ -	\$ 58,452,400	\$ 66,342,400
<i>Base Date Oct-22</i>	Start	Finish	Midpoint					
Escalation to Completion	Q4'26	Q2'28	Q3'27		\$ 7,890,000	\$ -	\$ 58,452,400	\$ 66,342,400
Contingencies	Car Park	Refurb	Main Works		\$ 6,925,000	\$ -	\$ 52,030,500	\$ 58,955,500
Planning Contingency	5.00%	5.00%	5.00%	% of GCC	\$ 1,385,000	\$ -	\$ 10,406,100	\$ 11,791,100
Design Contingency	5.00%	5.00%	5.00%	% of GCC	\$ 1,385,000	\$ -	\$ 10,406,100	\$ 11,791,100
Construction Contingency	5.00%	5.00%	5.00%	% of GCC	\$ 1,385,000	\$ -	\$ 10,406,100	\$ 11,791,100
Client Contingency	10.00%	10.00%	10.00%	% of GCC	\$ 2,770,000	\$ -	\$ 20,812,200	\$ 23,582,200
NET END COST (NETC) (Excl GST)					\$ 49,991,600	\$ -	\$ 433,072,900	\$ 483,064,500
HI Management Costs	Car Park	Refurb	Main Works		\$ 106,000	\$ -	\$ 7,920,000	\$ 8,026,000
Management Costs			2.04%		\$ 106,000	\$ -	\$ 7,920,000	\$ 8,026,000
ESTIMATED TOTAL PROJECT COST INCLUDING ESCALATION (Excl GST)					\$ 50,097,600	\$ -	\$ 440,992,900	\$ 491,090,500
<i>Rounded</i>					\$ 50,100,000	\$ -	\$ 441,000,000	\$ 491,100,000

Lidcombe Forensic Precinct
Investment Decision Estimate - Option 4A
3 November 2022



Department / Unit	Bed No's / Factors	H.P.U. Area	Unit	Rate	Car Parking	Refurbishment	Main Works	Total
Area Schedule	Department	T&E	Contingency	TOTAL				
New Build	9,464	3,786	1,325	14,575				
Refurbishment	-	-	-	-				
Total Area	9,464	3,786	1,325	14,575				
BUILD WORKS (based on SoA_IDD_V2.2)		9,464			\$ -	\$ -	\$ 31,296,000	\$ 31,296,000
New Building Works:								
NSWHP(FASS and Specialist Services)								
-Criminalistics								
-Forensic and environmental toxicology								
-Bhenomics								
-Genomics								
-Anatomical Pathology								
-Planning for (Forensic) Innovation and Research								
Specialist Services and FETS								
FASS	-	New	\$ 3,400	\$ -	\$ -	\$ -	\$ -	\$ -
NSWHP Specialist Services	-	New	\$ 3,400	\$ -	\$ -	\$ -	\$ -	\$ -
FETS	7,699	New	\$ 3,400	\$ -	\$ -	\$ -	\$ 26,177,000	\$ 26,177,000
Shared Areas	1,765	New	\$ 2,900	\$ -	\$ -	\$ -	\$ 5,119,000	\$ 5,119,000
Refurbishment Works								
Refurbishment of Existing Hospital	-	Refurb	\$ 3,200	\$ -	\$ -	\$ -	\$ -	\$ -
Total H.P.U. Area/Cost	0	9,464		\$ 3,307	\$ -	\$ -	\$ 31,296,000	\$ 31,296,000
TRAVEL & ENGINEERING & SOA PLANNING CONTINGENCY								
New Build	Factor	5,111			\$ -	\$ -	\$ 15,863,000	\$ 15,863,000
Travel & Engineering (40%)	9,464	3,786	New	\$ 3,000	\$ -	\$ -	\$ 11,358,000	\$ 11,358,000
Planning Contingency (10%)	13,250	1,325	New	\$ 3,400	\$ -	\$ -	\$ 4,505,000	\$ 4,505,000
Refurb								
Travel & Engineering (0%)	-	-	Refurb	\$ 2,550	\$ -	\$ -	\$ -	\$ -
Planning Contingency (10%)	-	-	Refurb	\$ 3,200	\$ -	\$ -	\$ -	\$ -
TOTAL BUILDING WORKS		14,575		\$ 3,236	\$ -	\$ -	\$ 47,159,000	\$ 47,159,000
ENGINEERING SERVICES INFRASTRUCTURE								
Mechanical Services Infrastructure					\$ -	\$ -	\$ 1,749,000	\$ 1,749,000
Allowance for Mechanical Infrastructure Services (incl. new chillers)	1	Item	\$ 1,166,000	\$ -	\$ -	\$ -	\$ 1,166,000	\$ 1,166,000
Medical Gas Infrastructure Upgrade / Connection	1	Item	\$ 583,000	\$ -	\$ -	\$ -	\$ 583,000	\$ 583,000
Pneumatic Tube System	1	Item	\$ -	\$ -	\$ -	\$ -	\$ -	Assume not required
Electrical Services Infrastructure					\$ -	\$ -	\$ 7,658,000	\$ 7,658,000
Electrical Infrastructure (Consumer Mains, Main Switchboards, Sub Main Cables to DB's, Mechanical, Lifts & Hydraulic Control Boards, Power Factor Correction, Metering, Earthing & DB's)	1	Item	\$ 2,624,000	\$ -	\$ -	\$ -	\$ 2,624,000	\$ 2,624,000
Extra over allowance for electrification	1	Item	\$ 2,190,000	\$ -	\$ -	\$ -	\$ 2,190,000	\$ 2,190,000
Substations	1	Item	\$ 1,750,000	\$ -	\$ -	\$ -	\$ 1,750,000	\$ 1,750,000
Generators	1	Item	\$ 1,094,000	\$ -	\$ -	\$ -	\$ 1,094,000	\$ 1,094,000
Communications & Security Services					\$ -	\$ -	\$ 2,187,000	\$ 2,187,000
Allowance for ICT & Security Infrastructure works including wireless network, DAS Wi-Fi, Telco/NBN Feeds, etc.	1	Item	\$ 2,187,000	\$ -	\$ -	\$ -	\$ 2,187,000	\$ 2,187,000
VOIP	1	Item	\$ -	\$ -	\$ -	\$ -	\$ -	Incl in ICT Below
External Fire Services					\$ -	\$ -	\$ 1,313,000	\$ 1,313,000
Dry Fire Services Infrastructure	1	Item	\$ 511,000	\$ -	\$ -	\$ -	\$ 511,000	\$ 511,000
Wet Fire Services (incl. Tanks and Pumps)	1	Item	\$ 583,000	\$ -	\$ -	\$ -	\$ 583,000	\$ 583,000
Fire Hydrant Infrastructure	1	Item	\$ 219,000	\$ -	\$ -	\$ -	\$ 219,000	\$ 219,000
BCA Upgrade					\$ -	\$ -	\$ -	\$ -
Allowance for BCA works to refurbished areas	1	Item	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
External Hydraulic Services					\$ -	\$ -	\$ 400,000	\$ 400,000
Water mains connection	1	Item	\$ 60,000	\$ -	\$ -	\$ -	\$ 60,000	\$ 60,000
Water supply reticulation	1	Item	\$ 120,000	\$ -	\$ -	\$ -	\$ 120,000	\$ 120,000
Sewer reticulation pits & connection	1	Item	\$ 120,000	\$ -	\$ -	\$ -	\$ 120,000	\$ 120,000
Sewer pumping station	1	Item	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Irrigation system	1	Item	\$ 40,000	\$ -	\$ -	\$ -	\$ 40,000	\$ 40,000
LPG tanks regulators, meters and pipework to building	1	Item	\$ 60,000	\$ -	\$ -	\$ -	\$ 60,000	\$ 60,000
External Stormwater Drainage					\$ -	\$ -	\$ 425,000	\$ 425,000
Stormwater infrastructure pipework & pumps	1	Item	\$ 150,000	\$ -	\$ -	\$ -	\$ 150,000	\$ 150,000
Stormwater pipelines to Internal Roads & off-street parking	1	Item	\$ 125,000	\$ -	\$ -	\$ -	\$ 125,000	\$ 125,000
Stormwater Retention Tank / bioswale; plus associated works	1	Item	\$ 150,000	\$ -	\$ -	\$ -	\$ 150,000	\$ 150,000
Vertical Transportation					\$ -	\$ -	\$ 3,240,000	\$ 3,240,000
Lifts:								
- Passenger / Public / Clinical Lifts (assume 3-4 Levels)	4	No.	\$ 660,000	\$ -	\$ -	\$ -	\$ 2,640,000	\$ 2,640,000
- Back of House Lifts (assume 3-4 Levels)	2	No.	\$ 300,000	\$ -	\$ -	\$ -	\$ 600,000	\$ 600,000
Building Management System					\$ -	\$ -	\$ 150,000	\$ 150,000
Building Management System	1	Item	\$ 150,000	\$ -	\$ -	\$ -	\$ 150,000	\$ 150,000
Special Provisions					\$ -	\$ -	\$ 460,000	\$ 460,000
Kitchen Equipment	1	Item	\$ 300,000	\$ -	\$ -	\$ -	\$ 300,000	\$ 300,000
Allowance for Cool Rooms	1	Item	\$ 150,000	\$ -	\$ -	\$ -	\$ 150,000	\$ 150,000
Mortuary Fridge	1	Item	\$ 10,000	\$ -	\$ -	\$ -	\$ 10,000	\$ 10,000
Grease Arrestor	1	Item	\$ -	\$ -	\$ -	\$ -	\$ -	Assume not required
ESD Provisions					\$ -	\$ -	\$ 4,010,000	\$ 4,010,000
Allowance for ESD initiatives to meet DGN58 5 Star Green Star equivalency requirements	1	Item	\$ 4,010,000	\$ -	\$ -	\$ -	\$ 4,010,000	\$ 4,010,000
Premium Infrastructure Upgrades					\$ -	\$ -	\$ 3,210,000	\$ 3,210,000
Allowance for extension of mains services to site boundary	1	Item	\$ 350,000	\$ -	\$ -	\$ -	\$ 350,000	\$ 350,000
Allowance for decontamination requirements	1	Item	\$ 50,000	\$ -	\$ -	\$ -	\$ 50,000	\$ 50,000
Allowance for stormwater / culvert / civil premium	1	Item	\$ 250,000	\$ -	\$ -	\$ -	\$ 250,000	\$ 250,000
Allowance for extra over infrastructure services requirements including N+1 requirements, mechanical infrastructure premium for labs, ballistics, security, etc.	1	Item	\$ 2,560,000	\$ -	\$ -	\$ -	\$ 2,560,000	\$ 2,560,000
Builders Work in Connection with Services					\$ -	\$ -	\$ 1,250,000	\$ 1,250,000
Builders Work	5.0%	5.0%		\$ -	\$ -	\$ -	\$ 1,250,000	\$ 1,250,000
Total Engineering Services Infrastructure				\$ 1,788	\$ -	\$ -	\$ 26,052,000	\$ 26,052,000

Lidcombe Forensic Precinct
Investment Decision Estimate - Option 4A
3 November 2022



Department / Unit	Bed No's / Factors	H.P.U. Area	Unit	Rate	Car Parking	Refurbishment	Main Works	Total
PREPARATORY WORKS, SITE WORKS AND EXTERNAL WORKS								
Demolition Works								
Grub up and dispose of roads / pavements / footpaths to:								
- Building Development Zone					\$ 11,704,000	\$ -	\$ 5,886,000	\$ 17,390,000
- Car Park Stage 1								
- Car Park Stage 2								
- Future Expansion								
Demolition of existing buildings:								
- Building Development Zone								
- Car Park Stage 1								
- Car Park Stage 2								
- Future Expansion								
Allowance for in building contamination removal:								
- Building Development Zone								
- Car Park Stage 1								
- Car Park Stage 2								
- Future Expansion								
Site Preparation								
Site strip to:								
- Building Development Zone								
- Car Park Stage 1								
- Car Park Stage 2								
Bulk excavation in OTR from stripped level (assumed 5m deep to Building Development Zone due to basement)								
E/O Bulk excavation in rock (assumed 20%)								
E/O for disposal of excess soil off-site								
E/O for disposal of excess rock off-site (Assumed not required)								
Bulk filling with imported off-site material								
Allowance for inground contamination removal (assumed 30% GSW)								
Allowance for relocation / diversion of services								
Piling Works								
RC Piles / Substructure premium								
Carparking								
Ongrade Car Parking								
Multi-Storey Car Parking								
Extra over allowance for EV charging station (20% MSCP spaces)								
Roads, Paths & Paving								
Allowance for internal road network including kerbs, gutters, etc.								
Service Yard								
Allowance for concrete footpaths								
Allowance for RMS / Council roads upgrades including line marking, roundabout, slip lane, gutters, etc								
Retaining Walls								
Allowance for miscellaneous retaining walls								
Shoring walls								
Boundary Walls & Fences								
Allowance for boundary walls, security fencing & gates								
Outbuildings & Covered Ways								
Canopies - Main Entry								
Canopies - Ancillary								
Allowance for Covered Walkways								
Services Compounds (i.e. Power Enclosure)								
Landscaping & Conservation Works								
Landscaping - General / Seeding								
Hard & Soft Landscape works								
External Building & Site Signage								
Ancillary Works								
Compliance Works to existing buildings beyond refurbishment scope								
Special Provisions								
Allowance for enclosed connections to existing buildings								
Allowance for NCC/BCA 2022 requirements								
Extra over for Ballistics Firing Range including Bullet Water Recovery Tank, etc.								
Allowance for works community parkland / landscape works								
Total Preparatory Works, Site Works & External Works								
Relocation Costs & Temporary Accommodation								
Relocation Costs, Decanting, Temporary Accommodation								
Total Relocation & Temporary Accommodation								
NET CONSTRUCTION COST (NCC)								
Preliminaries & Other Allowances								
Preliminaries								
Margin								
Staging Costs								
Locality Factor								
GROSS CONSTRUCTION COST (GCC) excluding ESD & Insurance								
GCC / m2								
HI Additional Costs								
ESD Initiatives Allowances								
Principles Insurance								
GROSS CONSTRUCTION COST (GCC)								
PROJECT COSTS								
Fees & Other Costs								
Consultant Fees								
Historic Consultant Fees								
VECI / ECI Costs (excl. Consultants)								

Lidcombe Forensic Precinct
 Investment Decision Estimate - Option 4A
 3 November 2022



Department / Unit	Bed No's / Factors	H.P.U. Area	Unit	Rate	Car Parking	Refurbishment	Main Works	Total
Authority Fees & Charges	1.50%	1.50%	1.50%	% of GCC	\$ 347,000	\$ -	\$ 1,951,000	\$ 2,298,000
LHD Costs	1.50%	1.50%	1.50%	% of GCC	\$ 347,000	\$ -	\$ 1,951,000	\$ 2,298,000
Other Stakeholder Resource Costs	1.50%	1.50%	1.50%	% of GCC	\$ 347,000	\$ -	\$ 1,951,000	\$ 2,298,000
Commission & Start Up	2.00%	2.00%	2.00%	% of GCC	\$ 463,000	\$ -	\$ 2,601,000	\$ 3,064,000
Furniture, Fittings & Equipment	Car Park	Refurb	Main Works		\$ 578,000	\$ -	\$ 39,662,000	\$ 40,240,000
Furniture, Fittings & Equipment - General	1.50%	0.00%	13.00%	% of GCC	\$ 347,000	\$ -	\$ 16,905,000	\$ 17,252,000
Furniture, Fittings & Equipment - Major Specialist Equipment	0.00%	0.00%	12.00%	% of GCC	\$ -	\$ -	\$ 15,605,000	\$ 15,605,000
Furniture, Fittings & Equipment - ICT	1.00%	0.00%	5.00%	% of GCC	\$ 231,000	\$ -	\$ 6,502,000	\$ 6,733,000
Cultural & Artworks	0.00%	0.00%	0.50%	% of GCC	\$ -	\$ -	\$ 650,000	\$ 650,000
Land Acquisition / Property Settlements / Temporary Leasing					\$ -	\$ -	\$ -	\$ -
Land Acquisition Costs		1	Item	\$ -	\$ -	\$ -	\$ -	Excluded
Acquisition Costs & Legals / Rezoning requirements / etc		1	Item	\$ -	\$ -	\$ -	\$ -	Excluded
External Funding Contribution					\$ -	\$ -	\$ -	\$ -
External Funding					\$ -	\$ -	\$ -	Excluded
TOTAL PROJECT COST (TPC) EXCLUDING ESCALATION (Excl GST)				\$ 15,846	\$ 29,394,600	\$ -	\$ 201,563,000	\$ 230,957,600
Escalation (to Midpoint of Construction)					\$ 6,590,000	\$ -	\$ 36,475,400	\$ 43,065,400
<i>Base Date Oct-22</i>	Start	Finish	Midpoint					
Escalation to Completion	Q4'26	Q2'28	Q3'27		\$ 6,590,000	\$ -	\$ 36,475,400	\$ 43,065,400
Contingencies	Car Park	Refurb	Main Works		\$ 5,786,600	\$ -	\$ 32,510,000	\$ 38,296,600
Planning Contingency	5.00%	5.00%	5.00%	% of GCC	\$ 1,157,300	\$ -	\$ 6,502,000	\$ 7,659,300
Design Contingency	5.00%	5.00%	5.00%	% of GCC	\$ 1,157,300	\$ -	\$ 6,502,000	\$ 7,659,300
Construction Contingency	5.00%	5.00%	5.00%	% of GCC	\$ 1,157,300	\$ -	\$ 6,502,000	\$ 7,659,300
Client Contingency	10.00%	10.00%	10.00%	% of GCC	\$ 2,314,700	\$ -	\$ 13,004,000	\$ 15,318,700
NET END COST (NETC) (Excl GST)					\$ 41,771,200	\$ -	\$ 270,548,400	\$ 312,319,600
HI Management Costs	Car Park	Refurb	Main Works		\$ 114,000	\$ -	\$ 4,781,000	\$ 4,895,000
Management Costs			2.04%		\$ 114,000	\$ -	\$ 4,781,000	\$ 4,895,000
ESTIMATED TOTAL PROJECT COST INCLUDING ESCALATION (Excl GST)					\$ 41,885,200	\$ -	\$ 275,329,400	\$ 317,214,600
<i>Rounded</i>					\$ 41,900,000	\$ -	\$ 275,400,000	\$ 317,300,000

NSW Health Pathology and NSW Police Force
Lidcombe Forensic Precinct Project

Preliminary Financial Impact Statement

Final Draft, Version 3.0

30 November 2022



Health
Pathology



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Organisation version control

Version	Date	Prepared by	Issue to	Comment
1.0	21/11/2022	Andrew Gill, HI	HI ALEA, Johnstaff, NSWHP, NSWPF, PWC	First draft for comment
2.0	25/11/2022	Andrew Gill, HI	HI, Johnstaff,	Second draft for comment, incorporating JSP/HI feedback, updated project location map. Updated CAPEX and recurrent funding tables to include separate agency proportions reflecting Director HI ALEA feedback.
Final Draft	29/11/2022	HI ALEA	Project Team NSWHP, NSWPF	

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Abbreviations

ACRONYM	DESCRIPTION
BCR	Benefit Cost Ratio
CBA	Cost Benefit Analysis
ERC	Expenditure Review Committee
ETC	Estimated Total Cost
FIS	Financial Impact Statement
FMCCC	Forensic Medicine and Coroners Court Complex
FTE	Full-time Equivalent
FASS	Forensic & Analytical Science Service <i>(a unit within NSW Health Pathology)</i>
FETS	Forensic Evidence & Technical Services <i>(a Command within NSW Police Force)</i>
GFA	Gross Floor Area <i>expressed in metres squared (m²)</i>
GDA	Gross Developable Area
HI	Health Infrastructure
ICT	Information and Communication Technology
MoH	Ministry of Health
NSWHP	NSW Health Pathology
NSWPF	NSW Police Force
NPV	Net Present Value
SS	Special Services <i>(a unit within NSW Health Pathology)</i>

1 Executive Summary

This Preliminary Financial Impact Statement (FIS) evaluates the high-level consolidated impact of the Lidcombe Forensic Precinct Project (the Project) on NSW Health Pathology (NSWHP) and NSW Police Force (NSWPF) budget, supporting the Investment Decision Document (IDD) submission.

The Preliminary FIS has been prepared by Health Infrastructure (HI) on behalf of NSWHP Forensic Analytical Science Service (FASS) and NSWPF Forensic Evidence & Technical Services (FETS) based on available planning parameters and assumptions. Further refinements will be undertaken when the Project is approved to progress to business case development phase.

In 2015, HI completed a master planning for the Lidcombe campus with further condition reports completed in 2019 highlighting the critical need to address the existing failing infrastructure. In December 2018, the Forensic Medicine and Coroners Court Complex (FMCCC) was officially opened and operational as Stage 1 of the Precinct development.

In late 2021, there was an integrated joint infrastructure committee meetings between NSWHP, NSWPF, Ministry of Health (MOH) and HI, to progress planning for a purpose-built facility which:

- supports integration and collaboration of specialist services provided by FASS and FETS, alongside NSWHP specialised services for Anatomical Pathology, Phenomics and Genomics;
- enables the delivery of forensic services under a more consultative and customer service focused model; and
- improves quality and timeliness of services.

In November 2022, a refreshed Master Plan was completed to review the 2015 Master Plan and develop design fundamentals to support the IDD submission of the Project. The 2022 refreshed Master Plan also confirms the existing Lidcombe campus as the preferred site for an integrated joint NSWHP and NSWPF facility considering the benefit of collocation with FMCCC.

The Project aims to address current accommodation integrity and end-of-life issues and dislocation of services for both agencies by developing a purpose-built forensic facility that would significantly improve service coordination and efficiency by integrating teams from various sites, and enhance collaboration with the FMCCC. The new build facility will also enable NSWPF and NSWHP to meet growing demand of these specialty state-wide services. The high-level scope of services in-scope for this Project is:

- FASS provides a state-wide expert scientific and clinical services to the NSW criminal and coronial justice system. The services provided include criminalistics, forensic chemistry, forensic medicine and environmental health testing in water microbiology, legionella, clinical and environmental toxicology and trace inorganics.
- Relocation of the Drug Toxicology Unit (DTU), part of FASS, from Macquarie Hospital to Lidcombe.
- FETS provides field, laboratory and analysis services to the NSWPF. The services provided are largely interdependent, with officers from Crime Scene and Identification Services branches working together in field, sequencing exhibits between their sections and relying on the analysis results to inform their forensic investigations.
- Provision of a new off-site processing laboratory providing Anatomical Pathology, Genomics and Phenomics services.

The Project objectives¹ are to:

- Address significant risks to the continuity and integrity of forensic testing in the NSW criminal justice system, that arise from the end-of-life state of the current facility.
- Deliver an integrated service for NSW, which assists rapid and proactive utilisation of information (operational translation)
- Deliver efficient and effective services through synergy and collaborative interagency teams
- Strengthen networks and expertise for NSW by bringing specialists together
- Promote discovery of new service models through translation research, prototyping and enhanced knowledge base
- Use information and communications technology to improve sample management (receipting, processing, and storage), and reporting
- Promote research and education through agency and university partnerships
- Promote seamless flows for staff and samples built around contemporary service models
- Deliver an environment which offers “bump” spaces enabling formal and informal collaboration
- Provide design solutions that ensure the integrity of samples and maintains chain of custody
- Deliver a healthy environment in response to the nature of the work undertaken which offers spaces to support staff health and wellbeing, including culturally appropriate spaces
- Pursue operational and design initiatives that minimise the Project’s environmental impact – including NSW Health Pathology (NSWHP) and Health Infrastructure NSW (HI) sustainability work
- Adopt future proofing strategies to meet the growing and changing service models
- Provide centralised solution to improve efficiencies, effectiveness, and surge capacities for NSWHP to cater growing demand and new model of care across the state
- Reduce requirements for additional hospital space and improve service delivery through digital and offsite anatomical pathology.

The preliminary options were developed in consultation with the NSWPF and NSWHP. The scope of services including a schedule of accommodation was documented in the Lidcombe Forensic Precinct Scoping Document², which was used to develop a long list of options. The long list of 7 options included a high-level non-capital consideration. A short list was created through a qualitative assessment using a multi criteria assessment based on the benefits to be realised from the Project.

Four short-listed options have been considered in this preliminary FIS, including:

- **Option 1 (Base Case):** Keep safe, operating and minimise risk with no relocation. Units will stay at existing facilities, require to address critical building maintenance and high-level risks at existing Lidcombe facility (existing GFA 18,586 m2).
- **Option 1A Full scope – new build:** Re-locate from NSWHP (FASS and Specialised Services): Criminalistics, Forensic and Environmental Toxicology, Phenomics, Genomics, Centre for

¹Johnstaff Projects (2022) A0196_3.3.4_221124_Draft LFP IDD_v1.3_Final_issue to HI. p.4

² Johnstaff Projects (2022) A0196_2.6_NSW LFP Scoping Doc_1.3

(Forensic) Innovation and Research, Anatomical Pathology. From NSWPF (FETS): Crime Scene Services Branch and Identification Services Branch – ETC \$676 million, GDA of 38,475m²

- **Option 2A NSWHP Full Scope:** NSWHP (FASS and special services): Criminalistics, Forensic and environmental toxicology, Phenomics, Genomics, Centre for (Forensic) Innovation and Research, Anatomical Pathology. – ETC \$441 million, GDA of 23,209m².
- **Option 3A NSWHP Partial Scope and NSWPF Full Scope:** co-locate from NSWHP (FASS) Criminalistics, Forensic and Environmental Toxicology and centre for (Forensic) innovation and research. From NSWPF (FETS): Crime Scene Services Branch and Identification Services Branch – ETC \$491 million, GDA of 26,426m².

Without the Project (Base Case), it is assumed that the existing sites will only be able to meet the projected demand to 2023/24, i.e. the facilities will reach capacity. Under Option 1A, 2A, and 3A, the Project will enable NSWHP and NSWPF to service additional projected demand following the opening of the Lidcombe Forensic Precinct in 2029.

The target construction commencement is scheduled in Q4 2026. The scheduled construction completion is in Q4 2028 with new facility commissioning in Q1 2029 for option 1A. Options 2A and 3A would complete construction and new facility commissioning six months earlier.

Table 1: Summary of Full Time Equivalent (FTE) preliminary workforce impact by short-listed options

FTE's - Base Case	Current year	Projections									
	(budget)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
FASS FTE	291	307	307	307	307	307	307	307	307	307	307
Special Services FTE	120	127	127	127	127	127	127	127	127	127	127
FETS FTE	451	471	471	471	471	471	471	471	471	471	471
Total FTE	862	905	905	905	905	905	905	905	905	905	905
Cumulative incremental FTE		43	43	43	43	43	43	43	43	43	43
Cumulative change (%)		5.0%	4.7%	4.7%	4.7%	4.7%	4.7%	4.7%	4.7%	4.7%	4.7%

FTE's - Option 1A	Current year	Projections									
	(budget)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
FASS FTE	291	307	307	307	307	307	307	415	435	454	470
Special Services FTE	120	127	127	127	127	127	127	167	174	182	189
FETS FTE	451	471	471	471	471	471	471	510	510	511	513
Total FTE	862	905	905	905	905	905	905	1,092	1,119	1,146	1,172
Cumulative incremental FTE		43	43	43	43	43	43	230	257	284	310
Cumulative change (%)		5.0%	4.7%	4.7%	4.7%	4.7%	4.7%	25.4%	23.5%	25.4%	27.0%

FTE's - Option 2A	Current year	Projections									
	(budget)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
FASS FTE	291	307	307	307	307	307	307	415	435	454	470
Special Services FTE	120	127	127	127	127	127	127	167	174	182	189
FETS FTE	451	471	471	471	471	471	471	471	471	471	471
Total FTE	862	905	905	905	905	905	905	1,053	1,080	1,106	1,130
Cumulative incremental FTE		43	43	43	43	43	43	191	218	244	268
Cumulative change (%)		5.0%	4.7%	4.7%	4.7%	4.7%	4.7%	21.1%	20.7%	22.6%	24.2%

FTE's - Option 3A	Current year	Projections									
	(budget)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
FASS FTE	291	307	307	307	307	307	307	415	435	454	470
Special Services FTE	120	127	127	127	127	127	127	127	127	127	127
FETS FTE	451	471	471	471	471	471	471	510	510	511	513
Total FTE	862	905	905	905	905	905	905	1,052	1,072	1,092	1,110
Cumulative incremental FTE		43	43	43	43	43	43	190	210	230	248
Cumulative change (%)		5.0%	4.7%	4.7%	4.7%	4.7%	4.7%	21.0%	20.0%	21.5%	22.7%

The preliminary recurrent cost impact is subject to further assessment based on input based costing (i.e. labour, goods and services, repair and maintenance and depreciation). The higher costs across the options are largely driven by the cumulative increase in workforce labour costs for each option comparative to the base line workforce labour cost. Table 2 summarises the financial impact under each option.

Table 2: Preliminary Capital and Recurrent Impact Summary (\$'000) by short-listed options

Category (\$'000)	Current year	Projections										Total
	(budget) 2022/23	Year 1 2023/24	Year 2 2024/25	Year 3 2025/26	Year 4 2026/27	Year 5 2027/28	Year 6 2028/29	Year 7 2029/30	Year 8 2030/31	Year 9 2031/32	Year 10 2032/33	
Capital impact												
Capital expenditure option Base Case	0	0	0	0	0	0	0	0	0	0	0	0
Capital expenditure option 1A	250	6,665	19,595	39,985	79,602	450,232	79,969	0	0	0	0	676,297
Capital expenditure option 2A	250	4,901	13,703	31,093	64,902	312,133	14,234	0	0	0	0	441,216
Capital expenditure option 3A	250	5,079	15,443	32,833	72,643	348,954	15,890	0	0	0	0	491,091
Recurrent impact (in current year dollars)												
Base Case												
Total expenses (excl. depreciation)	134,446	143,285	143,285	143,285	143,285	143,285	143,285	143,285	143,285	143,285	143,285	143,285
Total revenues	25,693	27,191	27,191	27,191	27,191	27,191	27,191	27,191	27,191	27,191	27,191	27,191
Budget result (NCOS excl. dep'n)	108,753	116,095	116,095	116,095	116,095	116,095	116,095	116,095	116,095	116,095	116,095	116,095
Project Case / Option 1A												
Total expenses (excl. depreciation)	134,446	143,285	143,285	143,285	143,285	143,285	143,285	179,749	186,298	192,969	199,809	
Total revenues	25,693	27,191	27,191	27,191	27,191	27,191	27,191	44,397	48,716	53,361	58,216	
Budget result (NCOS excl. dep'n)	108,753	116,095	116,095	116,095	116,095	116,095	116,095	135,352	137,582	139,608	141,593	
Project Case / Option 2A												
Total expenses (excl. depreciation)	134,446	143,285	143,285	143,285	143,285	143,285	143,285	175,933	182,124	188,409	194,744	
Total revenues	25,693	27,191	27,191	27,191	27,191	27,191	27,191	44,397	48,716	53,361	58,216	
Budget result (NCOS excl. dep'n)	108,753	116,095	116,095	116,095	116,095	116,095	116,095	131,536	133,408	135,048	136,528	
Project Case / Option 3A												
Total expenses (excl. depreciation)	134,446	143,285	143,285	143,285	143,285	143,285	143,285	173,012	178,462	184,222	190,138	
Total revenues	25,693	27,191	27,191	27,191	27,191	27,191	27,191	44,201	48,478	53,105	57,942	
Budget result (NCOS excl. dep'n)	108,753	116,095	116,095	116,095	116,095	116,095	116,095	128,810	129,984	131,117	132,196	
Incremental impact (in current year dollars)												
Project Case / Option 1A												
Total expenses (excl. depreciation)	0	0	0	0	0	0	0	36,463	43,013	49,684	56,524	
Total revenues	0	0	0	0	0	0	0	17,206	21,525	26,171	31,025	
Budget result (NCOS excl. dep'n)	0	0	0	0	0	0	0	19,257	21,487	23,513	25,499	
Project Case / Option 2A												
Total expenses (excl. depreciation)	0	0	0	0	0	0	0	32,647	38,839	45,124	51,459	
Total revenues	0	0	0	0	0	0	0	17,206	21,525	26,171	31,025	
Budget result (NCOS excl. dep'n)	0	0	0	0	0	0	0	15,441	17,313	18,953	20,434	
Project Case / Option 3A												
Total expenses (excl. depreciation)	0	0	0	0	0	0	0	29,726	35,177	40,937	46,852	
Total revenues	0	0	0	0	0	0	0	17,011	21,287	25,914	30,751	
Budget result (NCOS excl. dep'n)	0	0	0	0	0	0	0	12,716	13,889	15,022	16,101	

Note: Capital and recurrent funding sources to be completed after selection of the preferred option.

Based on activity projections which drive both the cost of goods and services labour related costs, the increase in recurrent costs incremental to the Base Case is estimated at between \$16.1m - \$25.5m in 2032/33. Option 1A is anticipated to result in the highest recurrent cost followed by Option 3A and Option 2A respectively.

More detailed capital and recurrent cost assessment of the Project will be undertaken if the Project progresses to the business case phase. This will include peer review of the preliminary activity demand projections, proposed infrastructure requirements, staffing and new ways of working to support improvement in service efficiency. A future cost arrangement is to be agreed upon between NSWPF and NSWHP.

Table 3 and Table 4 show the preliminary capital and recurrent impact by each agency. Option 2A includes only NSWHP and Special Services and excludes NSWPF, so only base case and nil values appear for NSWPF in option 2A. The notional capital spend for options 1A and 3A uses a proportional GDA area (excluding shared spaces) to attribute capital spend across NSWHP and NSWPF. This would result in:

- **Option 1A:** NSWHP funding \$495.7m (using a 73% GDA proportional share) and NSWPF funding \$180.6m (using a 27% GDA proportional share)
- **Option 2A:** NSWHP funding \$441.2m (using a 100% GDA proportional share). NSWPF are not included in this option so there is nil funding impact.
- **Option 3A:** NSWHP funding \$245.5m (using a 50% GDA proportional share) and NSWPF funding \$245.6m (using a 50% GDA proportional share).

Table 3 - Preliminary Capital and Recurrent Impact Summary (\$'000) NSWHP only

Category (\$'000)	Current year		Projections										Total
	(budget)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10		
	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33		
Capital impact													
Capital expenditure option Base Case	0	0	0	0	0	0	0	0	0	0	0	0	0
Capital expenditure option 1A	183	4,885	14,363	29,308	58,347	330,014	58,616	0	0	0	0	0	495,717
Capital expenditure option 2A	250	4,901	13,703	31,093	64,902	312,133	14,234	0	0	0	0	0	441,216
Capital expenditure option 3A	125	2,539	7,720	16,413	36,314	174,443	7,943	0	0	0	0	0	245,497
Recurrent impact (in current year dollars)													
Base Case													
Total expenses (excl. depreciation)	70,167	76,283	76,283	76,283	76,283	76,283	76,283	76,283	76,283	76,283	76,283	76,283	76,283
Total revenues	25,693	27,191	27,191	27,191	27,191	27,191	27,191	27,191	27,191	27,191	27,191	27,191	27,191
Budget result (NCOS excl. dep'n)	44,475	49,092	49,092	49,092	49,092	49,092	49,092	49,092	49,092	49,092	49,092	49,092	49,092
Project Case / Option 1A													
Total expenses (excl. depreciation)	70,167	76,283	76,283	76,283	76,283	76,283	76,283	110,566	116,887	123,311	129,797		
Total revenues	25,693	27,191	27,191	27,191	27,191	27,191	27,191	44,397	48,716	53,361	58,216		
Budget result (NCOS excl. dep'n)	44,475	49,092	49,092	49,092	49,092	49,092	49,092	66,169	68,170	69,950	71,582		
Project Case / Option 2A													
Total expenses (excl. depreciation)	70,167	76,283	76,283	76,283	76,283	76,283	76,283	108,930	115,122	121,407	127,742		
Total revenues	25,693	27,191	27,191	27,191	27,191	27,191	27,191	44,397	48,716	53,361	58,216		
Budget result (NCOS excl. dep'n)	44,475	49,092	49,092	49,092	49,092	49,092	49,092	64,533	66,405	68,045	69,526		
Project Case / Option 3A													
Total expenses (excl. depreciation)	70,167	76,283	76,283	76,283	76,283	76,283	76,283	103,829	109,050	114,564	120,126		
Total revenues	25,693	27,191	27,191	27,191	27,191	27,191	27,191	44,201	48,478	53,105	57,942		
Budget result (NCOS excl. dep'n)	44,475	49,092	49,092	49,092	49,092	49,092	49,092	59,628	60,572	61,459	62,184		
Incremental impact (in current year dollars)													
Project Case / Option 1A													
Total expenses (excl. depreciation)	0	0	0	0	0	0	0	34,283	40,604	47,028	53,514		
Total revenues	0	0	0	0	0	0	0	17,206	21,525	26,171	31,025		
Budget result (NCOS excl. dep'n)	0	0	0	0	0	0	0	17,077	19,078	20,858	22,489		
Project Case / Option 2A													
Total expenses (excl. depreciation)	0	0	0	0	0	0	0	32,647	38,839	45,124	51,459		
Total revenues	0	0	0	0	0	0	0	17,206	21,525	26,171	31,025		
Budget result (NCOS excl. dep'n)	0	0	0	0	0	0	0	15,441	17,313	18,953	20,434		
Project Case / Option 3A													
Total expenses (excl. depreciation)	0	0	0	0	0	0	0	27,546	32,768	38,281	43,843		
Total revenues	0	0	0	0	0	0	0	17,011	21,287	25,914	30,751		
Budget result (NCOS excl. dep'n)	0	0	0	0	0	0	0	10,535	11,480	12,367	13,092		

Table 4 - Preliminary Capital and Recurrent Impact Summary (\$'000) NSWPF only

Category (\$'000)	Current year	Projections										Total
	(budget)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	
	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	
Capital impact												
Capital expenditure option Base Case	0	0	0	0	0	0	0	0	0	0	0	0
Capital expenditure option 1A	67	1,780	5,232	10,677	21,255	120,218	21,353	0	0	0	0	180,581
Capital expenditure option 2A	0	0	0	0	0	0	0	0	0	0	0	0
Capital expenditure option 3A	125	2,540	7,723	16,419	36,328	174,511	7,946	0	0	0	0	245,593
Recurrent impact (in current year dollars)												
Base Case												
Total expenses (excl. depreciation)	64,279	67,002	67,002	67,002	67,002	67,002	67,002	67,002	67,002	67,002	67,002	67,002
Total revenues	0	0	0	0	0	0	0	0	0	0	0	0
Budget result (NCOS excl. dep'n)	64,279	67,002	67,002	67,002	67,002	67,002	67,002	67,002	67,002	67,002	67,002	67,002
Project Case / Option 1A												
Total expenses (excl. depreciation)	64,279	67,002	67,002	67,002	67,002	67,002	67,002	69,183	69,412	69,658	70,012	70,012
Total revenues	0	0	0	0	0	0	0	0	0	0	0	0
Budget result (NCOS excl. dep'n)	64,279	67,002	67,002	67,002	67,002	67,002	67,002	69,183	69,412	69,658	70,012	70,012
Project Case / Option 2A												
Total expenses (excl. depreciation)	64,279	67,002	67,002	67,002	67,002	67,002	67,002	67,002	67,002	67,002	67,002	67,002
Total revenues	0	0	0	0	0	0	0	0	0	0	0	0
Budget result (NCOS excl. dep'n)	64,279	67,002	67,002	67,002	67,002	67,002	67,002	67,002	67,002	67,002	67,002	67,002
Project Case / Option 3A												
Total expenses (excl. depreciation)	64,279	67,002	67,002	67,002	67,002	67,002	67,002	69,183	69,412	69,658	70,012	70,012
Total revenues	0	0	0	0	0	0	0	0	0	0	0	0
Budget result (NCOS excl. dep'n)	64,279	67,002	67,002	67,002	67,002	67,002	67,002	69,183	69,412	69,658	70,012	70,012
Incremental impact (in current year dollars)												
Project Case / Option 1A												
Total expenses (excl. depreciation)	0	0	0	0	0	0	0	2,180	2,409	2,656	3,009	3,009
Total revenues	0	0	0	0	0	0	0	0	0	0	0	0
Budget result (NCOS excl. dep'n)	0	0	0	0	0	0	0	2,180	2,409	2,656	3,009	3,009
Project Case / Option 2A												
Total expenses (excl. depreciation)	0	0	0	0	0	0	0	0	0	0	0	0
Total revenues	0	0	0	0	0	0	0	0	0	0	0	0
Budget result (NCOS excl. dep'n)	0	0	0	0	0	0	0	0	0	0	0	0
Project Case / Option 3A												
Total expenses (excl. depreciation)	0	0	0	0	0	0	0	2,180	2,409	2,656	3,009	3,009
Total revenues	0	0	0	0	0	0	0	0	0	0	0	0
Budget result (NCOS excl. dep'n)	0	0	0	0	0	0	0	2,180	2,409	2,656	3,009	3,009

2 Introduction

The objective of the preliminary FIS is to assess the financial impact of the shortlisted options to:

- provide the high-level estimate of consolidated budget impact on NSWHP and NSWPF required to meet the projected level of activity and staffing requirement due to the capital investment;
- identify the high-level timetable for funding and commissioning of the new facility; and services
- explore potential efficiency that can be achieved via the Project;

3 Brief background and context

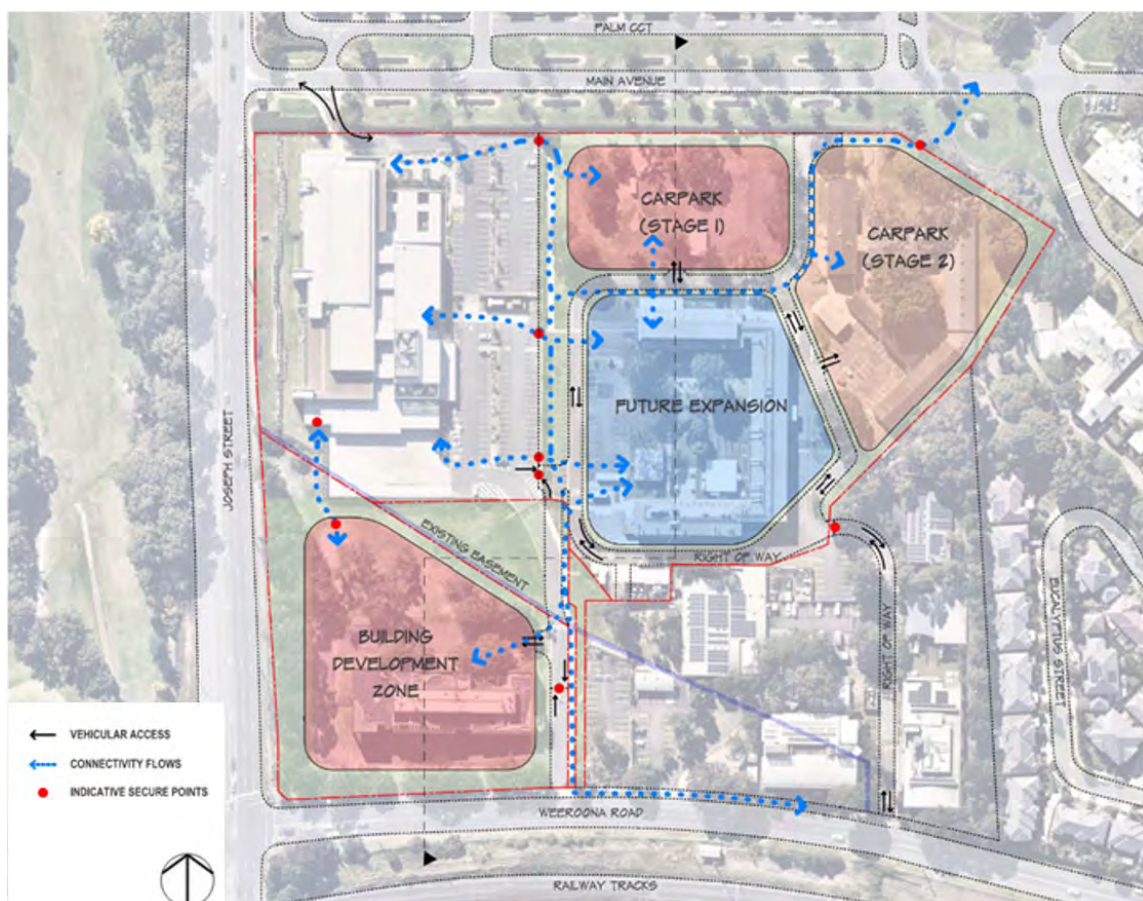
3.1. Background Statement

Context

A Forensic Services Precinct Master Plan³ was developed in 2015, following the development of the site for the Forensic Medicine & Coroner's Court Complex (FMCCC). The intent of the Forensics Services Precinct Master Plan was to ascertain if the site was appropriate for a new building for Forensic Services that would deliver a world class forensic service for NSW.

The master plan considered the existing facilities onsite that currently provide the Forensic & Analytical Science Service (FASS) service, the urban context, including civil works, existing site conditions, design challenges, opportunities for future potential partners and expansion zones. Stage 1 of the Forensic Service site resulted in the development of the FMCCC, which was opened in 2018 and is the largest coroner's court and forensic medicine facility in Australia.

Figure 1 - Location of the current and proposed project site in Lidcombe



³Health Infrastructure (2015) *Forensic Service Precinct Plan*

Between 2018 and 2021 NSWHP undertook several audits and developed several options and reports of the FASS buildings located at Lidcombe to address the ageing infrastructure to meet the FASS requirements in the short to medium term (10 years). Condition reports considered structural, engineering, as well as functional state, and noted the poor condition, age, and environmental risk to current buildings, services upgrades, structural elements and fire protection system upgrades for compliance. It was noted that there were a number of assets which were well past their intended economic service life and should be scheduled for immediate replacement or upgrade. It was found that any significant future refurbishment would need to consider a more holistic design strategy to provide a better future proof solution. The long term view, beyond 10 years, is that a new facility is required.

NSW Police branches proposed in scope for this project are currently scattered across multiple sites, including costly leased facilities in poor condition. Inefficiencies, integrity risks and costs arise from courier use and staff travel time between sites. Co-location of multiple sites onto one site would provide functional, streamlined, and co-located service delivery.

An integrated joint infrastructure development is proposed, to collocate NSWPF and NSWHP services with a purpose-built facility creating a Forensic Precinct at Lidcombe. This facility would provide FASS and Forensic Evidence and Technical Services (FETS) with the infrastructure and workspaces to support integration and collaboration of these specialist services and enable the delivery of forensic services under a more consultative and customer service focused model, with improved quality and timeliness.

In late 2021, there was a joint infrastructure committee meeting held between NSWHP and NSWPF, HI and Ministry of Health (MOH), where the next stage of the Lidcombe site redevelopment being an integrated Forensic Precinct bringing together the forensic specialities of NSWHP and NSWPF was agreed. The redevelopment also decided to explore some of the NSWHP specialist services for inclusion due to specialisation and synergies that could be gained being located together and centrally to the rest of NSW.

The Secretary of NSW Health approved the progression of planning discussions for a joint infrastructure proposal to develop a Forensic Precinct at NSWHP FASS Lidcombe site between NSWHP, NSWPF and Universities to support integration and collaboration of these unique, specialist services.

Case for Change - Project drivers for Lidcombe Forensic Precinct

The key drivers for the case for change are:

- current assets approaching end of life and present a risk to security and integrity of services;
- current inefficiencies due to dislocated services;
- projected service activity, demographics, and crime trends; and
- alignment with government and service strategic directions.

Forensic scientific services are provided to NSWPF to support the safety of the NSW population. In many cases, samples are collected by NSWPF and analysed by NSWHP to support crime investigations. While crime scene attendance was recently lower due to COVID, NSWPF activity is projected to increase across:

- Number of samples collected
- Number of jobs
- Amount of analysis and processing

3.2. Project Scope:

The project scope includes:

- NSWHP FASS including:

- Criminalistics - Chemical Criminalistics, Forensic Biology and DNA, and Illicit Drugs Analysis.
- Forensic Chemistry – Forensic Chemistry, Drugs and Driving Toxicology, and Drugs Toxicity
- Environmental Microbiology & Toxicology – provides environmental health testing in:
 - Water microbiology
 - Legionella Reference Laboratory
 - Clinical and Environmental Toxicology
 - Trace Inorganics
- Centre for Forensic Innovation and Research
- NSWHP Specialist Services including the consolidation of the following services from multiple sites across NSW:
 - Phenomics
 - Genomics
 - Anatomical Pathology
- NSWPF FETS including the consolidation of the following dislocated services across multiple sites in metropolitan Sydney:
 - Crime Scene Services Branch
 - Identification Services Branch

Once the Project is funded, the detailed planning phase will investigate how this scope will be delivered within the available budget to meet the project objectives.

3.3. Options

The following options were shortlisted and assessed against the Base Case following strategic planning. The options consider a new purpose-built facility of varying sizes. The estimated total cost (ETC) of the options range between \$441m and \$676m. The short-listed options are described in Table 5 and Table 6 summarise the existing sites and their current and future space.

Table 5 - Lidcombe Forensic Precinct – Base Case and Short-Listed Options

Infrastructure Option	Description*		
1 Base Case	Base Case (18,586 m2)	Keep safe and operational and minimising risk	
1A	Full Scope New Build (38,475m ²) ETC \$676m	NSWHP (FASS and Specialised Services) <ul style="list-style-type: none"> • Criminalistics • Forensic and environmental Toxicology • Phenomics • Genomics • Anatomical Pathology • Centre for (Forensic) Innovation and Research 	NSWPF (FETS) <ul style="list-style-type: none"> • Crime Scene Services Branch • Identification Service Branch
2A	NSWHP Full Scope Only New Build (23,209m ²) ETC \$441m	NSWHP (FASS and Specialised Services) <ul style="list-style-type: none"> • Criminalistics • Forensic and environmental toxicology • Phenomics • Genomics • Centre for (Forensic) Innovation and Research • Anatomical Pathology 	
3A	NSWHP Partial Scope and NSWPF Full Scope New Build (26,426m ²) ETC \$491m	NSWHP (FASS only) <ul style="list-style-type: none"> • Criminalistics • Forensic and Environmental Toxicology • Centre for (Forensic) Innovation and Research 	NSWPF (FETS) <ul style="list-style-type: none"> • Crime Scene Services Branch • Identification Service Branch

Source: Johnstaff - AO196_2.17_Lidcombe Forensic Precinct Short List Options

*All scheduled areas in the table include circulation. Includes T&E and contingency

Table 6 – Service Summary by option (GDA – m2)

Unit	Current	1 (Base Case)	1A	2A	3A
FASS	10,018	10,018	14,150	11,852	11,852
Special Services	1,500	1,500	7,115	8,639	1,500
FETS	7,068	7,068	7,746	-	11,856
Shared Areas	-	-	9,465	2,718	2,718
Car Parking Spaces	-	-	533	360	398
Total	18,586	18,586	38,475	23,209	26,426

Source: Genus Advisory 221103_Lidcombe_IDD_Cost_Plan_R1

Table 7: Project key milestones⁴

Key milestones	Forecast Date (1A)	Forecast Date (2A)	Forecast Date (3A)
Commence early and enabling works	Q3 2024	Q3 2024	Q3 2024
Contract documentation	Q1 2026	Q1 2026	Q1 2026
Commence main construction	Q4 2026	Q4 2026	Q4 2026
Complete construction	Q4 2028	Q2 2028	Q2 2028
Facility commissioning	Q1 2029	Q3 2028	Q3 2028

Source: Genus Advisory

Further work will be required in the next planning phase to identify, plan and monitor the implementation of strategies to realise the efficiency improvement under the Project.

⁴ Genus Advisory (2022) *LFP IDD Indicative Program_2023 (003)*. Further advice around milestone dates contained in email *RE_Lidcombe Forensic Precinct - Capital cost profile*⁹. Emailed by Matt Inch (Johnstaff Projects) 16 November 2022

4 Service demand and activity projection

NSWHP and NSWPF have provided the following historical activity data and preliminary demand projection supporting the IDD and Preliminary FIS.

Table 8: Historical demand activity projection

Dept.	Existing sites	Measurement Unit	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2027/28	2032/33	CAGR (2023-33)
Forensic & Analytical Science Service (FASS)													
NSWHP (Lidcombe)	FASS	Combined	127,264	132,439	147,033	156,687	168,658	168,524	241,780	315,036	444,836	674,872	7.9%
	Water Microbiology	Samples Registered	15,397	15,202	14,911	14,486	15,159	14,539	14,741	14,943	15,736	16,572	1.0%
	Legionella	Samples Registered	4,835	4,781	4,383	3,809	4,248	4,031	3,980	3,929	4,138	4,357	1.0%
	Trace Inorganic Laboratory	Samples Registered	3,641	2,825	3,008	2,891	3,723	2,954	2,968	2,982	3,140	3,307	1.0%
	Clinical & Environmental Toxicology Lab	Samples (Tested) Registered	903	657	862	789	658	853	856	858	988	1,137	2.8%
	Forensic Toxicology Laboratory	Samples Registered	5,302	5,561	4,159	4,669	4,626	4,714	4,765	4,816	5,072	5,341	1.0%
	Drugs & Driving Laboratory	Specimens Registered	30,696	29,069	28,546	26,874	29,077	32,638	30,225	27,811	29,446	31,177	1.1%
	Illicit Drug Analysis Unit	Exhibits Registered and Statements Requested	13,851	13,624	18,084	18,786	19,896	17,585	19,088	20,591	23,994	27,959	3.1%
	Chemical Criminalistics Unit	Exhibits Registered	1,053	1,069	1,027	1,213	1,229	1,308	1,351	1,394	1,757	2,216	4.7%
	Forensic Biology/DNA	Exhibits Registered and Statements Requested	51,586	59,651	72,053	83,170	90,042	89,902	114,777	139,652	257,299	474,057	13.0%
Innovation, research and prototyping	na	-	-	-	-	-	-	-	-	-	-	-	na
NSWHP	Drug Toxicology Unit (DTU) North Ryde	Tests Performed	111,620	108,150	103,913	95,062	75,773	68,153	83,106	98,059	103,265	108,748	1.0%
Special Services	Special Services	Combined	-	-	-	-	-	-	-	95,790	128,049	256,301	10.3%
	Anatomical pathology	Tests performed	-	-	-	-	-	-	-	38,977	43,321	64,886	5.2%
	Genomics	Tests performed	-	-	-	-	-	-	-	51,972	77,364	182,194	13.4%
	Phenomics	Tests performed	-	-	-	-	-	-	-	4,841	7,364	9,221	6.7%
FETS		Combined	506,933	512,480	529,522	520,792	496,519	510,988	522,358	533,727	612,584	753,270	3.5%
NSWPF	Pemulwuy Crime Scene Zone*	Scene attendance	357,303	354,754	354,223	339,753	306,416	289,179	277,712	266,244	240,663	226,557	-1.6%
	Sydney Crime Scene Zone (all crime scene)	FASS analysis jobs	30,367	38,547	51,050	61,439	57,325	69,082	72,932	76,782	123,659	199,153	10.0%
	Pharmacology Services Unit	Case work				199	190	251	271	290	440	590	7.4%
	Ballistics Investigation Section	Jobs	4,046	5,001	4,213	4,134	4,242	4,041	4,082	4,122	4,551	5,125	2.2%
	Fingerprint Operations	Analysis/ Processing	94,263	87,332	89,369	85,287	92,310	113,704	127,148	140,592	179,435	240,460	5.5%
	DNA Results Management Unit	Samples	20,028	25,995	29,865	29,149	35,283	33,952	39,422	44,892	62,881	80,254	6.0%
	Engineering Investigation Unit (Alexandria)	Jobs	926	851	802	831	753	779	792	805	955	1,131	3.5%

Source: NSW Health Pathology and NSW Police Force

4.1.1 NSW Health Pathology

NSWHP FASS provides expert scientific and clinical services to the NSW criminal and coronial justice system, Roads and Maritime Services, NSW Health, NSW Police, State Coroner, Corrective Services and others. FASS is the single provider of these services for NSW. FASS consists of two major branches – Criminalistics and Forensic & Environmental Toxicology. The majority of these services activity have been trending upwards, with some interruptions to activity as a result of the Covid-19 pandemic.

4.1.2 NSW Health Pathology – Specialised Services

Specialised Services that are proposed for the new LFP include:

- **Phenomics** - a new service that will establish a Development, Evaluation and Special Assay (DESA) hub,

- **Genomics** - This is a new service that will provide Statewide sequencing and prototyping. It will involve developing Transcriptomics, Methyl-omics, Proteomics and Functional assays to deliver an integrated Functional Genomics Hub. This will see the relocation of major components of the Statewide sequencing service closer to FASS which will allow for better integration of prototyping and research
- **Anatomical Pathology / Off hospital site Digital Processing** - NSWHP are seeking to establish an Anatomical processing site at Lidcombe to establish off hospital-site processing for non-urgent work. The digitally enabled offsite processing at Lidcombe provides additional lab capacity (for select services), where existing sites cannot sustain growth. The proposed co-location of future equipment and staff would support workforce capacity building, as well as support innovation, prototyping and research.

Current activity measures are not available for these services.

4.1.3 NSW Police Force

NSW Police Force, Forensic Evidence & Technical Service Command (FETS) provide field, laboratory and analysis services to the NSW Police Force (NSWPF). The services provided are largely interdependent, with officers from branches working together in field, sequencing exhibits between their sections and relying on the analysis results to inform their forensic investigations. This objective analysis is for NSW Justice systems to help solve crimes.

FETS is also focused on targeted research and innovative development opportunities in collaboration with other forensic and educational institutions. FETS consists of two major branches – Crime Scene Service Branches (CSSB) and Identification Service Branch (ISB).

The CSSB manages exhibits and evidence providing specialist services for field investigations. Scene of Crime Officers (SOCO's) Forensic Investigators investigate crime scenes, collecting and analysing physical evidence. They perform tests on materials, document their findings, and give evidence in court. Their specialist techniques and equipment include light sources, laser, chemicals and powders, scientific analysis, interpretation of evidence and presentation of evidence in court. The CSSB also provides background information to courts involving advice and logistical support to the NSW Police response to chemical, biological, radiological, nuclear, and explosive incidents, and disaster victim identification events.

The ISB consists of fingerprint operations, management of DNA results, investigation of ballistics, management of weapons and vehicle investigations. The branch undertakes identification of persons through biometrics, fingerprints, and DNA to assist in criminal, incident, and coronial investigations.. The ISB provides forensic intelligence to assist solving crime across boundaries, linking crime across different evidence types.

Projected activities

The projected activity was calculated taking into account the trend of current historical activity. The projected activity is that which is anticipated in the project case. The branches and services units contained with NSWHP and NSWPF are anticipated to hit peak capacity in 2024. The project is not anticipated to open and be operational until 2029. When this occurs their output in terms of activity is projected to increase sharply. Despite capacity constraints, demand for services of the FASS units are expected to continue over the next decade:

- **Forensic Toxicology** – There was a slight trend up and should be aligned with the Forensic Medicine trend in coronial case admissions. Drug surveillance work for MoH under the PRISE program is likely to grow.
- **Drugs & Driving Toxicology (DDT)** – The activity is trending up. Has not technically been capped in the Service level agreement (SLA) but works to police roadside testing targets combined with a % positive test rate. There is a move to define a new SLA, but no clarity yet on if that will mean an increase, therefore rely on the current activity trend. There is a year-on-year trend up in work related to drug-facilitated sexual assaults, which is relatively small but high complexity.
- **Drug Toxicology Unit (DTU)** – The activity decreased significantly during COVID due to the risk associated with oral fluid collections but has since increased in activity again. We need to apply data from pre-COVID. Several steps are being taken to become accredited to the International standard for Medical Testing (ISO 15189) to grow work in medical drug testing, where there are many opportunities to bring in revenue. The growth was estimated at 12% baselined to when the lab was doing more of this testing previously (based on a time pre-2013 calculation).
- **Clinical & Environmental Toxicology Laboratory (CET)** – Trending reasonably flat. Ministry block funded capped service. The current spike is due to additional project work on the Aboriginal community's water testing and an increase in e-cigarette and nicotine testing. This may subside but need capacity for new projects.
- **Trace Inorganic Laboratory (TIL)** – Trending reasonably flat. Ministry block funded capped service.
- **Water Microbiology (WM)** – Trending reasonably flat. Ministry block funded capped service. The service profile may shift but is relatively consistent between project and monitoring work.
- **Legionella (LRL)** – Block-funded service. Trending slightly down but need to factor in surge capacity for dealing with spikes in demand due to specific outbreaks.
- **Forensic Biology/DNA** – The activity is rapidly increasing based on the pre-COVID trend line. Some service streams have been capped (e.g. DNA sub-sample submission numbers). The historical activity is not capable of capturing the complexity of work like
 - significant increases in re-work,
 - additional types of testing on the sample,
 - upgrading of sample test kits,
 - additional ways of searching and
 - also, an increase in sensitivity and software improvements mean a higher proportion of successful profiles and links reported.

Significant new service streams have been added in recent years that are more complex and time intensive. There will be further demand for these, e.g. activity level reporting, implementation of new software, and genetic genealogy. There is a solid need to factor in surge capacity for dealing with spikes in demand due to specific police operations or priorities and additional funding allocations for work, e.g. cold cases, additional specialist police working on organised crime, historical sexual assault re-work, and upgrade of convicted offender profiles.
- **Chemical Criminalistics Unit (CCU)** – Trending up. Need to factor in surge capacity for dealing with spikes in demand due to specific police operations or priorities.
- **Illicit Drug Analysis Unit (IDAU)** – Trending slightly up but also need to factor in surge capacity for dealing with significant spikes in demand due to specific police operations, priorities and large importations. Trend line does not capture additional double testing with the increased proportion of purity testing (second type of test) required recently or the increased presentation of drugs in complex matrices like food products where challenging extractions are required. Maybe some legislative change is coming but not confirmed yet. Drug surveillance work for MoH under the CoSMoSS program will continue to grow, as will drug profiling and intelligence work.

Assumptions for demands for special services unit activity:

- **Anatomical pathology** – The establishment of a new laboratory centre with digitally enabled reporting, to process activity that is already being transferred from smaller and regional sites. This will include specimens as well as blocks, so the Lab will be providing ‘cut up’, processing and morphology /digitally enabled reporting. This represents a full AP lab set up, with grossing stations, tissue processing, microtomy and staining (and associated infrastructure / ventilation / chemical storage requirements) as well as the need for whole slide scanning to enable remote pathology reporting of slides. These projections are informed by the expected demand for pathology services across the NSW hospital network.⁵
- **Genomics** – A diagnostic Genomics Facility with DNA/RNA sequencing, data analytics and reporting for specialised genomic services in rare diseases, cancer genomics and pathogen genomics with appropriate clinical and scientific supervision and staffing. These projections are informed by the expected demand for pathology services across the NSW hospital network.⁶
- **Phenomics** – Phenomics activity projections have been provided by NSWHP and are based on the number of anticipated tests to be performed⁷.
- **Innovation research and prototyping** - The Forensic Precinct on the Lidcombe campus will support innovation, research and prototyping through partnerships with Universities, NSW Police Force, and other agencies, to provide world class leadership in Forensic Services. Activity projections for this unit have not be quantified due to the difficulty in forecasting a measurement type applicable to this unit.

Assumptions for demand for FETS unit activity:

- **Crime Scene Services Branch** – The number of crime scenes attended has been dropping over the past five years. This decreased even further in 2019/20 and 2020/21 with the Covid-19 pandemic. Physical crime scene attendance by police is projected to decrease over the period in line with current trends, whilst crime scene analysis jobs (representing samples tested) is projected to increase significantly.
- **Pharmacology Services Unit** – The number of cases taken on by this service⁸ has been increasing and is expected to continue to rise.
- **Ballistics Investigation Section** – The number of jobs taken on by this service has been stationary over the past few years, However, jobs have increased, especially in the examination area.
- **Fingerprint Operations** – Strong increase in analysis and processing of this service with analysis and processing continuing to increase, especially in Ten Print area.
- **DNA Results Management Unit** – Despite a drop-off during the Covid-19 pandemic, the number of samples reviewed by this unit has been sharply rising and is expected to continue to increase.
- **Engineering Investigation Unit** - The number of jobs taken on by this unit has slowed during the Covid-19 pandemic though has since become more active and is projected to increase in activity.

⁵ Growth projection for pathology services where adapted from research undertaken for the Westmead Pathology Services Redevelopment. (220725 - Westmead Pathology Services Prelim FIS Draft – p14 and associated modelling).

⁶ *ibid.*

⁷ Email “RE: Operational cost for Anatomical pathology and phenomics for Special services” 1 November 2022

⁸ Statistics only kept from 2018 onwards

Tables 9-12 show the adjusted activity projections across the various options. These projections are different from the projections of demand (presented in Table 8) as they take into account a baseline “pause” in activity when the current sites reach capacity in 2023/24.

Table 9: Activity projections (Base case 1)

Dept.	Existing sites	Measurement unit	2022/23	2023/24	2028/29	2029/30	2030/31	2031/32	2032/33	CAGR (10yr)
Forensic & Analytical Science Service (FASS)										
NSWHP (Lidcombe)	FASS	Combined	315,036	335,537	335,537	335,537	335,537	335,537	335,537	0.6%
	Water Microbiology	Samples Registered	14,943	15,098	15,098	15,098	15,098	15,098	15,098	0.1%
	Legionella	Samples Registered	3,929	3,970	3,970	3,970	3,970	3,970	3,970	0.1%
	Trace Inorganic Laboratory	Samples Registered	2,982	3,013	3,013	3,013	3,013	3,013	3,013	0.1%
	Clinical & Environmental Toxicology Lab	Samples (Tested) Registered	858	883	883	883	883	883	883	0.3%
	Forensic Toxicology Laboratory	Samples Registered	4,816	4,866	4,866	4,866	4,866	4,866	4,866	0.1%
	Drugs & Driving Laboratory	Specimens Registered	27,811	28,131	28,131	28,131	28,131	28,131	28,131	0.1%
	Illicit Drug Analysis Unit	Exhibits Registered & Statements Requested	20,591	21,231	21,231	21,231	21,231	21,231	21,231	0.3%
	Chemical Criminalistics Unit	Exhibits Registered	1,394	1,460	1,460	1,460	1,460	1,460	1,460	0.5%
	Forensic Biology/DNA	Exhibits Registered & Statements Requested	139,652	157,806	157,806	157,806	157,806	157,806	157,806	1.2%
NSWHP	Innovation, research and prototyping	na	-	-	-	-	-	-	-	na
	Drug Toxicology Unit (North Ryde)	Tests performed	98,059	99,079	99,079	99,079	99,079	99,079	99,079	0.1%
Special Services	Special Services	Combined	95,790	108,435	108,435	108,435	108,435	108,435	108,435	1.2%
	Anatomical pathology	Tests performed	38,977	39,916	39,916	39,916	39,916	39,916	39,916	0.2%
	Genomics	Tests performed	51,972	62,907	62,907	62,907	62,907	62,907	62,907	1.9%
	Phenomics	Tests performed	4,841	5,612	5,612	5,612	5,612	5,612	5,612	1.5%
FETS		Combined	533,727	547,739	547,739	547,739	547,739	547,739	547,739	0.3%
NSWPF	Pemulwuy Crime Scene Zone*	Scene attendance	266,244	260,919	260,919	260,919	260,919	260,919	260,919	-0.2%
	Sydney Crime Scene Zone	FASS analysis jobs	76,782	84,460	84,460	84,460	84,460	84,460	84,460	1.0%
	Pharmacology Services Unit	Case work	290	320	320	320	320	320	320	1.0%
	Ballistics Investigation Section	Jobs	4,122	4,204	4,204	4,204	4,204	4,204	4,204	0.2%
	Fingerprint Operations	Anaylsis/ Processing	140,592	147,622	147,622	147,622	147,622	147,622	147,622	0.5%
	DNA Results Management Unit	Samples	44,892	49,381	49,381	49,381	49,381	49,381	49,381	1.0%
	Engineering Investigation Unit (Alexandria)	Jobs	805	833	833	833	833	833	833	0.3%

*includes officers based in Burwood, Campbelltown, Chatswood and Penrith

Table 10: Activity projections (Project case 1A)

Dept.	Existing sites	Measurement unit	2022/23	2023/24	2028/29	2029/30	2030/31	2031/32	2032/33	CAGR (10yr)
Forensic & Analytical Science Service (FASS)										
NSWHP (Lidcombe)	FASS	Combined	315,036	335,537	335,537	521,251	566,616	617,582	674,872	7.9%
	Water Microbiology	Samples Registered	14,943	15,098	15,098	16,065	16,232	16,401	16,572	1.0%
	Legionella	Samples Registered	3,929	3,970	3,970	4,224	4,268	4,313	4,357	1.0%
	Trace Inorganic Laboratory	Samples Registered	2,982	3,013	3,013	3,206	3,239	3,273	3,307	1.0%
	Clinical & Environmental Toxicology Lab	Samples (Tested) Registered	858	883	883	1,045	1,075	1,105	1,137	2.8%
	Forensic Toxicology Laboratory	Samples Registered	4,816	4,866	4,866	5,178	5,232	5,286	5,341	1.0%
	Drugs & Driving Laboratory	Specimens Registered	27,811	28,131	28,131	30,127	30,473	30,823	31,177	1.1%
	Illicit Drug Analysis Unit	Exhibits Registered & Statements Requested	20,591	21,231	21,231	25,508	26,300	27,117	27,959	3.1%
	Chemical Criminalistics Unit	Exhibits Registered	1,394	1,460	1,460	1,928	2,020	2,115	2,216	4.7%
	Forensic Biology/DNA	Exhibits Registered & Statements Requested	139,652	157,806	157,806	328,546	371,256	419,520	474,057	13.0%
NSWHP	Innovation, research and prototyping	na	-	-	-	-	-	-	-	na
	Drug Toxicology Unit (North Ryde)	Tests performed	98,059	99,079	99,079	105,424	106,521	107,628	108,748	1.0%
Special Services	Special Services	Combined	95,790	108,435	108,435	202,312	219,512	237,290	256,301	10.3%
	Anatomical pathology	Tests performed	38,977	39,916	39,916	57,731	60,649	62,751	64,886	5.2%
	Genomics	Tests performed	51,972	62,907	62,907	136,341	150,185	165,423	182,194	13.4%
	Phenomics	Tests performed	4,841	5,612	5,612	8,240	8,678	9,116	9,221	6.7%
FETS		Combined	533,727	547,739	547,739	656,624	682,770	722,014	753,270	3.5%
NSWPF	Pemulwuy Crime Scene Zone*	Scene attendance	266,244	260,919	260,919	233,492	231,157	228,845	226,557	-1.6%
	Sydney Crime Scene Zone	FASS analysis jobs	76,782	84,460	84,460	149,627	164,589	181,048	199,153	10.0%
	Pharmacology Services Unit	Case work	290	320	320	500	530	560	590	7.4%
	Ballistics Investigation Section	Jobs	4,122	4,204	4,204	4,829	4,926	5,024	5,125	2.2%
	Fingerprint Operations	Analysis/ Processing	140,592	147,622	147,622	197,827	207,718	229,010	240,460	5.5%
	DNA Results Management Unit	Samples	44,892	49,381	49,381	69,327	72,793	76,433	80,254	6.0%
	Engineering Investigation Unit (Alexandria)	Jobs	805	833	833	1,022	1,057	1,094	1,131	3.5%

*includes officers based in Burwood, Campbelltown, Chatswood and Penrith

Table 11: Activity projections (Project case 2A)

Dept.	Existing sites	Measurement unit	2022/23	2023/24	2028/29	2029/30	2030/31	2031/32	2032/33	CAGR (10yr)
Forensic & Analytical Science Service (FASS)										
NSWHP (Lidcombe)	FASS	Combined	315,036	335,537	335,537	521,251	566,616	617,582	674,872	7.9%
	Water Microbiology	Samples Registered	14,943	15,098	15,098	16,065	16,232	16,401	16,572	1.0%
	Legionella	Samples Registered	3,929	3,970	3,970	4,224	4,268	4,313	4,357	1.0%
	Trace Inorganic Laboratory	Samples Registered	2,982	3,013	3,013	3,206	3,239	3,273	3,307	1.0%
	Clinical & Environmental Toxicology Lab	Samples (Tested) Registered	858	883	883	1,045	1,075	1,105	1,137	2.8%
	Forensic Toxicology Laboratory	Samples Registered	4,816	4,866	4,866	5,178	5,232	5,286	5,341	1.0%
	Drugs & Driving Laboratory	Specimens Registered	27,811	28,131	28,131	30,127	30,473	30,823	31,177	1.1%
	Illicit Drug Analysis Unit	Exhibits Registered & Statements Requested	20,591	21,231	21,231	25,508	26,300	27,117	27,959	3.1%
	Chemical Criminalistics Unit	Exhibits Registered	1,394	1,460	1,460	1,928	2,020	2,115	2,216	4.7%
	Forensic Biology/DNA	Exhibits Registered & Statements Requested	139,652	157,806	157,806	328,546	371,256	419,520	474,057	13.0%
	Innovation, research and prototyping	na	-	-	-	-	-	-	-	na
NSWHP	Drug Toxicology Unit (North Ryde)	Tests performed	98,059	99,079	99,079	105,424	106,521	107,628	108,748	1.0%
Special Services	Special Services	Combined	95,790	108,435	108,435	202,312	219,512	237,290	256,301	10.3%
	Anatomical pathology	Tests performed	38,977	39,916	39,916	57,731	60,649	62,751	64,886	5.2%
	Genomics	Tests performed	51,972	62,907	62,907	136,341	150,185	165,423	182,194	13.4%
	Phenomics	Tests performed	4,841	5,612	5,612	8,240	8,678	9,116	9,221	6.7%
FETS		Combined	533,727	547,739	547,739	547,739	547,739	547,739	547,739	0.3%
NSWPF	Pemulwuy Crime Scene Zone*	Scene attendance	266,244	260,919	260,919	260,919	260,919	260,919	260,919	-0.2%
	Sydney Crime Scene Zone	FASS analysis jobs	76,782	84,460	84,460	84,460	84,460	84,460	84,460	1.0%
	Pharmacology Services Unit	Case work	290	320	320	320	320	320	320	1.0%
	Ballistics Investigation Section	Jobs	4,122	4,204	4,204	4,204	4,204	4,204	4,204	0.2%
	Fingerprint Operations	Analysis/ Processing	140,592	147,622	147,622	147,622	147,622	147,622	147,622	0.5%
	DNA Results Management Unit	Samples	44,892	49,381	49,381	49,381	49,381	49,381	49,381	1.0%
	Engineering Investigation Unit (Alexandria)	Jobs	805	833	833	833	833	833	833	0.3%

*includes officers based in Burwood, Campbelltown, Chatswood and Penrith

Table 12: Activity projections (Project case 3A)

Dept.	Existing sites	Measurement unit	2022/23	2023/24	2028/29	2029/30	2030/31	2031/32	2032/33	CAGR (10yr)
Forensic & Analytical Science Service (FASS)										
NSWHP (Lidcombe)	FASS	Combined	315,036	335,537	335,537	521,251	566,616	617,582	674,872	7.9%
	Water Microbiology	Samples Registered	14,943	15,098	15,098	16,065	16,232	16,401	16,572	1.0%
	Legionella	Samples Registered	3,929	3,970	3,970	4,224	4,268	4,313	4,357	1.0%
	Trace Inorganic Laboratory	Samples Registered	2,982	3,013	3,013	3,206	3,239	3,273	3,307	1.0%
	Clinical & Environmental Toxicology Lab	Samples (Tested) Registered	858	883	883	1,045	1,075	1,105	1,137	2.8%
	Forensic Toxicology Laboratory	Samples Registered	4,816	4,866	4,866	5,178	5,232	5,286	5,341	1.0%
	Drugs & Driving Laboratory	Specimens Registered	27,811	28,131	28,131	30,127	30,473	30,823	31,177	1.1%
	Illicit Drug Analysis Unit	Exhibits Registered & Statements Requested	20,591	21,231	21,231	25,508	26,300	27,117	27,959	3.1%
	Chemical Criminalistics Unit	Exhibits Registered	1,394	1,460	1,460	1,928	2,020	2,115	2,216	4.7%
	Forensic Biology/DNA	Exhibits Registered & Statements Requested	139,652	157,806	157,806	328,546	371,256	419,520	474,057	13.0%
NSWHP	Innovation, research and prototyping	na	-	-	-	-	-	-	-	na
	Drug Toxicology Unit (North Ryde)	Tests performed	98,059	99,079	99,079	105,424	106,521	107,628	108,748	1.0%
Special Services	Special Services	Combined	95,790	108,435	108,435	108,435	108,435	108,435	108,435	1.2%
	Anatomical pathology	Tests performed	38,977	39,916	39,916	39,916	39,916	39,916	39,916	0.2%
	Genomics	Tests performed	51,972	62,907	62,907	62,907	62,907	62,907	62,907	1.9%
	Phenomics	Tests performed	4,841	5,612	5,612	5,612	5,612	5,612	5,612	1.5%
FETS		Combined	533,727	547,739	547,739	656,624	682,770	722,014	753,270	3.5%
NSWPF	Pemulwuy Crime Scene Zone*	Scene attendance	266,244	260,919	260,919	233,492	231,157	228,845	226,557	-1.6%
	Sydney Crime Scene Zone	FASS analysis jobs	76,782	84,460	84,460	149,627	164,589	181,048	199,153	10.0%
	Pharmacology Services Unit	Case work	290	320	320	500	530	560	590	7.4%
	Ballistics Investigation Section	Jobs	4,122	4,204	4,204	4,829	4,926	5,024	5,125	2.2%
	Fingerprint Operations	Analysis/ Processing	140,592	147,622	147,622	197,827	207,718	229,010	240,460	5.5%
	DNA Results Management Unit	Samples	44,892	49,381	49,381	69,327	72,793	76,433	80,254	6.0%
	Engineering Investigation Unit (Alexandria)	Jobs	805	833	833	1,022	1,057	1,094	1,131	3.5%

*includes officers based in Burwood, Campbelltown, Chatswood and Penrith

5 Preliminary workforce implications

Current and projected workforce

The centralisation of these services would amount to relocation of staff from distant work locations into one, streamlining and improving their efficiency and effectiveness. NSWHP and NSWPF have developed current (2022/23) and provided preliminary staffing projections (to 2032/33). There are currently 291 FTE across the FASS based facilities, 120 FTE across the Special Services and 451 FTE across the FETS based facilities considered for co-location within the project.

Based on the growing demand for forensic and pathology services, FASS, Special Services and FETS workforce will increase in future years. The projected FTE is based on NSWHP and NSWPF anticipated staffing needs to process the additional activity detailed in section 4. When the branches and services units contained with NSWHP and NSWPF hit peak capacity in 2024, the number of FTE's is anticipated to cease growth due to the capacity constraints of the existing facilities. When the project becomes operational in 2029 the projected number of FTE's is projected to rise in line with the increase in activity of the units.

Table 13 shows the workforce Full Time Equivalent (FTE) projections across the various options.

Table 13: Full Time Equivalent (FTE) positions and workforce costs by short-listed options

Base Case

FTE	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
FASS	291	307	307	307	307	307	307	307	307	307	307
Special Services	120	127	127	127	127	127	127	127	127	127	127
FETS	451	471	471	471	471	471	471	471	471	471	471
Total	862	905	905	905	905	905	905	905	905	905	905
Cumulative FTE		43	43	43	43	43	43	43	43	43	43
Workforce cost (\$m)	90	94	94	94	94	94	94	94	94	94	94
% change (FTE)		5.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
% change (\$m)		4.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Option 1A

FTE	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
FASS	291	307	307	307	307	307	307	415	435	454	470
Special Services	120	127	127	127	127	127	127	167	174	182	189
FETS	451	471	471	471	471	471	471	510	510	511	513
Total	862	905	905	905	905	905	905	1,092	1,119	1,146	1,172
Cumulative FTE		43	43	43	43	43	43	230	257	284	310
Workforce cost (\$m)	90	94	94	94	94	94	94	113	116	119	122
% change (FTE)		5.0%	0.0%	0.0%	0.0%	0.0%	0.0%	20.7%	2.5%	2.5%	2.2%
% change (\$m)		4.9%	0.0%	0.0%	0.0%	0.0%	0.0%	20.5%	2.5%	2.4%	2.2%

Option 2A

FTE	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
FASS	291	307	307	307	307	307	307	415	435	454	470
Special Services	120	127	127	127	127	127	127	167	174	182	189
FETS	451	471	471	471	471	471	471	471	471	471	471
Total	862	905	905	905	905	905	905	1,053	1,080	1,106	1,130
Cumulative FTE		43	43	43	43	43	43	191	218	244	268
Workforce cost (\$m)	90	94	94	94	94	94	94	109	112	115	117
% change (FTE)		5.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.4%	2.6%	2.5%	2.1%
% change (\$m)		4.9%	0.0%	0.0%	0.0%	0.0%	0.0%	16.1%	2.5%	2.4%	2.1%

Option 3A

FTE	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
FASS	291	307	307	307	307	307	307	415	435	454	470
Special Services	120	127	127	127	127	127	127	127	127	127	127
FETS	451	471	471	471	471	471	471	510	510	511	513
Total	862	905	905	905	905	905	905	1,052	1,072	1,092	1,110
Cumulative FTE		43	43	43	43	43	43	190	210	230	248
Workforce cost (\$m)	90	94	94	94	94	94	94	109	111	113	115
% change (FTE)		5.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.3%	1.9%	1.9%	1.7%
% change (\$m)		4.9%	0.0%	0.0%	0.0%	0.0%	0.0%	16.2%	1.9%	1.9%	1.6%

6 Efficiency and Benchmarking

Investment in the Project is anticipated to provide FASS, Specialised Services and FETS with the infrastructure and workspaces to undertake joint forensic and analytical examinations. A design centred on the principles of integration and collaboration, will enable delivery of forensic services under a more consultative and customer service focused model and will improve the quality and timeliness of forensic examinations. The project will result in the relocation of potentially up to 600 staff from multiple separate work locations (subject to which option is selected) into one, streamlining and improving their efficiency and effectiveness.

The Project will provide NSWPF with a world class forensic service and facility that will influence and aid investigations ranging from volume crime to organised crime to terrorism offences. The site aims to provide a facility which would:

- Enable collaborative and innovative service delivery between NSW Health, NSW Police, and Education Providers
- Build positive work environments that bring out the best in everyone
- Attract and retain skilled people
- Support NSW Health's commitment to an environmentally sustainable footprint for future healthcare
- Enable translational research where discoveries move rapidly from the lab to the community
- Actively cultivate curiosity, creativity and collaboration with increased pride in being one team
- Utilise technology and forensic science capabilities to full effect (e.g. DNA and fingerprint capture)
- Future-proof laboratory spaces for future innovation and change

This proposal has the added advantage of being located next to the FMCCC, enabling the full scope of benefits that a Forensic Precinct could bring to NSW.

The Forensic Medicine and Coroners Court Complex (FMCCC) currently provides services to NSW:

- Forensic Medicine services (autopsies and deceased identification)
- Coronial Investigations services
- Mass body storage
- Disaster victim identification (Ante mortem, post-mortem and reconciliation functions)

7 Capital Cost and Funding

7.1 Capital expenditure

The preliminary capital costs of the shortlisted options were developed by Genus Advisory and are summarised in Tables 14-16.

The estimated total cost for option 1A is \$676m which will create a total GDA of 38,475m² with 533 car spaces. The estimated total cost for option 2A is \$441m which will create a total GDA of 23,209m² with 360 car spaces. The estimated total cost for option 3A is \$491m which will create a total GDA of 26,426m² with 398 car spaces.

Table 14: Preliminary Capital Cost Summary (\$'000 Option 1A)

Capital costs items	Total	Prior planning expenditure	Current year	Projections					
		to date	(budget)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		(actual)	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Land	-	-	-	-	-	-	-	-	-
Demolition costs	17,390	-	-	-	-	17,390	-	-	-
Building costs	303,625	-	-	-	-	-	44,981	247,628	11,016
Professional fees ¹	78,649	-	250	4,500	17,430	20,430	18,204	17,386	450
FF&E and ICT	65,559	-	-	-	-	-	-	32,780	32,780
MME	23,258	-	-	-	-	-	-	11,629	11,629
Health Infrastructure Management Fee	11,367	-	-	2,165	2,165	2,165	2,165	2,165	541
Escalation	96,195	-	-	-	-	-	14,251	78,454	3,490
Contingencies	80,254	-	-	-	-	-	-	60,190	20,063
Total	676,297	-	250	6,665	19,595	39,985	79,602	450,232	79,969
NSWHP Capital Cost	495,717	-	183	4,885	14,363	29,308	58,347	330,014	58,616
NSWPF Capital Cost	180,581	-	67	1,780	5,232	10,677	21,255	120,218	21,353

Source: Genus Advisory: 221107_Lidcombe_IDD_Cash_Flow

The capital cash flow is based on the information known to date and differs from the Capital Investment Strategic Plan (CISP) cash flow for this Project. The CISP allocation for a project represents a reservation on the forward capital program at a point in time prior to detailed planning having been undertaken.

7.2 Capital funding source

This will be completed after selection of the preferred option.

7.3 Capital maintenance expenses

Life cycle capital maintenance costs (LCCM) is an average annualised over the asset life assumed at 1% of the ETC construction cost and is detailed in Table 15 below.

This assumption is a notional estimate for cyclical maintenance of buildings and equipment, based on the cost ranges in four Health PPP Projects. This will be in addition to recurrent maintenance cost. It is proposed funding allocation will be made from NSW Health capital budget allocation post project completion.

Table 15: Maintenance capital (\$'000)

Lifecycle capital maintenance	Total	Prior planning exp. date (actual)	Current year (budget) 2022/23	Projections										
				Year 1 2023/24	Year 2 2024/25	Year 3 2025/26	Year 4 2026/27	Year 5 2027/28	Year 6 2028/29	Year 7 2029/30	Year 8 2030/31	Year 9 2031/32	Year 10 2032/33	
Option 1A	27,052										6,763	6,763	6,763	6,763
Option 2A	17,649										4,412	4,412	4,412	4,412
Option 3A	19,644										4,911	4,911	4,911	4,911

8 Recurrent costs and budget forecast

This section summarises the preliminary recurrent cost implications of the Project based on a high-level input based (bottom-up) approach of the following cost categories

- Employee related costs (direct salaries and wages, including labour-on costs)
- Goods & services (G&S) including:
 - Supplies related to operations
 - Facility Management Costs
 - Leasing costs
 - Recurrent repairs, maintenance and replacement costs
 - Other goods and services
 - Depreciation

The projected activity growth assumptions are the driver of goods and services costs. The proposal involves discontinuing leasing of current facilities, share of outgoings, and facility management costs.

Modelling assumptions

- All dollar figures are provided in current budget year 2022/23 values (i.e. real dollars / excluding inflation) unless specified otherwise.
- The employee related costs (ERC) across the various options are based on the FTE workforce projections provided by NSWHP, FETS, and those modelled for Specialised Services using growth projections for pathology services which were adapted from research undertaken for the Westmead Pathology Services Redevelopment⁵. The ERC includes high-level labour on costs of 20%.
- Expenses related to supplies for operations has been increased by a factor that is equal to the assumed level of increase in projected activity for NSWHP and NSWPF. For Specialised Services these expenses were based on previous modelling for a similar Health Pathology project⁵ using the proportion of FTEs to ratio costs.
- Leasing costs for NSWHP are limited to \$165,000 per annum for use of the Drug Toxicology Unit premises located in North Ryde. In the base case this cost is assumed to continue through to 2033. In each of the options this cost is nullified upon opening of the project in 2029. Nil lease costs have been assumed for Specialised Services in the base case and project case. Lease costs for NSWPF are assumed to be \$2.6 million per annum. The lease for the Pemulwuy facility is understood to cost \$967,000 per annum. In the base case this cost is assumed to continue through to 2033. In each of the options this cost ceases in 2029.
- Recurrent repairs, maintenance and replacement costs have assumed that on average there is an 8% increase in these costs for NSWHP. These increase only occur in the options in 2029, when services begin operations within the project. For Special Services these expenses were based on previous modelling for a similar health pathology project⁵ using the proportion of FTEs to ratio costs. For NSWPF recurrent repairs, maintenance and replacement costs have been based on historical figures. Additional costs for car parking have been added into this

category for each option based on the number of parking spaces from 2029 assuming a fixed cost of \$300 per space based on previous car park research by HI.

- Facility Management Costs for NSW HP are projected to increase in line with historical movements in cleaning and domestic service costs (10%), energy and utilities costs (7%) and internal waste management (7%). For Specialised Services these expenses were based on previous modelling for a similar Health Pathology project⁵ using the proportion of FTEs to ratio costs. For NSWPF these amounts have been estimated based on NSWHP projections using the GDA ratio proportion of area. The facility management cost per square metre across each options is detailed in Table 16 below.

Table 16 Estimated Facility Management costs per square metre

FM COST	Current	2029		
		Option 1A	Option 2A	Option 3A
Cleaning & Domestic Services	274	2,269	1,526	2,710
Energy and Utilities	1,042	3,015	2,140	3,571
Internal Waste Management	233	247	289	291
Total	1,549	5,326	4,112	6,589
GDA	18,586	38,475	23,209	26,426
FM cost per m2	83	138	177	249

- Other goods and services costs are assumed to grow by 6% per year following historical costs for NSWHP. For Specialised Services these expenses were based on previous modelling for a similar Health Pathology project⁵ using the proportion of FTEs to ratio costs. For NSWPF these costs have been estimated using other goods cost proportion of total expenditure from the NSWPF 2021 annual report.
- For NSWHP, depreciation costs have been calculated as decreasing 3% from 2023/24. There is a rise in 2023/24 based on capital spend on DNA robotics capital. For Special Services these expenses were based on previous modelling for a similar Health Pathology project⁵ using the proportion of FTEs to ratio costs. For NSWPF, depreciation costs have been estimated using a proportion of total expenditure equivalent to that reported in the NSWPF 2021 annual report.
- Revenue projections have been provided by NSWHP based on current fee collection for services. For Specialised Services these expenses were based on previous modelling for a similar Health Pathology project⁵ using the proportion of FTEs to ratio revenues. No revenue collection is anticipated for NSW Police FETS units.

The Base Case costs include the outgoings (including recurrent maintenance costs) and facility management (FM) costs of the existing NSWHP facilities at Lidcombe and North Ryde as well as NSWPF facility costs across their various site located in Sydney CBD, Alexandria, Pemulwuy, Burwood, Campbelltown, Chatswood and Penrith.

Depreciation values have been projected by NSWHP based on historical values. NSW Police were unable to provide a depreciation value so this has been estimated based on proportional expenditures values taken from the NSW Police 2021 Annual Report financial tables.

The total current and projected recurrent costs related to the project provided by NSWPF and NSWHP are detailed in table 17 below. Tables 18 & 19 detail current and projected recurrent costs by each agency.

Table 17: Net cost of service impacts – Base Case and Option 1A (\$'000) combined, all agencies

Category	Previous year (actual) 2021/22	Current year (budget) 2022/23	Projections									
			Year 1 2023/24	Year 2 2024/25	Year 3 2025/26	Year 4 2026/27	Year 5 2027/28	Year 6 2028/29	Year 7 2029/30	Year 8 2030/31	Year 9 2031/32	Year 10 2032/33
Current Cost / Funding of Existing Facilities (Base Case)												
Total labour-related costs	107,518	107,518	112,840	112,840	112,840	112,840	112,840	112,840	112,840	112,840	112,840	112,840
Goods and Services												
Supplies required for operations	13,650	13,585	15,388	15,388	15,388	15,388	15,388	15,388	15,388	15,388	15,388	15,388
Facility Management Costs	1,615	1,549	1,723	1,723	1,723	1,723	1,723	1,723	1,723	1,723	1,723	1,723
Other (inc. ICT, supplies)	6,305	5,864	6,720	6,720	6,720	6,720	6,720	6,720	6,720	6,720	6,720	6,720
Lease costs	2,588	2,700	2,801	2,801	2,801	2,801	2,801	2,801	2,801	2,801	2,801	2,801
Repairs, maintenance & replacements	3,538	3,230	3,813	3,813	3,813	3,813	3,813	3,813	3,813	3,813	3,813	3,813
Depreciation	6,320	6,289	6,728	6,728	6,728	6,728	6,728	6,728	6,728	6,728	6,728	6,728
Total Good and Services costs	34,016	33,217	37,174	37,174	37,174	37,174	37,174	37,174	37,174	37,174	37,174	37,174
Total expenses	141,534	140,735	150,014	150,014	150,014	150,014	150,014	150,014	150,014	150,014	150,014	150,014
Total revenues	24,599	25,693	27,191	27,191	27,191	27,191	27,191	27,191	27,191	27,191	27,191	27,191
NCOS incl. depreciation	116,936	115,042	122,823	122,823	122,823	122,823	122,823	122,823	122,823	122,823	122,823	122,823
NCOS excl. depreciation	110,616	108,753	116,095	116,095	116,095	116,095	116,095	116,095	116,095	116,095	116,095	116,095
Recurrent Cost/ Estimated Operating Cost of New Proposal (Project Case / Preferred Option 1A)												
Total labour-related costs	107,518	107,518	112,840	112,840	112,840	112,840	112,840	112,840	135,975	139,312	142,703	145,848
Goods and Services												
Supplies required for operations	13,650	13,585	15,388	15,388	15,388	15,388	15,388	15,388	22,383	24,369	26,344	28,618
Facility Management Costs	1,615	1,549	1,723	1,723	1,723	1,723	1,723	1,723	5,168	5,530	5,922	6,345
Other (inc. ICT, supplies)	6,305	5,864	6,720	6,720	6,720	6,720	6,720	6,720	8,766	9,232	9,714	10,246
Lease costs	2,588	2,700	2,801	2,801	2,801	2,801	2,801	2,801	-	-	-	-
Repairs, maintenance & replacements	3,538	3,230	3,813	3,813	3,813	3,813	3,813	3,813	7,456	7,855	8,286	8,753
Depreciation	6,320	6,289	6,728	6,728	6,728	6,728	6,728	6,728	13,730	13,719	13,716	13,720
Total Good and Services costs	34,016	33,217	37,174	37,174	37,174	37,174	37,174	37,174	57,504	60,706	63,982	67,682
Projected total expenses	141,534	140,735	150,014	150,014	150,014	150,014	150,014	150,014	193,479	200,017	206,685	213,530
Projected total revenue	24,599	25,693	27,191	27,191	27,191	27,191	27,191	27,191	44,397	48,716	53,361	58,216
NCOS incl. depreciation	116,935	115,042	122,823	122,823	122,823	122,823	122,823	122,823	149,082	151,301	153,324	155,314
NCOS excl. depreciation	110,616	108,753	116,095	116,095	116,095	116,095	116,095	116,095	135,352	137,582	139,608	141,593

Table 18: Net cost of service impacts – Base Case and Option 1A (\$'000) NSWHP (FASS & Special Services combined)

Category Baseline activity for base case: 2023/24	Previous year (actual) 2021/22	Current year (budget) 2022/23	Projections										
			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	
			2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	
Current Cost / Funding of Existing Facilities (Base Case)													
Total labour-related costs	50,528	50,528	53,322	53,322	53,322	53,322	53,322	53,322	53,322	53,322	53,322	53,322	
Goods and Services													
Supplies required for operations	12,244	12,017	13,820	13,820	13,820	13,820	13,820	13,820	13,820	13,820	13,820	13,820	
Facility Management Costs	1,226	1,160	1,318	1,318	1,318	1,318	1,318	1,318	1,318	1,318	1,318	1,318	
Other (inc. ICT, supplies)	4,246	3,767	4,543	4,543	4,543	4,543	4,543	4,543	4,543	4,543	4,543	4,543	
Lease costs	165	165	165	165	165	165	165	165	165	165	165	165	
Repairs, maintenance & replacements	2,896	2,531	3,114	3,114	3,114	3,114	3,114	3,114	3,114	3,114	3,114	3,114	
Depreciation	2,869	2,818	3,163	3,163	3,163	3,163	3,163	3,163	3,163	3,163	3,163	3,163	
Total Good and Services costs	23,646	22,458	26,124	26,124	26,124	26,124	26,124	26,124	26,124	26,124	26,124	26,124	
Total expenses	74,173	72,985	79,446	79,446	79,446	79,446	79,446	79,446	79,446	79,446	79,446	79,446	
Total revenues	24,599	25,693	27,191	27,191	27,191	27,191	27,191	27,191	27,191	27,191	27,191	27,191	
NCOS incl. depreciation	49,574	47,292	52,255	52,255	52,255	52,255	52,255	52,255	52,255	52,255	52,255	52,255	
NCOS excl. depreciation	46,706	44,475	49,092	49,092	49,092	49,092	49,092	49,092	49,092	49,092	49,092	49,092	
Recurrent Cost/ Estimated Operating Cost of New Proposal (Project Case / Preferred Option)													
Total labour-related costs	50,528	50,528	53,322	53,322	53,322	53,322	53,322	53,322	53,322	71,529	74,866	78,131	81,023
Goods and Services													
Supplies required for operations	12,244	12,017	13,820	13,820	13,820	13,820	13,820	13,820	13,820	20,654	22,414	24,277	26,461
Facility Management Costs	1,226	1,160	1,318	1,318	1,318	1,318	1,318	1,318	1,318	3,550	3,783	4,034	4,307
Other (inc. ICT, supplies)	4,246	3,767	4,543	4,543	4,543	4,543	4,543	4,543	4,543	6,458	6,920	7,395	7,915
Lease costs	165	165	165	165	165	165	165	165	165	-	-	-	-
Repairs, maintenance & replacements	2,896	2,531	3,114	3,114	3,114	3,114	3,114	3,114	3,114	6,635	7,033	7,465	7,931
Depreciation	2,869	2,818	3,163	3,163	3,163	3,163	3,163	3,163	3,163	9,831	9,813	9,796	9,778
Total Good and Services costs	23,646	22,458	26,124	26,124	26,124	26,124	26,124	26,124	26,124	47,127	49,964	52,966	56,392
Projected total expenses	74,173	72,985	79,446	79,446	79,446	79,446	79,446	79,446	79,446	118,656	124,830	131,097	137,415
Projected total revenue	24,599	25,693	27,191	27,191	27,191	27,191	27,191	27,191	27,191	44,397	48,716	53,361	58,216
NCOS incl. depreciation	49,574	47,292	52,255	52,255	52,255	52,255	52,255	52,255	52,255	74,259	76,114	77,736	79,199
NCOS excl. depreciation	46,706	44,475	49,092	49,092	49,092	49,092	49,092	49,092	49,092	64,428	66,300	67,940	69,421

Table 19: Net cost of service impacts – Base Case and Option 1A (\$'000) NSWPF FETS

Category Baseline activity for base case: 2023/24	Previous year (actual) 2021/22	Current year (budget) 2022/23	Projections										
			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	
			2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	
Current Cost / Funding of Existing Facilities (Base Case)													
Total labour-related costs	56,990	56,990	59,518	59,518	59,518	59,518	59,518	59,518	59,518	59,518	59,518	59,518	
Goods and Services													
Supplies required for operations	1,406	1,568	1,568	1,568	1,568	1,568	1,568	1,568	1,568	1,568	1,568	1,568	
Facility Management Costs	389	389	405	405	405	405	405	405	405	405	405	405	
Other (inc. ICT, supplies)	2,060	2,097	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,177	
Lease costs	2,423	2,535	2,636	2,636	2,636	2,636	2,636	2,636	2,636	2,636	2,636	2,636	
Repairs, maintenance & replacements	642	699	699	699	699	699	699	699	699	699	699	699	
Depreciation	3,451	3,471	3,565	3,565	3,565	3,565	3,565	3,565	3,565	3,565	3,565	3,565	
Total Good and Services costs	10,371	10,759	11,050	11,050	11,050	11,050	11,050	11,050	11,050	11,050	11,050	11,050	
Total expenses	67,361	67,750	70,568	70,568	70,568	70,568	70,568	70,568	70,568	70,568	70,568	70,568	
Total revenues	-	-	-	-	-	-	-	-	-	-	-	-	
NCOS incl. depreciation	67,361	67,750	70,568	70,568	70,568	70,568	70,568	70,568	70,568	70,568	70,568	70,568	
NCOS excl. depreciation	63,910	64,279	67,002	67,002	67,002	67,002	67,002	67,002	67,002	67,002	67,002	67,002	
Recurrent Cost/ Estimated Operating Cost of New Proposal (Project Case / Preferred Option)													
Total labour-related costs	56,990	56,990	59,518	59,518	59,518	59,518	59,518	59,518	59,518	64,446	64,446	64,572	64,825
Goods and Services													
Supplies required for operations	1,406	1,568	1,568	1,568	1,568	1,568	1,568	1,568	1,568	1,730	1,955	2,067	2,156
Facility Management Costs	389	389	405	405	405	405	405	405	405	1,618	1,747	1,887	2,038
Other (inc. ICT, supplies)	2,060	2,097	2,177	2,177	2,177	2,177	2,177	2,177	2,177	2,308	2,312	2,320	2,331
Lease costs	2,423	2,535	2,636	2,636	2,636	2,636	2,636	2,636	2,636				
Repairs, maintenance & replacements	642	699	699	699	699	699	699	699	699	699	699	699	699
Depreciation	3,451	3,471	3,565	3,565	3,565	3,565	3,565	3,565	3,565	3,899	3,906	3,920	3,942
Total Good and Services costs	10,371	10,759	11,050	11,050	11,050	11,050	11,050	11,050	11,050	10,254	10,619	10,893	11,167
Projected total expenses	67,361	67,750	70,568	70,568	70,568	70,568	70,568	70,568	70,568	74,700	75,065	75,466	75,992
Projected total revenue	-	-	0	0	0	0	0	0	0	0	0	0	0
NCOS incl. depreciation	67,361	67,750	70,568	70,568	70,568	70,568	70,568	70,568	70,568	74,700	75,065	75,466	75,992
NCOS excl. depreciation	63,910	64,279	67,002	67,002	67,002	67,002	67,002	67,002	67,002	70,801	71,159	71,545	72,050

For the purpose of the preliminary FIS, there are cost savings expected as follows:

- Option 1A and 3A: Reduction of leasing costs of \$2.8 million per annum from 2029 due to NSWHP and NSWPF and no longer needing to lease current premises.
- Option 1A and 2A: increase in estimated revenues coming FASS and Specialised Services with cost recovery anticipated to be 80% for criminalistics expenses⁹.

The increase in recurrent costs, incremental to the Base Case is estimated between \$142.8m - \$153.7m in 2032/33. The operating cost will increase from the workforce labour costs and increase in cost of goods and services related to the increase in activity under each option. The operating cost impact will be the highest under Option 1A, followed by Option 2A and then Option 3A.

⁹ NSWHP advice contained in: *LFP FIS tables - NSWHP_v2 (submitted 31.10.2022)* spreadsheet

9 Financial Risk Management

To be developed at Business Case Phase

Financial Impact Statement Sign Off

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NSWHP - Chief Executive

.....

NSWPF – Deputy Commissioner, Corporate Services

Appendix

Table 20: Preliminary Capital Cost Summary (\$'000 Option 2A)

Capital costs items	Total	Prior planning expenditure	Current year	Projections					
		to date	(budget)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		(actual)	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Land	-	-	-	-	-	-	-	-	-
Demolition costs	17,390	-	-	-	-	17,390	-	-	-
Building costs	194,740	-	-	-	-	-	39,268	155,471	-
Professional fees ¹	51,972	-	250	3,500	12,303	12,303	12,200	11,267	150
FF&E and ICT	35,010	-	-	-	-	-	-	29,175	5,835
MME	22,280	-	-	-	-	-	-	18,567	3,713
Health Infrastructure Management Fee	7,121	-	-	1,401	1,401	1,401	1,401	1,401	117
Escalation	59,671	-	-	-	-	-	12,033	47,639	-
Contingencies	53,033	-	-	-	-	-	-	48,613	4,419
Total	441,216	-	250	4,901	13,703	31,093	64,902	312,133	14,234
NSWHP Capital Cost	441,216	-	250	4,901	13,703	31,093	64,902	312,133	14,234
NSWPF Capital Cost	-	-	-	-	-	-	-	-	-

Source: Genus Advisory: 221107_Lidcombe_IDD_Cash_Flow

Table 21: Preliminary Capital Cost Summary (\$'000 Option 3A)

Capital costs items	Total	Prior planning expenditure	Current year	Projections					
		to date	(budget)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		(actual)	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Land	-	-	-	-	-	-	-	-	-
Demolition costs	17,390	-	-	-	-	17,390	-	-	-
Building costs	218,432	-	-	-	-	-	44,046	174,386	-
Professional fees ¹	57,775	-	250	3,500	13,864	13,864	13,640	12,507	150
FF&E and ICT	39,195	-	-	-	-	-	-	32,663	6,533
MME	24,975	-	-	-	-	-	-	20,813	4,163
Health Infrastructure Management Fee	8,026	-	-	1,579	1,579	1,579	1,579	1,579	132
Escalation	66,342	-	-	-	-	-	13,378	52,965	-
Contingencies	58,956	-	-	-	-	-	-	54,043	4,913
Total	491,091	-	250	5,079	15,443	32,833	72,643	348,954	15,890
NSWHP Capital Cost	245,497	-	125	2,539	7,720	16,413	36,314	174,443	7,943
NSWPF Capital Cost	245,593	-	125	2,540	7,723	16,419	36,328	174,511	7,946

Source: Genus Advisory: 221107_Lidcombe_IDD_Cash_Flow

Table 22: Net cost of service impacts – Option 2A (\$'000) combined

Category	Previous year (actual) 2021/22	Current year (budget) 2022/23	Projections										
			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	
			2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	
Recurrent Cost of Proposal (Project Case / Option 2A)													
Total labour-related costs	107,518	107,518	112,840	112,840	112,840	112,840	112,840	112,840	112,840	131,047	134,383	137,649	140,541
Goods and Services													
Supplies required for operations	13,650	13,585	15,388	15,388	15,388	15,388	15,388	15,388	15,388	22,222	23,982	25,845	28,029
Facility Management Costs	1,615	1,549	1,723	1,723	1,723	1,723	1,723	1,723	1,723	3,954	4,187	4,439	4,711
Other (inc. ICT, supplies)	6,305	5,864	6,720	6,720	6,720	6,720	6,720	6,720	6,720	8,634	9,097	9,571	10,092
Lease costs	2,423	2,535	2,636	2,636	2,636	2,636	2,636	2,636	2,636	2,636	2,636	2,636	2,636
Repairs, maintenance & replacements	3,538	3,230	3,813	3,813	3,813	3,813	3,813	3,813	3,813	7,439	7,837	8,269	8,735
Depreciation	6,320	6,289	6,728	6,728	6,728	6,728	6,728	6,728	6,728	13,397	13,379	13,361	13,344
Total Good and Services costs	33,851	33,052	37,009	37,009	37,009	37,009	37,009	37,009	37,009	58,282	61,119	64,121	67,547
Total expenses	141,369	140,570	149,849	149,849	149,849	149,849	149,849	149,849	149,849	189,329	195,503	201,770	208,088
Total revenues	25,442	26,536	28,141	28,141	28,141	28,141	28,141	28,141	28,141	45,399	49,729	54,379	59,239
NCOS incl. depreciation	115,927	114,034	121,708	121,708	121,708	121,708	121,708	121,708	121,708	143,930	145,773	147,391	148,849
NCOS excl. depreciation	109,607	107,745	114,980	114,980	114,980	114,980	114,980	114,980	114,980	130,534	132,395	134,030	135,506

Table 23: Net cost of service impacts – Option 3A (\$'000) combined

Category	Previous year (actual) 2021/22	Current year (budget) 2022/23	Projections										
			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	
			2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	
Recurrent Cost of Proposal (Project Case / Option 3A)													
Total labour-related costs	107,518	107,518	112,840	112,840	112,840	112,840	112,840	112,840	112,840	131,089	133,550	136,047	138,275
Goods and Services													
Supplies required for operations	13,650	13,585	15,388	15,388	15,388	15,388	15,388	15,388	15,388	20,655	22,346	24,195	26,342
Facility Management Costs	1,615	1,549	1,723	1,723	1,723	1,723	1,723	1,723	1,723	6,572	7,045	7,556	8,108
Other (inc. ICT, supplies)	6,305	5,864	6,720	6,720	6,720	6,720	6,720	6,720	6,720	8,298	8,715	9,178	9,691
Lease costs	2,423	2,535	2,636	2,636	2,636	2,636	2,636	2,636	2,636	-	-	-	-
Repairs, maintenance & replacements	3,538	3,230	3,813	3,813	3,813	3,813	3,813	3,813	3,813	6,418	6,826	7,267	7,743
Depreciation	6,320	6,289	6,728	6,728	6,728	6,728	6,728	6,728	6,728	11,163	11,170	11,184	11,206
Total Good and Services costs	33,851	33,052	37,009	37,009	37,009	37,009	37,009	37,009	37,009	53,106	56,102	59,380	63,088
Total expenses	141,369	140,570	149,849	149,849	149,849	149,849	149,849	149,849	149,849	184,194	189,652	195,427	201,364
Total revenues	24,599	25,693	27,191	27,191	27,191	27,191	27,191	27,191	27,191	44,201	48,478	53,105	57,942
NCOS incl. depreciation	116,770	114,877	122,658	122,658	122,658	122,658	122,658	122,658	122,658	139,993	141,174	142,321	143,422
NCOS excl. depreciation	110,451	108,588	115,930	115,930	115,930	115,930	115,930	115,930	115,930	128,830	130,004	131,137	132,216

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APPENDIX 4

Lidcombe Forensic Precinct

Preliminary Cost Benefit Analysis Supporting Investment Decision Document

Draft Report

30 November 2022



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Disclaimer

This report is not intended to be used by anyone other than Health Infrastructure NSW (HI).

We prepared this report solely for HI's use and benefit in accordance with and for the purpose set out in our Head Agreement Contract Number: HI21355PWC, dated 20 September 2021. In doing so, we acted exclusively for HI and considered no-one else's interests.

We accept no responsibility, duty or liability:

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Executive summary

PricewaterhouseCoopers Consulting Australia Pty Ltd (**PwC**) was engaged by Health Infrastructure (**HI**), to undertake a preliminary cost-benefit analysis (**CBA**) of the Lidcombe Forensic Precinct (**LFP** or the 'Project'). The LFP will provide a new fit for purpose facility that co-locates New South Wales (**NSW**) Health Pathology Forensic and Analytical Science Services (**FASS**), NSW Health Pathology Specialised Services (**Specialised Services**) and the NSW Police Force Forensic Evidence and Technical Services (**FETS**). In accordance with NSW Government Guidelines for CBA issued by NSW Treasury in March 2017 (**TPP17-03**), this report presents the options that have been considered and the preliminary CBA of these options.

The LFP is at Investment Decision Document (**IDD**) stage and as such, this preliminary CBA has been developed within the following qualifications:

- The options shortlisted for the preliminary CBA are subject to review, change and updated during subsequent Business Case stages.
- Given the above, detailed analysis of options will be conducted in the Business Case development, with a recommendation on the preferred option made in the Strategic Business Case stage.
- The results of the preliminary CBA are to assess whether the LFP would generate net economic benefits to the community.
- The preliminary CBA results for each of the Project options are not directly comparable at this early stage as some benefits are not quantifiable.
- The LFP Preliminary Financial Impact Statement (**FIS**) provides a high-level activity costing at this stage and recurrent affordability will be assessed during subsequent Business Case stages.

Project background

An IDD is currently being developed for the LFP in response to an approved Brief for the Secretary for NSW Health (18 January 2022) to progress planning for a joint infrastructure proposal to develop a Forensic Precinct at the FASS Lidcombe site between NSWHP and NSWPF and universities.

The Project aims to provide FASS, Specialised Services and FETS with the infrastructure and workspaces to enable the delivery of forensic services under a more consultative and customer focused model. The Project scope includes the replacement, expansion, and / or consolidation of the following services:

- **FASS:**
 - **Criminalistics** including chemical criminalistics, forensic biology and DNA, and illicit drugs analysis
 - **Forensic chemistry** including forensic chemistry, drugs and driving toxicology, and drugs toxicity
 - **Environmental toxicology** including environmental health testing in water microbiology, legionella reference laboratory, clinical and environmental toxicology and trace inorganics
 - **Centre for Forensic Innovation and Research** a new service providing a hub for prototyping, instrument validation, collaborative research and education.
- Specialised Services including the consolidation of phenomics, genomics and anatomical pathology services from multiple sites across NSW.
- FETS including the consolidation of the dislocated services across multiple sites in metropolitan Sydney including the crime scene services branch and Identification Service Branch.

Project drivers

The LFP IDD presents three primary drivers for investment in the LFP, in addition to alignment with government and service strategic directions, including:

- **Current assets approaching end of life and present a risk to security and integrity of services** reflecting ageing, inefficient and constrained sites that are not up to current standards

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- **Current inefficiencies due to dislocated services** reflecting the disparate locations of FASS and FETS across NSW
- **Projected service activity, demographics, and crime trends** reflecting the increasing demand for forensic services as population and crime trends over time

With broader drivers of investment in LFP including addressing future service needs, addressing insufficient capacity for testing, lack of collaboration across NSWPF and NSWHP, technical and staff inefficiencies, and others.

Project objectives

The LFP vision is to be ‘a world-leading precinct providing integrated and innovative forensic and scientific services to sustain and advance the health and safety of the NSW community’.

The core objectives of the Project are to:

- from the end-of-life state of the current facility.
- Deliver an integrated service for NSW, which assists rapid and proactive utilisation of information (operational translation)
- Deliver efficient and effective services through synergy and collaborative interagency teams
- Strengthen networks and expertise for NSW by bringing specialists together
- Promote discovery of new service models through translation research, prototyping and enhanced knowledge base
- Use information and communications technology to improve sample management (receipting, processing, and storage), and reporting
- Promote research and education through agency and university partnerships
- Promote seamless flows for staff and samples built around contemporary service models
- Deliver an environment which offers “bump” spaces enabling formal and informal collaboration
- Provide design solutions that ensure the integrity of samples and maintains chain of custody
- Deliver a healthy environment in response to the nature of the work undertaken which offers spaces to support staff health and wellbeing, including culturally appropriate spaces
- Pursue operational and design initiatives that minimise the Project’s environmental impact – including NSWHP and HI sustainability work
- Adopt future proofing strategies to meet the growing and changing service models
- Provide centralised solution to improve efficiencies, effectiveness, and surge capacities for NSWHP to cater growing demand and new model of care across the state
- Reduce requirements for additional hospital space and improve service delivery through digital and offsite anatomical pathology.¹

Project options

The LFP IDD documents the options identification and assessment process conducted to identify the scope for the LFP and the long list of options - including Option 1 (Base Case), three capital solutions and two non-capital solutions.

NSWHP, NSWPF, HI and Johnstaff identified a shortlist of options through a qualitative multi criteria assessment based on the benefits realised through the Project. The multi criteria assessment identified that the non-capital solutions, including changes to internal workflow and processes, were not sufficient to meet the future demand of FASS, Specialised Services

¹ Health Infrastructure NSW (2022), Lidcombe Forensic Precinct Investment Decision Document, Version 1.3, 24 November 2022

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and FETS to achieve NSW community outcomes. Three short-listed capital solutions were proposed for specification, costing and quantitative assessment through a preliminary FIS and preliminary CBA.

The shortlisted options and Base Case assessed within the preliminary CBA are detailed in Table 1 below.

Table 1: Shortlisted Project options

Option	Description	Estimated Total Cost (ETC)
Option 1 (Base Case)*	The Base Case assumes that no expansion of existing services capacity beyond undertaking urgent repairs and maintaining status quo. As existing FASS facilities are approaching end of asset life and are in poor condition, the cost of redevelopment of the existing floor space (in a like-for-like nature) has been included as a capital outlay required to meet keep safe and operational conditions.	\$0
Option 1A – Full scope	Option 1A includes the development of a new build and collocation of the full scope of FASS, Specialised Services and FETS. The scope of this option includes: <ul style="list-style-type: none"> • Floor area associated with this option is 38,476 m² • FASS: <ul style="list-style-type: none"> ○ Criminalistics ○ Forensic and environmental toxicology ○ Centre for (Forensic) Innovation and Research • Specialised Services: <ul style="list-style-type: none"> ○ Phenomics ○ Genomics ○ Anatomical pathology • FETS: <ul style="list-style-type: none"> ○ Crime scene services branch ○ Identification services branch • An additional 533 car parking spaces 	\$676.3 million
Option 2A – NSWHP full scope	Option 2A includes the development of a new build and collocation of the full scope of FASS and Specialised Services. The scope of this option includes: <ul style="list-style-type: none"> • Floor area associated with this option is 23,209 m² • FASS: <ul style="list-style-type: none"> ○ Criminalistics ○ Forensic and environmental toxicology ○ Centre for (Forensic) Innovation and Research • Specialised Services: <ul style="list-style-type: none"> ○ Phenomics ○ Genomics ○ Anatomical pathology • An additional 360 car parking spaces 	\$441.3 million
Option 3A – NSWHP partial scope and NSWPF full scope	Option 3A includes the development of a new build and collocation of the full scope of FASS and FETS. The scope of this option includes: <ul style="list-style-type: none"> • Floor area associated with this option is 26,426 m² • FASS: <ul style="list-style-type: none"> ○ Criminalistics ○ Forensic and environmental toxicology ○ Centre for (Forensic) Innovation and Research • FETS: <ul style="list-style-type: none"> ○ Crime scene services branch ○ Identification services branch • An additional 398 car parking spaces 	\$491.1 million

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Source: Health Infrastructure NSW (2022), Lidcombe Forensic Precinct Investment Decision Document v1.3, 24 November 2022; Genus Advisory (2022), Lidcombe Forensic Precinct Investment Decision Estimate (20221103)

*Note: It has been identified in the LFP IDD that existing Lidcombe FASS site would require works to keep the facilities operational and safe. Capital costs associated with these works are captured as avoided costs in the benefits section of the CBA.

Assessment of costs

Direct and indirect cost impacts have been identified across the Project options for the LFP. Direct cost impacts have been quantified for inclusion in the preliminary CBA across three categories:

- **Capital costs:** including preliminary cost estimates for the Project options associated with the planning, design, construction and commissioning of LFP as prepared by Genus Advisory.
- **Life-cycle capital maintenance (LCCM) costs:** including costs associated with capital maintenance over the life of the infrastructure.
- **Operating costs:** including costs associated with the ongoing operation of LFP including labour-related costs, goods and services costs and facilities maintenance costs outlined in the FIS, as prepared by HI on behalf of the NSWHP and NSWPF.

The capital, life-cycle capital maintenance costs and operating costs associated with Option 1 (Base Case) and the Project options have been quantified in present value (PV) terms over a 20-year appraisal period as summarised in Table 2.

Table 2: LFP total quantifiable costs (real \$2022/23, discounted at 7 per cent over 20 years, \$'m)

Cost	Option 1 (Base Case)	Option 1A	Option 2A	Option 3A
Capital cost	n/a	\$421.9	\$280.3	\$311.9
LCCM costs	n/a	\$39.4	\$22.2	\$24.8
Operating cost	\$1,223.1	\$1,364.3	\$1,336.4	\$1,312.9
Total quantified costs	\$1,223.1	\$1,825.6	\$1,639.0	\$1,649.5

Source: PwC analysis of Genus Advisory (2022), Lidcombe Forensic Precinct Investment Decision Estimate (20221103); Health Infrastructure NSW (2022), Lidcombe Forensic Precinct FIS draft v3 (20221130)

In addition to the quantified costs outlined above, there are also several unquantified costs that would arise under each of the Project options. These non-quantifiable costs associated with the construction phase of the Project, including:

- Noise and air pollution: during construction, staff and patients may experience increases in noise and dust from building works.
- Disruption to local traffic flows: additional vehicles during construction may impact on traffic in and around the LFP, resulting in travel delay and increased congestion for staff and patients.
- Disruption to FASS and FETS staff during construction and staff may experience some inconveniences associated with construction works. Furthermore, staff may experience disruption of operations associated with the relocation of services.
- Operational inefficiencies for staff (under Option 2A and 3A only): the dislocation of services between the new LFP and services that remain in current infrastructure may result in operational inefficiencies for staff as compared to Option 1A.

Assessment of benefits

Investment in LFP is expected to deliver a range of benefits to the NSWHP, NSWPF, the broader community and the NSW Government through increased capacity to meet current and future demand for forensic and pathology services at the NSWHP and NSWPF.

Key benefits quantified through the preliminary CBA include:

- **Reduction in crime from increased efficiency in the criminal conviction process:** the outcomes of forensic testing are essential in supporting criminal trials, faster test turnaround times is anticipated to reduce delays within the criminal justice system reducing crime rates and increasing safety for the NSW community. This benefit captures the impact of reduced crime, through the relationship between court delays and crime deterrence (of 0.53 for robbery and 0.68 for theft), the impact delays on forensic testing as a factor in this process (assumed to be 20 per cent) and the increased

throughput of relevant forensic testing across FASS and FETS. It is acknowledged that there are other types of forensic testing that will increase the efficiency of the criminal conviction process and improve public safety that are not captured within the benefit category due to methodology constraints – as highlighted in the qualitative benefit assessment.

- **Reduction in driving offences from efficiency in alcohol and drug testing:** the presence or prominence of alcohol and drug testing could reduce the rate of driving accidents increasing safety for the NSW community. Studies have shown that additional alcohol and drug testing would reduce the number of accidents on the road. All Project options would increase the number of alcohol and drug testing through increased activity in the Drugs & Driving Laboratory. This benefit estimates the reduction of crashes based on the number of increased tests and Victoria Police analysis which suggests there would be a 13.7 per cent reduction in fatal crashes and 1.4 per cent reduction in serious injuries after the introduction of roadside drug testing; and a reduction of 15 per cent of fatal crashes and 1.5 per cent serious injuries through introduction of alcohol testing.
- **Improved health outcomes associated with increased environmental toxicology testing:** the earlier detection and mitigation of potential waterborne diseases (such as Legionellosis) can improve the safety of the NSW community and reduce the number of preventable hospitalisations within NSW. The Project will increase the number of environmental toxicology testing conducted through FASS, reducing the number of potential hospitalisations seen through reduced operating costs associated with acute separations. This benefit is estimating using the increase in relevant FASS tests, the average price per National Weighted Activity Unit for NSW of \$5,797 in 2022/23 and a 1.2 conversion rate into acute inpatient services.
- **Increased collaboration arising from collocation of services²:** the collocation of FASS, Specialised Services and FETS into a forensic precinct would increase opportunities for collaboration, knowledge sharing and innovation resulting in a marginal improvement in productivity. Through collocation of services within a single precinct, studies have suggested that on average labour productivity increases by approximately 2.9 per cent. This increase in productivity associated with the Project options is estimated through the increase in FTE at the Lidcombe FASS site by Project option and the uplift in Gross Value Added as a result of this productivity increase. This benefit is driven by the agglomeration of workers within the Project options in comparison to the Base Case. The productivity benefits of collocating FASS and FETS in Option 3A may not be captured entirely in the quantitative analysis and is assessed qualitatively in Table 4.
- **Improved translational research outcomes:** research funding can result in broader outcomes for the NSW community such as improvements in wellbeing, avoided medical costs, etc. The Project options will increase the potential for additional research in terms of the number of FTE, the space allocated for research and specific services focused on research outcomes – resulting in an increase of research output and funding. This benefit is calculated using the increase in research funding combined with studies that have shown that for every dollar invested in medical research, a \$2.18 return on investment is delivered.
- **Opportunity cost of freed-up space in existing lab facilities:** currently Specialised Services occupy hospitals in disparate locations across NSW. Through investment in the Project Specialised Services in Options 1A and 2A will be relocated to LFP. This will vacate existing hospital facilities allowing them to be repurposed for more appropriate uses. The value of the alternative use reflects the opportunity cost of the existing facilities proxied by an average leasing cost per square metre of \$465 and the avoided cost associated with specialist medical fit-out. The benefit associated with freed-up spaces for FETS services is captured through reductions in lease costs captured through operating costs.
- **Consumer surplus from increased carparking:** a key constraint is the availability of car parking for secure parking for high value fleet assets (such as police cars) and parking for staff. All Project options provide car parking spaces with Option 1A providing 533 spaces, Option 2A providing 360 spaces and Option 3A providing 398 spaces. Having access to dedicated car parking spaces close to a destination is reflected in an individual's willingness-to-pay, reflecting an average parking cost per day of \$5.21, and captured as a consumer surplus by netting off annual operating costs.
- **Efficiencies arising from purpose-built facility layout²:** workflow efficiencies could be gained from working in a purpose-built facility with optimal layout. The building design associated with the Project options will be optimised to reduce time taken to conduct testing, specifically reflecting a reduced walk time. Based on an improved layout in existing

² Benefits associated with increased efficiency in the workplace, including increased collaboration arising from collocation of services and efficiencies arising from purpose-built facility layout, are mutually exclusive as these are capturing different impacts associated with the Project options

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facilities, there could be a reduction of up to 357 walk hours per annum associated with FASS – increasing the productivity of the workforce and number of tests conducted.

- **Avoided capital cost associated with the Lidcombe FASS site:** the current infrastructure of the FASS facility is ageing and would require capital works to sustain safe operations through the 20-year appraisal period. This cost is avoided under the Project options as the existing facility would be developed holistically into the precinct. The avoided capital cost associated with these works has been captured as an economic benefit.
- **Residual value** the new facilities will have future user benefits beyond the appraisal period. A straight-line depreciation has been assumed, over a 40-year asset life.

The results of the total quantifiable benefits of the Project options over a 20-year appraisal period is presented in Table 3.

Table 3: Total quantifiable benefits, incremental to Option 1 (Base Case) (real \$2022/23, discounted at 7 per cent over the 20-year appraisal period, \$'m)

Benefits	Option 1A	Option 2A	Option 3A
Reduction in crime from increased efficiency in the criminal conviction process	\$107.4	\$71.1	\$87.2
Reduction in driving offences from efficiency in alcohol and drug testing	\$42.8	\$31.6	\$33.0
Improved health outcomes associated with increased environmental toxicology testing	\$0.7	\$0.7	\$0.7
Increased collaboration arising from collocation of services	\$127.4	\$108.8	\$100.8
Improved translational research outcomes	\$252.3	\$126.7	\$69.2
Opportunity cost of freed-up space in existing lab facilities	\$21.5	\$21.5	-
Consumer surplus from increased carparking	\$3.7	\$2.5	\$2.7
Efficiencies arising from purpose-built facility layout	\$0.5	\$0.3	\$0.4
Avoided capital cost associated with the Lidcombe FASS site	65.4	65.4	65.4
Residual value	\$97.4	\$64.1	\$71.3
Total quantified benefits, incremental to Base Case	\$719.0	\$492.7	\$430.8

Source: PwC analysis (2022) of information provided by Genus Advisory; Health Infrastructure NSW (2022), Lidcombe Forensic Precinct FIS draft v3 (20221130); NSWHP, NSWPF, FASS (2022), CETL – TIL LFP Cost Benefit Analysis_PWC, Research activity report 2020; Deloitte (2014); KMPG (2018); Antonio Ciccone and Robert E. Hall (1996), Productivity and the Density of Economic Activity; ABS (2021), Australian System of national Accounts; IHPA (2022), National Efficient Price Determination 2022-23 NWAU; NRMA (2017), cost of crashes; TfNSW (2015), serious injuries in NSW 2005 to 2015; Cameron et al, (2022), Evaluation of an increase in roadside drug testing in Victoria based on models of the crash effects of random and targeted roadside tests; Australian Institute of Criminology (2014), Effective drink driving prevention and enforcement strategies: Approaches to improve practice; BOCSAR (2021), NSW Local Government Area excel crime tables; Dalla Pellegrina (2008), Court delays and crime deterrence; Australian Institute of Criminology (2011), Counting the cost of crime in Australia: A 2011 estimate; TfNSW (2022), Travel Zone Projections 2022.

There are a range of qualitative benefits associated with the LFP that were not able to be quantified due to methodology and data limitations. Key benefits include cessation of travel across multiple sites, increased resilience to future major events and improve reputation of NSW Government forensic and pathology services. The qualitative benefits of the LFP options are presented in Table 4.

Table 4: Qualitative benefits comparative rating of options

Qualitative benefits identified	Option 1 (Base Case)	Option 1A	Option 2A	Option 3A
Improved productivity from collocation within the LFP	No change	High	Medium	High

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Qualitative benefits identified	Option 1 (Base Case)	Option 1A	Option 2A	Option 3A
Reduction in reportable incidents and increased staff safety from contemporary and purpose-built facilities	No change	High	Medium	Medium
More efficient service delivery and greater return on investment	No change	High	Medium	Medium
Maintenance efficiencies through scale and collocation	No change	High	Medium	Medium
Increased capacity and efficiency to meet demand at acute facilities	No change	High	Medium	Medium
Cessation of travel across multiple sites	No change	High	Medium	No change
Flexibility for future changes in scope and technology	No change	High	Medium	Medium
Improvements in the disposal of waste material, reducing environmental and operational costs	No change	High	Medium	Medium
Increased resilience to future events and ability to enact management plans faster	No change	High	Medium	Medium
Increased workforce attraction and retention	No change	High	Medium	Medium
Long term resilience to climate change – fire/flooding, water access and contamination, increased temperatures and droughts	No change	High	Medium	Medium
Improvements in public safety	No change	High	Medium	High
Improved reputation of NSW Government forensic and pathology services	No change	High	Medium	Medium
Improved ability to support Government policy development	No change	High	Medium	Medium

Source: PwC analysis (2022)

Preliminary CBA findings and results

The results of the preliminary CBA for the Project options against Option 1 (Base Case) are presented in Table 5. These results are presented in terms of the net present value (NPV) of the investment over the 20-year appraisal period at a 7 per cent discount rate and using a benefit cost ratio (BCR) for comparison of options.

Table 5: Results of the cost-benefit analysis, incremental to Option 1 (Base Case) (\$2022/23, discounted at 7 per cent over 20-year appraisal period, '\$m)

PV (\$m)	Option 1A	Option 2A	Option 3A
<i>Incremental costs</i>			
Capital costs	\$421.9	\$280.3	\$311.9
LCCM costs	\$39.4	\$22.2	\$24.8
Operating costs	\$141.3	\$113.3	\$89.8
Total incremental costs	\$602.6	\$415.9	\$426.5
<i>Incremental benefits</i>			
Reduction in crime from increased efficiency in the criminal conviction process	\$107.4	\$71.1	\$87.2
Reduction in driving offences from efficiency in alcohol and drug testing	\$42.8	\$31.6	\$33.0
Improved health outcomes associated with increased environmental toxicology testing	\$0.7	\$0.7	\$0.7
Increased collaboration arising from collocation of services	\$127.4	\$108.8	\$100.8
Improved translational research outcomes	\$252.3	\$126.7	\$69.2
Opportunity cost of freed-up space in existing lab facilities	\$21.5	\$21.5	-

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PV (\$m)	Option 1A	Option 2A	Option 3A
Consumer surplus from increased carparking	\$3.7	\$2.5	\$2.7
Efficiencies arising from purpose-built facility layout	\$0.5	\$0.3	\$0.4
Avoided capital cost associated with the Lidcombe FASS site	65.4	65.4	65.4
Residual value	\$97.4	\$64.1	\$71.3
Total incremental benefits	\$719.0	\$492.7	\$430.8
Incremental Net Present Value	\$116.4	\$76.8	\$4.3
Incremental BCR	1.19	1.18	1.01

Source: PwC analysis (2022) of information provided by Genus Advisory; Health Infrastructure NSW (2022), Lidcombe Forensic Precinct FIS draft v3 (20221130); NSWHP, NSWPF, FASS (2022), CETL – TIL LFP Cost Benefit Analysis_PWC, Research activity report 2020; Deloitte (2014); KMPG (2018); Antonio Ciccone and Robert E. Hall (1996), Productivity and the Density of Economic Activity; ABS (2021), Australian System of national Accounts; IHPA (2022), National Efficient Price Determination 2022-23 NWAU; NRMA (2017), cost of crashes; TfNSW (2015), serious injuries in NSW 2005 to 2015; Cameron et al, (2022), Evaluation of an increase in roadside drug testing in Victoria based on models of the crash effects of random and targeted roadside tests; Australian Institute of Criminology (2014), Effective drink driving prevention and enforcement strategies: Approaches to improve practice; BOCSAR (2021), NSW Local Government Area excel crime tables; Dalla Pellegrina (2008), Court delays and crime deterrence; Australian Institute of Criminology (2011), Counting the cost of crime in Australia: A 2011 estimate; TfNSW (2022), Travel Zone Projections 2022.

On the basis of the preliminary CBA results, all the short-listed options will generate positive economic outcomes, with positive NPVs and BCRs greater than one. As Options 1A and 2A have similar BCRs, ranking short-listed options in terms of their economic outcomes is best conducted on a NPV basis. Option 1A has the highest NPV of \$116.4 million, followed by Option 2A and Option 3A. This is in line with the scope delivered by the options whereby Option 1A delivers collocation of FASS, Specialised Services and FETS and Options 2A and Option 3A deliver a reduced scope of services.

Conclusion and recommendations

The results of the preliminary CBA of the LFP Project options indicate that all options would generate positive benefits in terms of NPV and BCRs greater than one. Based on Project assumptions and parameters, Option 1A would deliver the highest net benefits to community, with an NPV of \$116.4 million and BCR of 1.19. While Option 2A delivers a similar BCR as Option 1A, it presents a lower net economic benefit to the community (NPV of \$76.8 million).

Sensitivity tests were undertaken to assess the potential outcomes of the preliminary CBA of the LFP Project options due to changes in key assumptions that underpin the analysis. Options 1A and 2A remain economically viable under most sensitivity tests.

The largest benefits are driven by the ability of the project options to produce increasing translational research, reflecting the delivery of the centre for forensic innovation and research across all options. The benefits of collocating different services within Lidcombe also produces great collaboration benefits, improving productivity within the LFP area. The monetisation method for estimating the increased collaboration arising from collocation of services is based on the number of FTE collocated in the LFP and does not consider the types of services and effectiveness of these services in their collocation. As a result, Option 3A, the collocation of FASS and FETS services may be understated in the collaboration benefit that would arise from this option.

It is noted that some of the benefits associated with the Project options are not able to be quantified, for example, increased resilience to future adverse events, improved reputation of NSW Government forensic and pathology services and the ability to be flexible and adapt to the changing technology and trends in forensic and pathology services. As these benefits increase in line with the capacity of the facility and collocation of FASS, Specialised Services and FETS, the exclusion of these benefits from quantification in the CBA is not expected to impact on the ranking of the options.

1 Project background

1.1 Background and context

The Lidcombe Forensic Precinct (**LFP or the 'Project'**) will provide a new fit for purpose facility that co-locates New South Wales (**NSW**) Health Pathology (**NSWHP**) Forensic and Analytical Science Services (**FASS**), NSWHP Specialised Services (**Specialised Services**) and NSW Police Force (**NSWPF**) Forensic Evidence and Technical Services (**FETS**).

An Investment Decision Document (**IDD**) is currently being developed for the LFP in response to an approved Brief for the Secretary for NSW Health (18 January 2022) to progress planning for a joint infrastructure proposal to develop a Forensic Precinct at the FASS Lidcombe site between NSWHP and NSWPF and universities.

The Project would provide FASS, Specialised Services and FETS with the infrastructure and workspaces to enable the delivery of forensic services under a more consultative and customer focused model. The Project scope includes the replacement, expansion, and / or consolidation of the following services:

- **FASS:**
 - **Criminalistics** including chemical criminalistics, forensic biology and DNA, and illicit drugs analysis
 - **Forensic chemistry** including forensic chemistry, drugs and driving toxicology, and drugs toxicity
 - **Environmental toxicology** including environmental health testing in water microbiology, legionella reference laboratory, clinical and environmental toxicology and trace inorganics
 - **Centre for Forensic Innovation and Research** a new service providing a hub for prototyping, instrument validation, collaborative research and education.
- Specialised Services including the consolidation of phenomics, genomics and anatomical pathology services from multiple sites across NSW.
- FETS including the consolidation of the dislocated services across multiple sites in metropolitan Sydney including the crime scene services branch and Identification Service Branch.

1.2 Project drivers

The LFP IDD presents three primary drivers for investment in the LFP, in addition to alignment with government and service strategic directions, including:

- **Current assets approaching end of life and present a risk to security and integrity of services** reflecting ageing, inefficient and constrained sites that are not up to current standards
- **Current inefficiencies due to dislocated services** reflecting the disparate locations of FASS and FETS across NSW
- **Projected service activity, demographics, and crime trends** reflecting the increasing demand for forensic services as population and crime trends over time

1.2.1 Current assets approaching end of life and present a risk to security and integrity of services

The condition of infrastructure and workplaces across existing FASS, Specialised Services and FETS sites are nearing the end of their asset lives and, in most cases, not aligned with best practice. The condition of the current asset base creates inefficiencies, safety risks and constrains services offered. A description of conditions by service is described below:

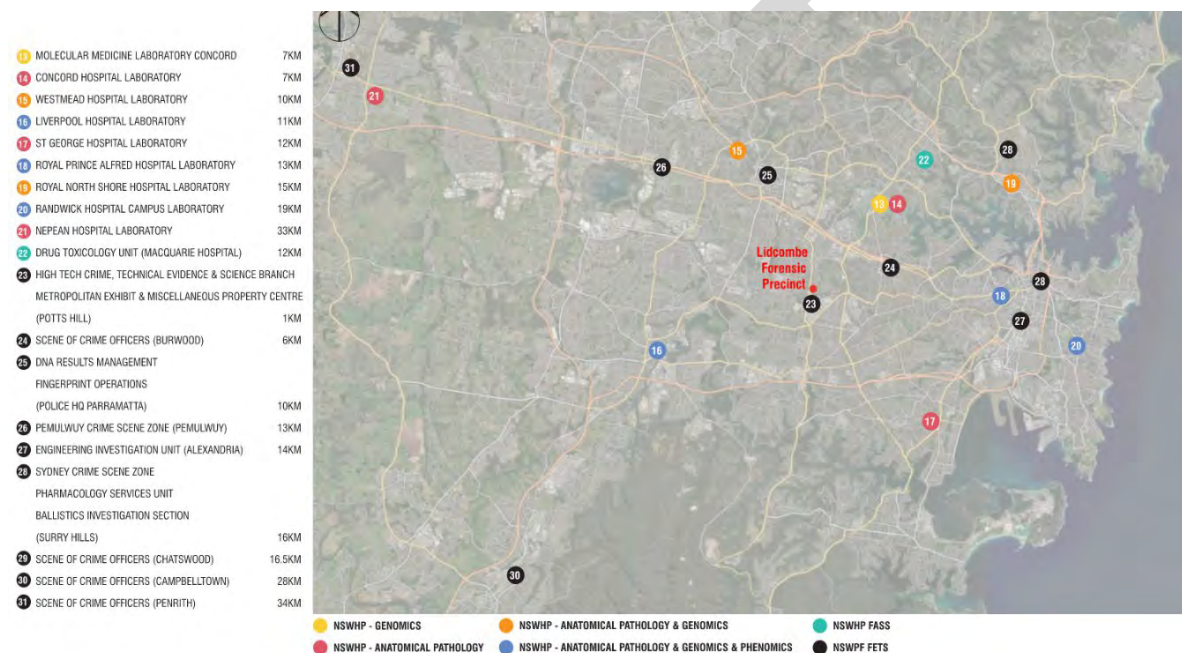
- **FASS** is based at the current Lidcombe site and includes three main buildings: Mineral Resources Building (constructed in 1975 not occupied with structural damage), Forensic Medical and Coroners Court Complex (purpose built in 2019) and the main FASS building (constructed in 1969). Other buildings on the site consist of demountable or fibro buildings repurposed for administration or laboratory functions. The existing infrastructure is nearing its end of life and is unable to be expanded or upgraded to allow for contemporary, best practice laboratory facilities suitable for meeting the growing forensic testing needs of NSW.
- **Specialised Services** including Anatomical Pathology, Genomics and Phenomics are spread across numerous laboratories at NSW hospital sites, with the furthest facility from LFP located at Tweed Hospital.

- **FETS** have multiple sites across the Sydney Metropolitan area, with issues including disparate locations, ageing infrastructure, insufficient space for collocated services, expiring rental agreements and inadequate facilities to meet services needs. In addition to this, services by NSWPF are constrained by a lack of adequate secure parking for high value fleet assets and a lack of storage for the retention of exhibits and documents required for evidence at court.

1.2.2 Current inefficiencies due to dislocation of services

In addition to the condition of the current assets, FASS, Special Services and FETS are in multiple geographical locations across metropolitan Sydney and NSW. This contributes to travel inefficiencies, lost productivity, workforce inefficiencies, delays in turnaround times and inhibits formal and informal collaboration to facilitate innovation and translational research. Figure 1 indicates the locations of FASS and FETS across metropolitan Sydney in relation to the LFP.

Figure 1: Location of FASS and FETS across Metropolitan Sydney



Source: Lidcombe Forensic Precinct Investment Decision Document v1.3, 24 November 2022.

1.2.3 Projected service activity, demographics and crime trends

FASS and FETS are conducted to improve safety outcomes of the NSW population through crime disruption and preventions, environmental safety testing, drugs and alcohol testing, and others. The demand for both FASS and FETS is anticipated to increase over time reflecting the changing demographics and increased complexity of testing, requiring more tests, analysis and processing. Where:

- Total activity across FASS, Special Services and FETS is projected to double from 315,036 in 2022/23 to 674,872 in 2032/33 due to increasing the number and types of tests on same sample, the addition of new streams for testing which are more complex and time intensive, capacity for state-wide projects and special police operations.
- Population growth and the evolving crime environment is putting pressure on the demand for police services. While crime rates per 100,000 population for most crimes are decreasing, the volume of violent crime, sexual assault and assault crimes are the highest they have been in 10 years³ and the volume and complexity of forensic tests associated

³ NSW Police Force Trend by Financial Year Graphs, 2005/06 to 2021/22, BOCSAR

with each crime are increasing. With the NSW population is projected to grow by over a million people from 2021 to 2036, the number and type of tests required to support the NSWPF will increase significantly.

The historic and projected forensic activity for NSWPF and NSWHP is presented in Table 6.

Table 6: NSWHP and NSWPF historic (annually 2017/18 to 2020/21) and projected (2027/28 and 2032/33) forensic activity by service and location

Dept/Sites	Services	Units	Historic activity (annual)				Projected activity (5 yearly)		
			2017/18	2018/19	2019/20	2020/21	2022/23	2027/28	2032/33
FASS									
Lidcombe	Water Microbiology	Samples Registered	14,911	14,486	15,159	14,539	14,943	15,098	16,572
	Legionella	Samples Registered	4,383	3,809	4,248	4,031	3,929	3,970	4,357
	Trace Inorganic Laboratory	Samples Registered	3,008	2,891	3,723	2,954	2,982	3,013	3,307
	Clinical & Environmental Toxicology Lab	Samples (Tested) Registered	862	789	658	853	858	883	1,137
	Forensic Toxicology Laboratory	Samples Registered	4,159	4,669	4,626	4,714	4,816	4,866	5,341
	Drugs & Driving Laboratory	Specimens Registered	28,546	26,874	29,077	32,638	27,811	28,131	31,177
	Illicit Drug Analysis Unit	Exhibits Registered and Statements Requested	18,084	18,786	19,896	17,585	20,591	21,231	27,959
	Chemical Criminalistics Unit	Exhibits Registered	1,027	1,213	1,229	1,308	1,394	1,460	2,216
	Forensic Biology/DNA	Exhibits Registered and Statements Requested	72,053	83,170	90,042	89,902	139,652	157,806	474,057
North Ryde	Innovation, research and prototyping	n/a	-	-	-	-	-	-	-
	Drug Toxicology Unit	Tests Performed	103,913	95,062	75,773	68,153	98,059	99,079	108,748
NSWHP Specialised Services									
	Anatomical pathology	Tests performed	-	-	-	-	38,977	39,916	64,886
	Genomics	Tests performed	-	-	-	-	51,972	62,907	182,194
	Phenomics	Tests performed	-	-	-	-	4,841	5,612	9,221

Dept/Sites	Services	Units	Historic activity (annual)				Projected activity (5 yearly)		
			2017/18	2018/19	2019/20	2020/21	2022/23	2027/28	2032/33
FETS									
	Pemulwuy Crime Scene Zone*	Scene attendance	354,223	339,753	306,416	289,179	266,244	260,919	226,557
	Sydney Crime Scene Zone (all crime scene)	FASS analysis jobs	51,050	61,439	57,325	69,082	76,782	84,460	199,153
	Pharmacology Services Unit	Case work	-	199	190	251	290	320	590
	Ballistics Investigation Section	Jobs	4,213	4,134	4,242	4,041	4,122	4,204	5,125
	Fingerprint Operations	Analysis/ Processing	89,369	85,287	92,310	113,704	140,592	147,622	240,460
	DNA Results Management Unit	Samples	29,865	29,149	35,283	33,952	44,892	49,381	80,254
	Engineering Investigation Unit (Alexandria)	Jobs	802	831	753	779	805	833	1,131

Source: Lidcombe Forensic Precinct Investment Decision Document v1.3, 24 November 2022.

Note: The NSWHP Clinical Service Plan notes that demand projections should align with the projected growth of services requiring pathology services, and that in general NSWHP state-wide activity is estimated at between 3 and 4 per cent growth per annum.

Note: *includes officers based in Burwood, Campbelltown, Chatswood and Penrith

1.2.4 Broader drivers for investment in LFP

In addition to the primary key drivers outlined above, Table 7 sets out the remaining drivers for investment in the Project.

Table 7: Summary of Project key drivers

Key driver	Description
Ability to provide full scope of services is limited by dislocated services	Current dislocation of services limits the ability to provide a full scope of services – for example, by collocating liquid chromatography and tandem mass spectrometry (LC-MS/MS), Queensland Pathology has been able to expand their test menu beyond what NSWHP currently offers.
Risks due to current asset condition	Business continuity is at risk if current infrastructure condition results in shut down periods or sample loss – for some specialised services, NSWHP is the only provider for the entire state – interruptions would impact investigations, court matters, and therefore present risk to community health and safety.
Demand for testing is growing	Insufficient capacity on existing sites to accommodate growth in demand for testing
Future service planning aims are better achieved when NSW Police and NSW Pathology are collocated	Future service planning for NSWHP and NSWPF aims to identify emerging drug trends in NSW and develop early warning systems to drive evidence-based policing and drug health policy and practices in NSW. Collocating the staff of both organisations would greatly support this.
Key functional relationships are not met, and limit results	Key functional relationships between NSWPF and NSWHP are not met with current service locations, limiting the ability to collaborate on results
There are staff and technology inefficiencies	Current dislocation of services impacts on efficiency of both staff and technology

Key driver	Description
Current dislocation of services pose risks	Due to dislocation of services, staff transport samples between buildings and across campuses/sites – this poses a risk to sample security, sample integrity and staff safety.
Working conditions limit retention of highly specialised staff	There are issues with staff retention across the scientific community in Australia – collocating specialist highly-skilled staff would improve staff collaboration, recruitment and retention
Use of external providers raises costs and result return time	Limited availability of certain tests results in expensive and lengthy processes to arrange patients test results from overseas providers. Planned future service provision would meet local (and ideally further) needs in-house while avoiding costs of external providers.
There is an opportunity to position NSW as a leader in forensics	Southern hemisphere provision of specialised services is relatively new, limited and presents an opportunity to position NSW as a leader in translational research and service provision to new regions.
Current development of new assays is slow	Current development of new assays is slow due to dislocation and inefficiencies. This Project scope would therefore provide NSWHP with a competitive advantage over other labs such as private.
Costs of procurement, management, and maintenance of technology are duplicated	Current technology is dislocated and duplicates the management of highly specialised machines. Collocating a critical mass of machines can save costs on procurement, management, and maintenance.
Existing assets have undergone a variety of improvements	Existing assets have undergone a variety of improvements and refurbishments over recent years, and would achieve value being replaced and/or consolidated.
Existing operations have high costs of couriers and staff travel	Existing operations have high costs of couriers and staff travel. The Project provides opportunity to avoid courier costs and decrease staff travel between sites, thereby increasing the amount of time staff spend in the field.

Source: Lidcombe Forensic Precinct Investment Decision Document v1.3, 24 November 2022.

1.3 Project objectives

The LFP vision is to be ‘a world-leading precinct providing integrated and innovative forensic and scientific services to sustain and advance the health and safety of the NSW community’.

The core objectives of the Project are to:

- Address significant risks to the continuity and integrity of forensic testing in the NSW criminal justice system, that arise from the end-of-life state of the current facility.
- Deliver an integrated service for NSW, which assists rapid and proactive utilisation of information (operational translation)
- Deliver efficient and effective services through synergy and collaborative interagency teams
- Strengthen networks and expertise for NSW by bringing specialists together
- Promote discovery of new service models through translation research, prototyping and enhanced knowledge base
- Use information and communications technology to improve sample management (receipting, processing, and storage), and reporting
- Promote research and education through agency and university partnerships
- Promote seamless flows for staff and samples built around contemporary service models
- Deliver an environment which offers “bump” spaces enabling formal and informal collaboration
- Provide design solutions that ensure the integrity of samples and maintains chain of custody

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- Deliver a healthy environment in response to the nature of the work undertaken which offers spaces to support staff health and wellbeing, including culturally appropriate spaces
- Pursue operational and design initiatives that minimise the Project's environmental impact – including NSWHP and HI sustainability work
- Adopt future proofing strategies to meet the growing and changing service models
- Provide centralised solution to improve efficiencies, effectiveness, and surge capacities for NSWHP to cater growing demand and new model of care across the state
- Reduce requirements for additional hospital space and improve service delivery through digital and offsite anatomical pathology.⁴

DRAFT

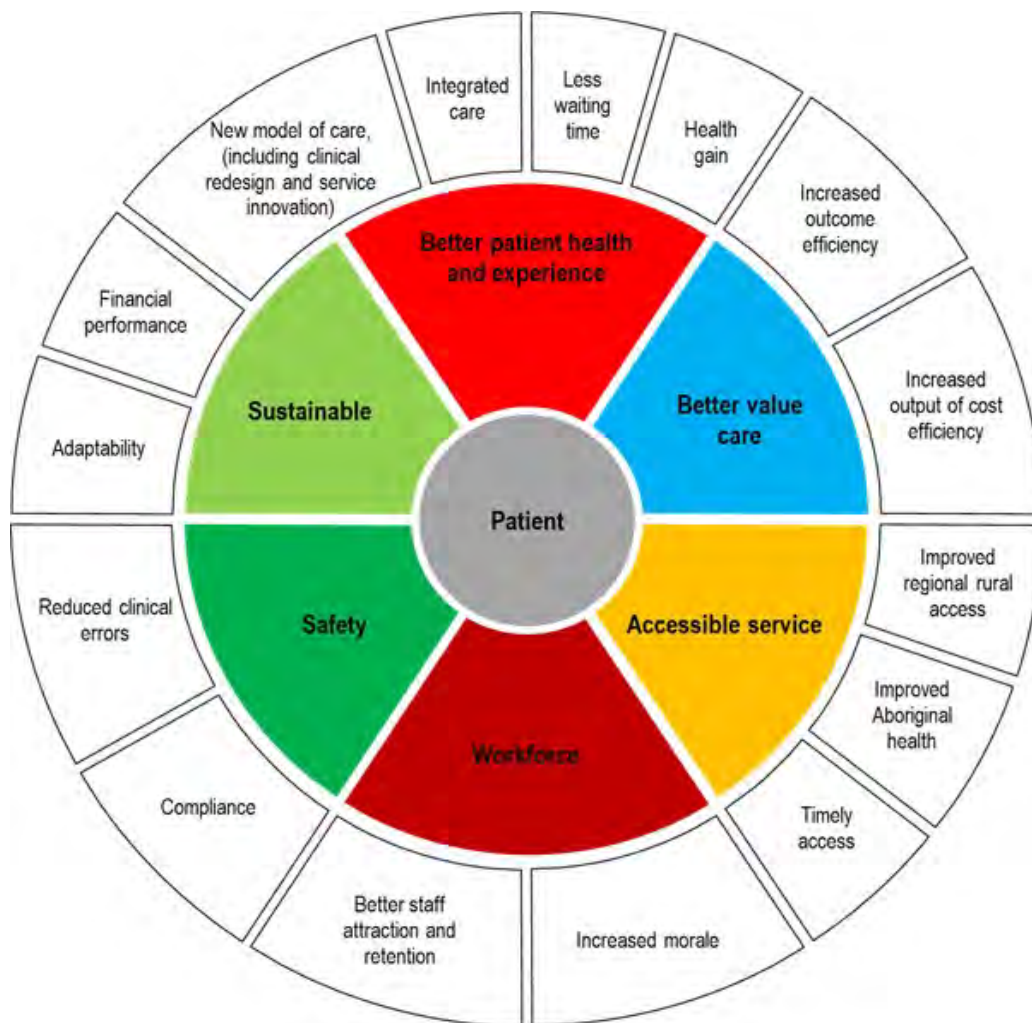
⁴ Health Infrastructure NSW (2022), Lidcombe Forensic Precinct Investment Decision Document, Version 1.3, 24 November 2022

2 Project benefit identification

2.1 Benefit Conceptual Framework

HI's Benefit Conceptual Framework enables the identification and structuring of potential and expected benefits associated with capital investment. Application of the Benefit Conceptual Framework captures early thinking on how the benefits relate to the problems / issues / challenges, how they are measured, and linkages to service delivery outcomes. Figure 2 presents the Benefit Conceptual Framework.

Figure 2: Benefit Conceptual Framework diagram



Source: Health Infrastructure NSW (2014)

2.2 High-level assessment of Project outcomes, benefits and indicators

The LFP IDD presents the application of HI's Benefit Conceptual Framework to LFP to identify the range of benefits and indicators associated with the Project. Table 8 presents the LFP draft benefits and indicators set out in the LFP IDD, these align with the benefits and investment options mapping and the Benefits Realisation Plan.

Table 8: Draft benefits and indicators for the LFP

Ref	Outcome Area	Benefits – Service Outcomes	Benefits indicator
1	Safety - compliance	Reduction in reportable incidents	Decrease in: <ul style="list-style-type: none"> • WHS incidents • lost sample incidents • Testing and sample errors
2	Better value for money – increased efficiency	More efficient service delivery and greater return on investment	<ul style="list-style-type: none"> • Faster sample processing time • Less time taken for quality assurance and error resolution • Less travel/delivery time results in lower courier costs • Increase in staff productivity (front line work % vs. travel %) • Reduction in chain of custody breaches • Decrease in costs of leases and RMR of existing infrastructure • Reduction in Laboratory capital investment of finite and expensive hospital grounds
3	Sustainability – financial, environmental, and adaptability	Maintenance efficiencies through scale and collocation	<ul style="list-style-type: none"> • Reduced whole-of-life-cycle costs • Reduced rent costs • Reduced building management costs
		Increased capacity and efficiency to meet demand at acute facilities, i.e. AP	
		Cessation of travel across multiple sites	<ul style="list-style-type: none"> • CO2 emission reductions
		Flexibility for future changes in scope and technology	<ul style="list-style-type: none"> • Satisfaction with lab design, and avoided refurbishment costs
4	Sustainability and workforce – new model of delivery	Improved translational research outcomes and increased health innovation and national recognition	<ul style="list-style-type: none"> • Increased joint authorship research • Decreased time of validation, translation of practice • Improved recovery rates • Non-government investment opportunities • Joint appointments
5	Better value care	Optimising outcomes for the NSW community	<ul style="list-style-type: none"> • Time to solve crime • Turnaround times for evidence gathering sampling and test results

Source: Health Infrastructure NSW (2022), Lidcombe Forensic Precinct Investment Decision Document v1.3, 24 November 2022

The benefits identified in the LFP IDD have been assessed either quantitatively or qualitatively as part of this preliminary CBA. See Table 19 for alignment and mapping of the quantified benefits and the draft benefits presented in the LFP IDD.

3 Options

3.1 Options analysis overview

In accordance with the *Interim Guide to Options Development of Health Capital Projects (January 2021)*, NSWHP, NSWPF, HI and Johnstaff developed HI's Five Dimensions of Options Analysis framework for LFP prior to options development and assessment. The outcomes of this analysis, shown in the table below, underpins the scope associated with LFP and identification of the long list of options.

Table 9: Five dimensions options analysis

Item	Factors	High-level assessment
1. The “What” – Service: scope, scale, and location	Scale	The Project will deliver a world class integrated forensic precinct with FASS, Specialised Pathology Services and FETS on one campus. The infrastructure will bring together multiple services across Greater Sydney and NSW into one building to address current inefficiencies created through the need for travel and the use of couriers, in addition to mitigating the risks posed by the current infrastructure to the chain of custody for evidence and the potential miscarriage of justice. The Project does not have an allocation of capital funding. The delivery of partial components of the scope (e.g.: FASS or FETS alone) will not fully achieve the benefits that colocation will provide.
	Location (Greenfield vs. Brownfield)	<p>The existing FASS is located on the same campus as the recently commissioned Forensic Medicine and Coroners Court (FMCC) complex (January 2019).</p> <p>There is sufficient available land on the site to construct a new building that could be staged with minimal interruption to services in addition to maintaining a significant amount of therapeutic and climate controlling green space. The land is owned by NSW Ministry of Health Hospital Administration Corporation with no capital costs for land purchase required. The new build within the existing campus provides an immediate adjacency to the FMCC, minimising travel times for staff to attend the FMCC when required.</p> <p>The location of the campus is central to Greater Metropolitan Sydney.</p>
	Infrastructure upgrade scope: new build, refurbishment, replacement	<p>The adaptive re-use / refurbishments of existing spaces have been considered throughout the options development. Factors influencing this have included the age and condition of the existing infrastructure, as well as location / adjacency for services.</p> <p>Condition reports indicate that the existing buildings are no longer fit for purpose, contain hazardous materials and the structural grid does not support contemporary practice. The FASS building was constructed in 1969 and in addition to the issues with its existing condition, it will be at capacity by 2029 based on current projections.</p> <p>The NSW Health Asset Management Framework: NSWHP Asset Performance Assessment - Buildings and Building Equipment estimates that \$10.8 million will be required to maintain the current FASS building to a minimum standard.</p> <p>FETS is currently located on multiple sites that are constrained due to being located in existing readapted infrastructure or leased commercial buildings.</p>
2. The “How” – Service Solution	Existing	Both FASS and FETS are required to maintain the chain of custody for physical evidence. The current infrastructure poses risks to the chain of custody due to the travel requirements to transport evidence both internally and externally due to the location of FASS and FETS across various locations in Sydney and NSW and also the design of existing facilities which do not support efficient flows. IT systems are used to document findings once analysis is complete. However, the majority of evidential items are material and need to be transported for sampling and testing.
	New	The colocation of FASS and FETS will minimise travel times and the movement of evidence and promote collaboration between the two services. The new build will provide a fit for purpose facility that will minimise risks to the chain of custody and processing errors and allow for the projected increase in activity after 2029. The new service will also be a place where innovation

Item	Factors	High-level assessment
		will be promoted in collaboration with tertiary institutions facilitating research, education and training, creating a precinct that is recognised at a local, national and international level.
3. The “Who” – Service Delivery	Services	NSWHP will provide the FASS and NSWPF will provide the FETS component. The collocation of these agencies will provide a seamless flow of evidence, sampling, analytics and reporting, minimising the risk of compromising the chain of custody, creating efficiencies, and promoting collaboration through ease of access to expertise between the two agencies.
4. The “When” – Timeframe and Staging	Timeline and Staging	Contract documentation Q1 2026 (pending funding commitments) Staging: <ul style="list-style-type: none"> • New Build and decant of services into the new building • Car Park constructed concurrently with the new build • Remediation / demolition of the existing buildings
	Construction commencement	Anticipated in Q4 2026
	Construction completion	Anticipated in Q4 2028
	Commissioning	Anticipated in Q1 2029
5. Funding	Potential funding options`	NSW Government Funding \$676.3 million NSWPF Lease agreements to be modelled on the FMCCC framework Private partnerships (e.g., with universities or others) to be explored further in the Business Case stage.

Source: Health Infrastructure NSW (2022), Lidcombe Forensic Precinct Investment Decision Document v1.3, 24 November 2022; Genus Advisory (2022), Lidcombe Forensic Precinct Investment Decision Estimate (20221103)

3.2 Long list of options

The scope for the LFP is presented in the LFP IDD and was developed by NSWHP, NSWPF, HI and Johnstaff. The scope of services is documented in the *Lidcombe Forensic Precinct Scoping Document*. The scope of services and LFP’s Five Dimensions of Options Analysis were used to develop a long list of options including Option 1 (Base Case), three capital solutions and two non-capital solutions.

Table 10 presents the long list of options considered for the Project, as presented in the LFP IDD.

Table 10: Long list of options

Option type	Option name	Option description
Base case	Option 1 (Base Case)	Keep safe and operational and minimising risk
Capital solution	Option 1A	Provision of a new fit for purpose facility to collocate FASS, Specialised Services and FETS
	Option 2A	Provision of a new fit for purpose facility to collocate FASS and Specialised Services
	Option 3A	Provision of a new fit for purpose facility to collocate FASS and FETS
Non-capital solution	Service realignments to improve integration and workflows	FASS Service realignments to improve integration and workflows have been undertaken, but this is severely constrained by the condition and layout of the buildings on the campus. Receipt points for sample deliveries have been consolidated to improve efficiency across the campus, but this has only been able to be progressed as a virtual model. The building design does not support the development of a centralised receiving area as there is no space central and large enough to provide this function. A key requirement to improve service efficiency would be the provision of laboratories with efficient functional adjacencies but this cannot be designed within the current “U” shaped layout of the main building. FETS have accommodated staff in available space within existing infrastructure and leased space across metropolitan Sydney.

Option type	Option name	Option description
	Streamline and standardise work processes and methodology	Laboratory layouts, location of laboratory equipment at FASS have been maximised to improve workflows within the constraints and limitations of the existing building which does not meet the requirements of contemporary practice.

Source: Health Infrastructure NSW (2022), Lidcombe Forensic Precinct Investment Decision Document v1.3, 24 November 2022

3.3 Shortlisted options assessed in the preliminary CBA

NSWHP, NSWPF, HI and Johnstaff identified a shortlist of options through a qualitative multi criteria assessment based on the benefits realised through the Project. The multi criteria assessment identified that the non-capital solutions, including changes to internal workflow and processes, were not sufficient to meet the future demand of FASS, Specialised Services and FETS to achieve NSW community outcomes. Three short-listed capital solutions were proposed for specification, costing and quantitative assessment through a Financial Impact Statement (FIS) and preliminary CBA.

The shortlisted options and Option 1 (Base Case) assessed within the preliminary CBA are detailed in Table 11 below.

Table 11: Shortlisted Project options

Option	Description	Estimated Total Cost (ETC)
Option 1 (Base Case)*	The Base Case assumes that no capital funding is provided to the Project for expansion of existing services capacity beyond undertaking urgent repairs and maintaining status quo. Therefore, there are no additional increases in efficiency or quality improvements.	\$0
Option 1A – Full scope	Option 1A includes the development of a new build and collocation of the full scope of FASS, Specialised Services and FETS. The scope of this option includes: <ul style="list-style-type: none"> • Floor area associated with this option is 38,476 m² • FASS: <ul style="list-style-type: none"> ○ Criminalistics ○ Forensic and environmental toxicology ○ Centre for (Forensic) Innovation and Research • Specialised Services: <ul style="list-style-type: none"> ○ Phenomics ○ Genomics ○ Anatomical pathology • FETS: <ul style="list-style-type: none"> ○ Crime scene services branch ○ Identification services branch • An additional 533 car parking spaces 	\$676.3 million
Option 2A – NSWHP full scope	Option 2A includes the development of a new build and collocation of the full scope of FASS and Specialised Services. The scope of this option includes: <ul style="list-style-type: none"> • Floor area associated with this option is 23,209 m² • FASS: <ul style="list-style-type: none"> ○ Criminalistics ○ Forensic and environmental toxicology ○ Centre for (Forensic) Innovation and Research • Specialised Services: <ul style="list-style-type: none"> ○ Phenomics ○ Genomics ○ Anatomical pathology 	\$441.3 million

Option	Description	Estimated Total Cost (ETC)
	<ul style="list-style-type: none"> An additional 360 car parking spaces 	
Option 3A – NSWHP partial scope and NSWPF full scope	<p>Option 3A includes the development of a new build and collocation of the full scope of FASS and FETS. The scope of this option includes:</p> <ul style="list-style-type: none"> Floor area associated with this option is 26,426 m² FASS: <ul style="list-style-type: none"> Criminalistics Forensic and environmental toxicology Centre for (Forensic) Innovation and Research FETS: <ul style="list-style-type: none"> Crime scene services branch Identification services branch An additional 398 car parking spaces 	\$491.1 million

Source: Health Infrastructure NSW (2022), Lidcombe Forensic Precinct Investment Decision Document v1.3, 24 November 2022; Genus Advisory (2022), Lidcombe Forensic Precinct Investment Decision Estimate (20221103)

Note: It has been identified in the LFP IDD that existing Lidcombe FASS site would require works to keep the facilities operational and safe. In absence of asset condition assessment to maintain existing facilities over the appraisal period, capital costs of Option 1 (Base Case) have been estimated based on the cost of redevelopment of the existing floor space based on Project Case Gross Construction Costs provided by Genus Advisory. The costs associated with these works should be explored further in the Strategic Business Case stage.

3.4 Approach to cost-benefit analysis

A preliminary CBA has been prepared in accordance with the *NSW Government Guide to Cost-Benefit Analysis* (TPP 17-03), applying a CBA framework adopting a discounted cash flow analysis approach to compare economic outcomes associated with each of the Project options.

The CBA framework involves identifying and where possible, quantifying:

- Economic costs** of each Project option including the value of the real resources that are used as inputs. In the instance where quantification of economic costs is not possible, a qualitative approach is used.
- Economic benefits** of each Project option including the value of the real outputs. Where it is not possible to quantify a particular benefit, a qualitative analysis is applied.

An overview of the costs and benefits assessed in the analysis is provided in Table 12 along with the alignment to services.

Table 12: Overview of economic benefits and costs assessed and alignment with services

Economic impact	Quantitative / Qualitative	FASS	Specialised Services	FETS
Economic benefits				
Reduction in crime from increased efficiency in the criminal conviction process	Quantitative	✓	×	✓
Reduction in driving offences from efficiency in alcohol and drug testing	Quantitative	✓	×	×
Improved health outcomes associated with increased environmental toxicology testing	Quantitative	✓	×	×
Increased collaboration arising from collocation of services	Quantitative	✓	✓	✓
Improved translational research outcomes	Quantitative	✓	✓	×
Opportunity cost of freed-up space in existing lab facilities	Quantitative	×	✓	×
Consumer surplus from increased carparking	Quantitative	✓	✓	✓

Options

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Economic impact	Quantitative / Qualitative	FASS	Specialised Services	FETS
Efficiencies arising from purpose-built facility layout	Quantitative	✓	✓	✓
Avoided capital cost associated with the Lidcombe FASS site	Quantitative	✓	×	×
Residual value	Quantitative	✓	✓	✓
Improved productivity from collocation within the LFP	Qualitative	✓	✓	✓
Reduction in reportable incidents and increased staff safety from contemporary and purpose-built facilities	Qualitative	✓	✓	✓
More efficient service delivery and greater return on investment	Qualitative	✓	✓	✓
Maintenance efficiencies through scale and collocation	Qualitative	✓	✓	✓
Increased capacity and efficiency to meet demand at acute facilities	Qualitative	✓	✓	✓
Cessation of travel across multiple sites	Qualitative	×	✓	✓
Flexibility for future changes in scope and technology	Qualitative	✓	✓	✓
Improvements in the disposal of waste material, reducing environmental and operational costs	Qualitative	✓	✓	×
Increased resilience to future events and ability to enact management plans faster	Qualitative	✓	✓	✓
Increased workforce attraction and retention	Qualitative	✓	✓	✓
Long term resilience to climate change – fire/flooding, water access and contamination, increased temperatures and droughts	Qualitative	✓	✓	×
Improvements in public safety	Qualitative	✓	✓	✓
Improved reputation of NSW Government forensic and pathology services	Qualitative	✓	✓	✓
Improved ability to support Government policy development	Qualitative	✓	✓	✓
Economic costs				
Capital costs	Quantitative	✓	✓	✓
LCCM costs	Quantitative	✓	✓	✓
Operating costs	Quantitative	✓	✓	✓
Traffic congestion during construction	Qualitative	✓	✓	✓
Noise and pollution during construction	Qualitative	✓	✓	✓
Disruption to NSWHP and NSWFP staff during construction	Qualitative	✓	✓	✓
Continued operational inefficiencies associated with the dislocation of services	Qualitative	×	×	×

Source: Health Infrastructure NSW (2022), Lidcombe Forensic Precinct Investment Decision Document v1.3, 24 November 2022

3.5 Key evaluation assumptions

The key assumptions and parameters used in the preliminary CBA are as follows:

- **Analysis period:** The preliminary CBA has been conducted on a 20-year appraisal period from FY2022/23 to FY2042/43.

- **Base year:** The evaluation has used FY2022/23 as the base year for this appraisal. All costs and benefits have been discounted to arrive at a present value for FY2022/23.
- **Unit of account / price year:** The preliminary CBA is conducted in real terms (i.e. it excludes the effects of inflation). All benefits and costs are expressed in constant FY2022/23 prices.
- **Discount rates:** Consistent with NSW Treasury guidelines, a real discount rate of 7 per cent per annum has been used. Sensitivity tests have also been conducted at real discount rates of 3 per cent, 5 per cent and 10 per cent per annum.
- **Capital costs:** Capital costs for the Project options were provided by Genus Advisory.
- **Operating costs:** Operating costs for Option 1 (Base Case) and Project options have been adopted from the FIS developed by HI.

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4 Assessment of costs

4.1 Overview

Direct and indirect cost impacts have been identified across the Project options, with the following costs quantified for inclusion in the preliminary CBA:

- **Capital costs:** including costs associated with the planning, design, construction and commissioning of the Project
- **Life-cycle capital maintenance (LCCM) costs:** including costs associated with capital maintenance over the life of the infrastructure
- **Operating costs:** including operating and maintenance costs associated with the operation of the Project. The Preliminary FIS provides a high-level costing at this stage and recurrent affordability will be assessed during the business case phase.

The qualitative cost impacts are considered in Section 4.6.

A summary of the direct and indirect costs applicable to the Project options are presented in Table 13.

Table 13: Summary of costs impacts associated with Project options

Description	Cost category	Quantitative / Qualitative	Option 1 (Base Case)	Option 1A	Option 2A	Option 3A
Direct impacts	Capital costs	Quantitative	×	✓	✓	✓
	LCCM costs	Quantitative	×	✓	✓	✓
	Operating costs	Quantitative	✓	✓	✓	✓
Indirect impacts	Traffic congestion during construction	Qualitative	×	✓	✓	✓
	Noise and pollution during construction	Qualitative	×	✓	✓	✓
	Disruption to NSWHP and NSWFP staff during construction	Qualitative	×	✓	✓	✓
	Continued operational inefficiencies associated with the dislocation of services	Qualitative	✓	×	✓	✓

4.2 Capital costs

The Cost Plan for the Project options has been prepared by Genus Advisory. The capital costs for the Project options are \$676.3 million for Option 1A, \$441.2 million for Option 2A and \$491.1 million for Option 3A.

Under the base case, the current infrastructure of the FASS facility is ageing and would require capital works to sustain safe operations through the 20-year appraisal period. These are captured as an avoided capital cost (see Section 5.2.9).

The capital costs across the Project options include costs associated with:

- Construction works including new build, refurbishment, demolition works, engineering services, enabling works and relocation and temporary accommodation
- Furniture, fixtures and equipment, major specialist equipment and information and communications technology
- Allowances, overheads, margin and Health Infrastructure management costs
- Contingencies (i.e. design at 5 per cent, planning at 5 per cent, construction at 5 per cent and client contingency at 10 per cent) and escalation.

Table 14 presents the capital costs for the LFP Project options.

Table 14: Total capital costs (undiscounted, \$'m)

Project option	Nominal total capital costs (capital cost including escalation)	Escalation	Real total capital costs (capital cost excluding escalation)
Option 1 (Base Case)	n/a	n/a	n/a
Option 1A	\$676.3	\$96.2	\$580.1
Option 2A	\$441.2	\$59.7	\$381.5
Option 3A	\$491.1	\$66.3	\$424.7

Source: Genus Advisory (2022), Lidcombe Forensic Precinct Investment Decision Estimate (20221103).

Table 15: Real capital cost cash flow (real \$2022/23, undiscounted, \$'m)

Project option	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	Total
Option 1 (Base Case)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Option 1A	\$0.25	\$6.7	\$19.6	\$40.0	\$65.4	\$371.8	\$76.5	\$580.1
Option 2A	\$0.25	\$4.9	\$13.7	\$31.1	\$52.9	\$264.5	\$14.2	\$381.5
Option 3A	\$0.25	\$5.1	\$15.4	\$32.8	\$59.3	\$296.0	\$15.9	\$424.7

Source: Genus Advisory (2022), Lidcombe Forensic Precinct Investment Decision Estimate (20221103). Note: capital costs for FY2022/23 are excluded from the Preliminary CBA as they are considered sunk costs.

4.3 Life-cycle capital maintenance costs

The average annual life-cycle capital maintenance cost is assumed to be 1 per cent of the total capital cost. The life-cycle capital maintenance costs commence from construction completion and service commissioning until the end of the appraisal period.

4.4 Operating costs

The operating costs for the Project options were developed by HI for the FIS and are presented in Table 16. The operating costs capture labour-related costs, goods and services costs and facilities maintenance costs. The costs associated with the Project options also include operating cost efficiencies associated with FETS avoided leasing costs, reduced courier costs and other operational savings. The operating costs adopted in the preliminary CBA exclude escalation and therefore differ from those presented in the FIS.

Table 16: LFP operating cost cash flow (real \$2022/23, undiscounted, \$'m)

Project option	Projected operating costs									
	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32
Option 1 (Base Case)	\$108.8	\$116.1	\$116.1	\$116.1	\$116.1	\$116.1	\$116.1	\$116.1	\$116.1	\$116.1
Option 1A	\$108.8	\$116.1	\$116.1	\$116.1	\$116.1	\$116.1	\$116.1	\$135.4	\$137.6	\$139.6
Option 2A	\$108.8	\$116.1	\$116.1	\$116.1	\$116.1	\$116.1	\$116.1	\$131.5	\$133.4	\$136.0
Option 3A	\$108.8	\$116.1	\$116.1	\$116.1	\$116.1	\$116.1	\$116.1	\$128.8	\$130.0	\$131.1

Source: PwC analysis of Health Infrastructure (2022), Lidcombe Forensic Precinct FIS draft v3 (20221130)

4.5 Total quantifiable costs

The capital, LCCM and operating costs associated with Option 1 (Base Case) and the Project options have been quantified in present value (PV) terms over a 20-year appraisal period. The results of this assessment are presented in Table 17.

Table 17: LFP total quantifiable costs (real \$2022/23, discounted at 7 per cent over 20 years, \$'m)

Cost	Option 1 (Base Case)	Option 1A	Option 2A	Option 3A
Capital cost	n/a	\$421.9	\$280.3	\$311.9
LCCM cost	n/a	\$39.4	\$22.2	\$24.8
Operating cost	\$1,223.1	\$1,364.3	\$1,336.4	\$1,312.9
Total quantified costs	\$1,223.1	\$1,825.6	\$1,639.0	\$1,649.5

Source: PwC analysis of Genus Advisory (2022), Lidcombe Forensic Precinct Investment Decision Estimate (20221103); Health Infrastructure NSW (2022), Lidcombe Forensic Precinct FIS draft v3 (20221130)

4.6 Qualitative costs

In addition to the quantified costs outlined above, there are also several unquantified costs that would arise under each of the Project options. These non-quantifiable costs associated with the construction phase of the Project, including:

- Noise and air pollution: during construction, staff and patients may experience increases in noise and dust from building works.
- Disruption to local traffic flows: additional vehicles during construction may impact on traffic in and around the LFP, resulting in travel delay and increased congestion for staff and patients.
- Disruption to FASS and FETS staff during construction and staff may experience some inconveniences associated with construction works. Furthermore, staff may experience disruption of operations associated with the relocation of services.
- Operational inefficiencies for staff (under Option 2A and 3A only): the dislocation of services between the new LFP and services that remain in current infrastructure may result in operational inefficiencies for staff as compared to Option 1A.

The magnitude of these costs under each option is presented in Table 18.

Table 18: Unquantified costs comparative rating of options

Unquantified costs	Option 1 (Base Case)	Option 1A	Option 2A	Option 3A
Noise and air pollution	No change	High	Medium	Medium
Disruption to local traffic flows	No change	High	Medium	Medium
Disruption to NSWHP and NSWPF staff	No change	High	Medium	Medium
Operational inefficiencies for staff	No change	No change	Low	Low

Source: PwC analysis (2022)

5 Assessment of benefits

5.1 Benefit overview

Investment in LFP is expected to deliver a range of benefits to the NSWHP, NSWPF, the broader community and the NSW Government. The three short-listed options for LFP would seek to address current and future demand for pathology services at the NSWHP and NSWPF, continue to pursue scientific innovation and research and provide future capital and operational cost savings.

Table 19 presents a summary of the benefits identified for the LFP Project options.

Table 19: Summary of benefits under assessed options

Description	Alignment with Table 8	Benefits	Option 1 (Base Case)	Option 1A	Option 2A	Option 3A
Quantifiable benefits	Ref 5	Reduction in crime from increased efficiency in the criminal conviction process	×	✓	✓	✓
	Ref 5	Reduction in driving offences from efficiency in alcohol and drug testing	×	✓	✓	✓
	Ref 5	Improved health outcomes associated with increased environmental toxicology testing	×	✓	✓	✓
	Ref 4	Increased collaboration arising from collocation of services	×	✓	✓	✓
	Ref 4	Improved translational research outcomes	×	✓	✓	✓
	Ref 3	Opportunity cost of freed-up space in existing lab facilities	×	✓	✓	×
	Ref 3	Consumer surplus from increased carparking	×	✓	✓	✓
	Ref 2	Efficiencies arising from purpose-built facility layout	×	✓	✓	✓
	Ref 3	Avoided capital cost associated with the Lidcombe FASS site	×	✓	✓	✓
	Ref 3	Residual value	×	✓	✓	✓
Qualitative benefits	Ref 2	Improved productivity from collocation within the LFP	×	✓	✓	✓
	Ref 1	Reduction in reportable incidents and increased staff safety from contemporary and purpose-built facilities	×	✓	✓	✓
	Ref 2	More efficient service delivery and greater return on investment	×	✓	✓	✓
	Ref 3	Maintenance efficiencies through scale and collocation	×	✓	✓	✓
	Ref 3	Increased capacity and efficiency to meet demand at acute facilities	×	✓	✓	✓
	Ref 3	Cessation of travel across multiple sites	×	✓	×	×

Assessment of benefits

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Ref 3	Flexibility for future changes in scope and technology	×	✓	✓	✓
Ref 3	Improvements in the disposal of waste material, reducing environmental and operational costs	×	✓	✓	✓
Ref 3	Increased resilience to future events and ability to enact management plans faster	×	✓	✓	✓
Ref 4	Increased workforce attraction and retention	×	✓	✓	✓
Ref 3	Long term resilience to climate change – fire/flooding, water access and contamination, increased temperatures and droughts	×	✓	✓	✓
Ref 5	Improvements in public safety	×	✓	✓	✓
Ref 5	Improved reputation of NSW Government forensic and pathology services	×	✓	✓	✓
Ref 5	Improved ability to support Government policy development	×	✓	✓	✓

Source: PwC analysis (2022)

5.2 Quantifiable benefit methods

The following section sets out the economic assessment methods, data inputs, assumptions and parameters used in the estimation of the following economic benefits:

- Reduction in crime from increased efficiency in the criminal conviction process
- Reduction in driving offences from efficiency in alcohol and drug testing
- Improved health outcomes associated with increased environmental toxicology testing
- Increased collaboration arising from collocation of services
- Improved translational research outcomes
- Opportunity cost of freed-up space in existing lab facilities
- Consumer surplus from increased carparking
- Efficiencies arising from purpose-built facility layout
- Avoided capital cost of the Lidcombe FASS site
- Residual value

5.2.1 Reduction in crime from increased efficiency in the criminal conviction process

Empirical evidence suggests that the perceived length and complexity of the criminal conviction process can influence the disincentive for an individual to commit a crime and alter the overall crime rate. This indicates that offenders will discount the severity of their punishment according to the length between their offense and the actual imposition of the punishment. It is important to note that this logic only applies for minor offences such as robbery and theft.⁵

⁵ Dalla Pellegrina (2008), Court delays and crime deterrence

Forensic evidence is often important in criminal trials and testing delays are one of the key factors which lead to delays in court trials from lack of case preparedness. Delays in court trials create further delays in penalty imposition for the offender.⁶ Outcomes of forensic testing is essential in supporting criminal trials, faster test turnaround times are anticipated to reduce delays within the justice system and increase safety for the NSW community. The increase in throughput of relevant forensic testing across FASS and FETS would impact crime rate reduction through the relationship between court days and crime deterrence.

Taking this into consideration, the approach to capture this benefit is based on the ability of increased testing rates in reducing delays within the criminal justice system.

Adjusted crime rate

The current rate of robberies and theft crime are obtained through the number of crimes committed out of the NSW population. Based on the current NSW population and number of petty crimes committed, the current rates of crime are 0.02 per cent and 1.1 per cent for robbery and theft respectively.

$$\text{Crime rate}_{i,a} = \frac{\text{Number of crimes committed}_{i,a}}{\text{Population}_i}$$

Where, i = year; a = type of crime (robbery or theft)

The adjusted crime rate is calculated through the increase in throughput of relevant tests out of total testing capabilities, multiplied by an elasticity of crime developed by the Dalla Pellegrina (2008) study.⁷ The elasticity of crime includes various factors that are involved in the criminal conviction process that would affect trial days prior to conviction of offender. Hence, a factor of 20 per cent has been used in the analysis to articulate the impact delays forensic testing has on crime rates. Sensitivity testing of this offset rate has been undertaken in Chapter 7.

$$\text{Adjusted crime rate}_{i,a} = \left(\frac{\text{Increased throughput in relevant tests}_i}{\text{Increased throughput in all tests}_i} \times \varepsilon_a \right) \times \text{Crime rate}_{i,a} \times \text{impact delay factor}$$

Where, i = year; a = type of crime (robbery or theft); ε = Elasticity of crime rates with respect to delays

These relevant tests span across services offered across FASS and FETS, including:

- **FASS:** Forensic Toxicology Laboratory, Drugs & Driving Laboratory, Illicit Drug Analysis Unit, Chemical Criminalistics Unit, Forensic Biology / DNA, and the Drug Toxicology Unit
- **FETS:** Pemulwuy Crime Scene Zone, Sydney Crime Scene Zone, Pharmacology Services Unit, Ballistics Investigation Section, Fingerprint Operations, DNA Results management Unit and Engineering Investigation Unit

Benefits of reduced crime

The benefits of reduction in crime are monetised through multiplying the cost of robbery and theft crimes to the reduction in offences.

$$\text{Benefits of reduced crime} = \sum_i [\text{Population}_i \times (\text{Crime rate} - \text{Adjusted crime rate}) \times \text{Cost of crime}_a]$$

Where, i = year; a = type of crime (robbery or theft)

The calculation of the avoided future operating costs is underpinned by the assumptions presented in Table 20.

⁶ Australian Institute of Criminology (2020), Criminal trial delays in Australia: trial listing outcomes.

⁷ Dalla Pellegrina (2008), Court delays and crime deterrence

Table 20: Reduction in crime from increased efficiency in the criminal conviction process assumptions

Assumption	Description
Elasticity of crime	Robbery: 0.53 Theft: 0.68
Weighted average cost of crime	Robbery: \$6,761 (\$22/23) Theft: \$2,987 (\$22/23)
Impact delay factor	20%, based on assumption (tested in sensitivity analysis – see Chapter 7)
Population	NSW population obtained from Travel Zone Projections 2022 population forecasts
Theft and robbery offences committed	Total number of thefts and robberies committed by LGAs sourced from BOCSAR crime tables
Year the benefit is applied	2029/30 – first year of full operations of the LFP

Source: BOCSAR (2021), NSW Local Government Area excel crime tables; Dalla Pellegrina (2008), Court delays and crime deterrence; Australian Institute of Criminology (2011), Counting the cost of crime in Australia: A 2011 estimate; TfNSW (2022), Travel Zone Projections 2022.

It is acknowledged that there are other types of forensic testing that will increase the efficiency of the criminal conviction process and improve public safety that are not captured within the benefit category due to methodology constraints – as highlighted in the qualitative benefit assessment.

5.2.2 Reduction in driving offences from efficiency in alcohol and drug testing

Driving under the influence of drugs or alcohol can lead to consequences including fatality and serious injuries. The current rate of road incidents is estimated to be around 0.005 per cent leading to fatalities and 0.16 per cent leading to serious injuries.⁸

Empirical evidence suggests that the presence or prominence of alcohol and drug testing could reduce the rate of accidents. A Traffic Enforcement Resource Allocation Model developed for the Victoria Police estimated a 13.7 per cent reduction rate in fatal crashes and at least 1.4 per cent reduction rate in serious injuries after the introduction of roadside drug testing.⁹ Similarly, there would be an estimated reduction of 15 per cent fatal crashes and 1.5 per cent serious injuries through introduction of alcohol testing.¹⁰ Additional alcohol and drug testing available through the Project options would reduce the number of accidents on the road.

Reduction in driving offences captured in the analysis is estimated through adjusting the reduction rates from the research above through the increase in throughput of the Drugs & Driving Laboratory.

$$\text{Adjusted reduction rate of offences}_{i,a} = \left(\frac{\text{Increased throughput in relevant tests}_i}{\text{Increased throughput in all tests}_i} \right) \times \text{reduction rate}_{e_{i,a}}$$

Where, i = year; a = type incident (fatality, serious incident)

Benefits captured relate to the monetisation of the reduction in fatalities and serious injuries from current incidences caused by driving under the influence of drugs and alcohol.

The calculation of the avoided future operating costs is underpinned by the assumptions presented in Table 21.

⁸ NRMA (2017), cost of crashes; TfNSW (2015), serious injuries in NSW 2005 to 2015.

⁹ Cameron et al. (2022), Evaluation of an increase in roadside drug testing in Victoria based on models of the crash effects of random and targeted roadside tests.

¹⁰ Australian Institute of Criminology (2014), Effective drink driving prevention and enforcement strategies: Approaches to improve practice.

Table 21: Reduction in driving offences from efficiency in alcohol and drug testing assumptions

Assumption	Description
Reduction rate	Reduction rate of fatal crashes (drug testing): 13.7% Reduction rate of serious injuries (drug testing): 1.4% Reduction rate of fatal crashes (alcohol testing): 15% Reduction rate of serious injuries (alcohol testing): 1.5%
Current driving incidents	Fatality rate: 0.005% Serious injuries rate: 0.16%
Average cost per incident	Fatality: \$8,245,571(\$22/23) Serious injury: \$330,986 (\$22/23)
Year the benefit is applied	2029/30 – first year of full operations

Source: NRMA (2017), cost of crashes; TfNSW (2015), serious injuries in NSW 2005 to 2015; Cameron et al, (2022), Evaluation of an increase in roadside drug testing in Victoria based on models of the crash effects of random and targeted roadside tests; Australian Institute of Criminology (2014), Effective drink driving prevention and enforcement strategies: Approaches to improve practice.

5.2.3 Improved health outcomes associated with increased environmental toxicology testing

The LFP delivers health benefits arising from an increase in environmental toxicology testing abilities. Earlier detection of waterborne diseases with the example of Giardiasis, Rotavirus and Legionellosis could be realised through faster rates of testing, leading to reduction in potentially preventable hospitalisations (PPH).

PPH are hospital admissions that potentially could have been prevented by timely and adequate health care in the community. PPH are also an indicator of effective early detection and mitigation of potential diseases. It is noted that attributes of PPH defined by the Australian Institute of Health and Welfare does not include conditions preventable through population health interventions, such as clean air and water.¹¹ However, earlier detection and mitigation of potential waterborne diseases (such as Legionellosis) can decrease the number of preventable hospitalisations within NSW and therefore was considered an appropriate proxy for the benefit associated with increased environmental toxicology testing. The Project will increase the number of environmental toxicology testing conducted through FASS, reducing the number of potential hospitalisations which lead to operating cost savings.

This benefit captures the reduction in additional operating costs associated with reduction in PPH that would otherwise have to be incurred if the Project did not proceed.

The formulae used to estimate these avoided operating costs are outlined below.

Avoided operating costs

$$PPH * \text{projected \% reduction of PPH} * (\text{average cost per acute-admitted separation} - \text{average cost per non-admitted service event})$$

The calculation of the avoided future operating costs is underpinned by the assumptions presented in Table 22.

Table 22: Improved health outcomes associated with increased environmental toxicology testing assumptions

Assumption	Description
Projected reduction in PPH	It has been assumed that the PPH of waterborne diseases will be reduced by the same rate of the increase in throughput in environmental toxicology testing.
Cost differential between the average cost per admitted	The cost differential is calculated using:

¹¹ Australian Institute of Health and Welfare (2021), National Healthcare Agreement: PI 18 – Selected potentially preventable hospitalisations.

Assumption	Description
acute separation and the average cost per non-admitted service event	The assumption that the appropriate non-admitted patient service event will avoid one acute separation Average price per National Weighted Activity Unit (NWAU) for NSW of \$5,797 in 2022/23 converted into acute inpatient services at a rate of 1.2 The conversion of non-admitted service events to NWAU at a rate of 0.02

Source: Health Infrastructure (2022), HI CBA Toolkit and VSLY updates; IHPA (2022), National Efficient Price Determination 2022-23 NWAU

5.2.4 Increased collaboration arising from collocation of services

The Project options of the LFP will collocate different combination of FASS, Specialised Services and FETS in one precinct. A study conducted at Stanford University on productivity increases showed a statistically significant relationship between productivity increase in full-time employees (**FTE**). Through collocation of services within a single precinct, the study has suggested that labour productivity in such a precinct increases by approximately 2.9 per cent when the size of a precinct increases.¹² The LFP seeks to create additional FTEs under all Project options as services collocate in Lidcombe. This increase in labour force would generate productivity increases from collaboration and knowledge sharing.

This benefit is monetised through gross value add (**GVA**) of increase in FTE within the LFP by the labour productivity factor. The increase in FTE between the project options are included in Table 23.

Table 23: FTE projections by Project option

Project option	Projected FTE									
	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
Option 1 (Base Case)	905	905	905	905	905	905	905	905	905	905
Option 1A	905	905	905	905	905	905	1,092	1,119	1,146	1,172
Option 2A	905	905	905	905	905	905	1,053	1,080	1,106	1,130
Option 3A	905	905	905	905	905	905	1,052	1,072	1,092	1,110

Source: Health Infrastructure NSW (2022), Lidcombe Forensic Precinct FIS draft v3 (20221130)

The assumptions for the increased collaboration arising from collocation of services is presented in Table 24.

Table 24: Increased collaboration arising from collocation of services assumptions

Assumption	Description
Increase in average labour productivity	2.9%
GVA per worker – Health care and social assistance within the Lidcombe SA2	\$83,689 (\$22/23)

Source: Antonio Ciccone and Robert E. Hall (1996), Productivity and the Density of Economic Activity; ABS (2021), Australian System of national Accounts

This benefit is driven by the agglomeration of workers within the Project options in comparison to the Base Case. The productivity benefits of collocating FASS and FETS in Option 3A may not be captured entirely in the quantitative analysis and is assessed qualitatively in Table 31.

¹² Antonio Ciccone and Robert E. Hall (1996), Productivity and the Density of Economic Activity

5.2.5 Improved translational research outcomes

The LFP will provide increased capacity to support medical research and pursue scientific innovation. This would support a holistic and translational environment for the Centre for (Forensic) Innovation and Research Excellence as part of FASS to produce various research outputs.

Numerous studies have shown significant benefits such as improvements in wellbeing, the value of avoided medical costs and ensuing productivity gains to the economy associated with investment in research funding. A 2014 Australian Deloitte study on the impact of the Medical Research Future Fund (Australia) found that for the average dollar from the fund invested in medical research, \$1.76 in wellbeing gains were assessed to be returned.¹³ Further, a 2018 KPMG study on the value of each Disability Adjusted Life Years (**DALYS**) averted by investment in medical research in Australia found that for every dollar invested, net health gains of \$2.60 were delivered.¹⁴

For the purpose of the preliminary CBA, the midpoint of the two Australian studies noted above has been assumed i.e. for every dollar invested in medical research, a \$2.18 return on investment is delivered. As the research operating costs have been accounted for in the operating costs, the full 2.18 benefit factor has been adopted.

Table 25 summarises the assumptions and parameters used in the translational research benefit calculation.

Table 25: Improved translational research outcomes assumptions

Assumption	Description
Annual research grant	\$16.8 million research grant received by NSWHP in 2020
Increase in research grants under the Project Case	Assumed increase in research funding based on increase in FTE, proportioned by the increase in floor area of the Centre for (Forensic) Innovation and Research Excellence and total testing activity under the Project options. Option 1 (Base Case) assumed to remain constant
Research benefit factor	2.18
Year the benefit is applied	2029/30 – first year of full operations of LFP

Source: NSWHP (2022), Research activity report 2020; Health Infrastructure NSW (2022), Lidcombe Forensic Precinct FIS draft v3 (20221130), Deloitte (2014); KPMG (2018)

5.2.6 Opportunity cost of freed-up space in existing lab facilities

Investment in the LFP will result in the vacating the space currently occupied in public hospitals across NSW by the Specialised Services component in Options 1A and 2A. The vacated space can be repurposed for more appropriate uses within hospital facilities, such as provision of acute services. The methodology for quantifying this benefit is based on a per square metre rental cost for an office space as well as an additional fit out cost to convert into a fit-for-purpose medical space. This benefit has been captured for Options 1A and 2A only as the Specialised Services component would remain at its current locations in Option 3A.

The assumptions and parameters underpinning the calculation for the opportunity cost of freed-up space are summarised in Table 26.

Table 26: Opportunity cost of freed-up space in existing lab facilities assumptions

Assumption	Description
Vacated space within existing facilities	1,500 m ² provided by HI

¹³ Deloitte Access Economic (2014), Extrapolated returns from investment in medical research future fund (MRFF)

¹⁴ KPMG (2018), Impact of Medical Research in Australia

Assumption	Description
Cost per square metre	\$465 per m ² provided by NSWHP and Genus Advisory based on preliminary capital cost plan for the purpose of this assessment
Fit out cost per square metre	\$2,000 per m ² based on medical centre fit out costs
Year the benefit is applied	2029/30 – first year of full operations

Source: Health Infrastructure NSW (2022), NSWHP (2022), Genus Advisory (2022), Lidcombe Forensic Precinct Investment Decision Estimate (20221103); Healthcare Interiors (2022)

5.2.7 Consumer surplus from increased carparking

All Project options provide employee car parking spaces onsite with Option 1A providing 533 spaces, Option 2A providing 360 spaces and Option 3A providing 398 spaces. While revenue may not be generated from these spaces (to be determined through future planning stages of the Project), staff place value on have access to dedicated car parking spaces close to their destination. This value is captured as the consumer surplus of these car spaces, calculated adopting car parking fees at equivalent facilities (as a proxy for willingness to pay for a car parking space) net of the resource costs (i.e. operating cost) of the car park.

The assumptions and parameters underpinning the calculation for consumer surplus from increased carparking are summarised in Table 27.

Table 27: Consumer surplus from increased carparking assumptions

Assumption	Description
Carparking rate	\$5.21 per day based on NSW health carparking weekly rate in 2019 (\$2022/23)
Occupancy rate per carparking space	80% of 365 days per year based on assumption
Incremental revenue	Calculated based on carparking operating cost at \$343 (\$2022/23) per space provided by HI for the purpose of this assessment
Year the benefit is applied	2029/30 – first year of full operations

Source: NSW Health (2019), Increase in car parking fees; Health Infrastructure NSW (2022)

5.2.8 Efficiencies arising from purpose-built facility layout

Workflow efficiencies could be gained from working in a purpose-built facility with optimal layout. The building design associated with the Project options will be optimised to reduce time taken to conduct testing, specifically reflecting a reduced walk time. It has been estimated that an optimal layout could facilitate a reduction of 357 travelling hours from day-to-day work of services within FASS.¹⁵ Based on this data, total travelling time savings have been obtained based a weighted average of FETS and Specialised Services activity to FASS activity. The benefit is monetised through multiplying travel time savings by labour cost per FTE.

The assumptions and parameters underpinning the calculation of efficiencies arising from purpose-built facility layout are summarised in Table 28.

Table 28: Efficiencies arising from purpose-built facility layout assumptions

Assumption	Description
Labour cost per FTE	Around \$130,000 based on FTE and labour costs provided by HI
Year the benefit is applied	2029/30 – first year of full operations

¹⁵ FASS (2022), CETL – TIL LFP Cost Benefit Analysis_PWC

Source: Health Infrastructure NSW (2022), Health Infrastructure NSW (2022), Lidcombe Forensic Precinct FIS draft v3 (20221130); FASS (2022), CETL – TIL LFP Cost Benefit Analysis_PWC

5.2.9 Avoided capital cost of the Lidcombe FASS site

The current infrastructure of the FASS facility is ageing and would require capital works to sustain safe operations through the 20-year appraisal period. In the absence of asset condition assessment to maintain the existing facility throughout the appraisal period, the costs have been estimated based on the cost of redevelopment of the existing floor space in a like-for-like nature as proxy for the capital outlay required. These costs could be explored further in the Strategic Business Case stage.

This cost is avoided under the Project options as the existing facility would be developed holistically into the precinct. The avoided capital cost associated with these works has been captured as an economic benefit.

The avoided capital cost has been estimated based on the average per square metre capital cost of Project options in a like-for-like nature as proxy for the capital outlay required. LCCM associated with the capital works have also been captured in this benefit.

The assumptions and parameters underpinning the calculation of avoided capital cost of the existing Lidcombe FASS site are summarised in Table 29.

Table 29: Avoided capital cost associated with the Lidcombe FASS site

Assumption	Description
Avoided capital cost	\$88.2 million (excluding escalation), based on the average per square metre General Construction Cost of Project options
Year the benefit is applied	2028/29 – year prior to first year of full operations, LCCM begins in 2029/30

Source: Genus Advisory (2022), Lidcombe Forensic Precinct Investment Decision Estimate (20221103)

5.2.10 Residual value

The residual value of the assets has been included in the final year of the 20-year evaluation period as a capitalised value of future user benefits beyond the appraisal period. It has been estimated using the straight line depreciation of the capital cost and the remaining economic life of the building in 2042/43. An economic life of 40 years has been assumed for capital building stock.

No residual value has been assumed under the Option 1 (Base Case).

5.3 Total quantifiable benefits

The results of the total quantifiable benefits of the Project options over a 20-year appraisal period is presented in Table 30 below.

Table 30: Total quantifiable benefits, incremental to Option 1 (Base Case) (real \$2022/23, discounted at 7 per cent over the 20-year appraisal period, \$'m)

Benefits	Option 1A	Option 2A	Option 3A
Reduction in crime from increased efficiency in the criminal conviction process	\$107.4	\$71.1	\$87.2
Reduction in driving offences from efficiency in alcohol and drug testing	\$42.8	\$31.6	\$33.0
Improved health outcomes associated with increased environmental toxicology testing	\$0.7	\$0.7	\$0.7
Increased collaboration arising from collocation of services	\$127.4	\$108.8	\$100.8

Assessment of benefits

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Benefits	Option 1A	Option 2A	Option 3A
Improved translational research outcomes	\$252.3	\$126.7	\$69.2
Opportunity cost of freed-up space in existing lab facilities	\$21.5	\$21.5	-
Consumer surplus from increased carparking	\$3.7	\$2.5	\$2.7
Efficiencies arising from purpose-built facility layout	\$0.5	\$0.3	\$0.4
Avoided capital cost associated with the Lidcombe FASS site	\$65.4	\$65.4	\$65.4
Residual value	\$97.4	\$64.1	\$71.3
Total quantified benefits, incremental to Base Case	\$719.0	\$492.7	\$430.8

Source: PwC analysis (2022) of information provided by Genus Advisory; Lidcombe Forensic Precinct FIS draft v3 (20221130); NSWHP, NSWPF, FASS (2022), CETL – TIL LFP Cost Benefit Analysis_PWC, Research activity report 2020; Deloitte (2014); KMPG (2018); Antonio Ciccone and Robert E. Hall (1996), Productivity and the Density of Economic Activity; ABS (2021), Australian System of national Accounts; IHPA (2022), National Efficient Price Determination 2022-23 NWAU; NRMA (2017), cost of crashes; TfNSW (2015), serious injuries in NSW 2005 to 2015; Cameron et al, (2022), Evaluation of an increase in roadside drug testing in Victoria based on models of the crash effects of random and targeted roadside tests; Australian Institute of Criminology (2014), Effective drink driving prevention and enforcement strategies: Approaches to improve practice; BOCSAR (2021), NSW Local Government Area excel crime tables; Dalla Pellegrina (2008), Court delays and crime deterrence; Australian Institute of Criminology (2011), Counting the cost of crime in Australia: A 2011 estimate; TfNSW (2022), Travel Zone Projections 2022.

Option 1A delivers the highest benefits of \$719.0 million over the 20-year appraisal period. Option 2A and 3A have a similar level of benefit of \$492.7 and \$430.8 million respectively.

5.4 Qualitative benefits

There are a range of qualitative benefits associated with the LFP that were not able to be quantified due to methodology and data limitations. Key benefits include cessation of travel across multiple sites, increased resilience to future major events and improve reputation of NSW Government forensic and pathology services.

The qualitative benefits of the LFP options are presented in Table 31.

Table 31: Qualitative benefits comparative rating of options

Qualitative benefits identified	Option 1 (Base Case)	Option 1A	Option 2A	Option 3A
Improved productivity from collocation within the LFP	No change	High	Medium	High
Reduction in reportable incidents and increased staff safety from contemporary and purpose-built facilities	No change	High	Medium	Medium
More efficient service delivery and greater return on investment	No change	High	Medium	Medium
Maintenance efficiencies through scale and collocation	No change	High	Medium	Medium
Increased capacity and efficiency to meet demand at acute facilities	No change	High	Medium	Medium
Cessation of travel across multiple sites	No change	High	Medium	Medium
Flexibility for future changes in scope and technology	No change	High	Medium	Medium
Improvements in the disposal of waste material, reducing environmental and operational costs	No change	High	Medium	Low
Increased resilience to future events and ability to enact management plans faster	No change	High	Medium	Medium
Increased workforce attraction and retention	No change	High	Medium	Medium
Long term resilience to climate change – fire/flooding, water access and contamination, increased temperatures and droughts	No change	High	Medium	Medium

Assessment of benefits

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Qualitative benefits identified	Option 1 (Base Case)	Option 1A	Option 2A	Option 3A
Improvements in public safety	No change	High	Medium	High
Improved reputation of NSW Government forensic and pathology services	No change	High	Medium	Medium
Improved ability to support Government policy development	No change	High	Medium	Medium

Source: PwC analysis (2022)

6 Findings and results

6.1 Summary of cost benefit analysis results

The results of the preliminary CBA for the Project options against Option 1 (Base Case) are presented in Table 32. These results are presented in terms of the net present value (NPV) of the investment over the 20-year appraisal period at a 7 per cent discount rate and using a benefit cost ratio (BCR) for comparison of options.

Table 32: Results of the cost-benefit analysis, incremental to Option 1 (Base Case) (\$2022/23, discounted at 7 per cent over 20-year appraisal period, \$'m)

	Option 1A	Option 2A	Option 3A
<i>Incremental costs</i>			
Capital costs	\$421.9	\$280.3	\$311.9
LCCM costs	\$39.4	\$22.2	\$24.8
Operating costs	\$141.3	\$113.3	\$89.8
Total incremental costs	\$602.6	\$415.9	\$426.5
<i>Incremental benefits</i>			
Reduction in crime from increased efficiency in the criminal conviction process	\$107.4	\$71.1	\$87.2
Reduction in driving offences from efficiency in alcohol and drug testing	\$42.8	\$31.6	\$33.0
Improved health outcomes associated with increased environmental toxicology testing	\$0.7	\$0.7	\$0.7
Increased collaboration arising from collocation of services	\$127.4	\$108.8	\$100.8
Improved translational research outcomes	\$252.3	\$126.7	\$69.2
Opportunity cost of freed-up space in existing lab facilities	\$21.5	\$21.5	-
Consumer surplus from increased carparking	\$3.7	\$2.5	\$2.7
Efficiencies arising from purpose-built facility layout	\$0.5	\$0.3	\$0.4
Avoided capital associated with the Lidcombe FASS site	65.4	65.4	65.4
Residual value	\$97.4	\$64.1	\$71.3
Total incremental benefits	\$719.0	\$492.7	\$430.8
Incremental Net Present Value	\$116.4	\$76.8	\$4.3
Incremental BCR	1.19	1.18	1.01

Source: PwC analysis (2022) of information provided by Genus Advisory; Lidcombe Forensic Precinct FIS draft v3 (20221130); NSWHP, NSWPF, FASS (2022), CETL – TIL LFP Cost Benefit Analysis_PWC, Research activity report 2020; Deloitte (2014); KMPG (2018); Antonio Ciccone and Robert E. Hall (1996), Productivity and the Density of Economic Activity; ABS (2021), Australian System of national Accounts; IHPA (2022), National Efficient Price Determination 2022-23 NWAU; NRMA (2017), cost of crashes; TfNSW (2015), serious injuries in NSW 2005 to 2015; Cameron et al, (2022), Evaluation of an increase in roadside drug testing in Victoria based on models of the crash effects of random and targeted roadside tests; Australian Institute of Criminology (2014), Effective drink driving prevention and enforcement strategies: Approaches to improve practice; BOCSAR (2021), NSW Local Government Area excel crime tables; Dalla Pellegrina (2008), Court delays and crime deterrence; Australian Institute of Criminology (2011), Counting the cost of crime in Australia: A 2011 estimate; TfNSW (2022), Travel Zone Projections 2022.

On the basis of the preliminary CBA results, all the short-listed options will generate positive economic outcomes, with positive NPVs and BCRs greater than one. As Options 1A and 2A have similar BCRs, ranking short-listed options in terms of their economic outcomes is best conducted on a NPV basis. Option 1A has the highest NPV of \$116.4 million, followed

by Option 2A and Option 3A. This is in line with the scope delivered by the options whereby Option 1A delivers colocation of FASS, Specialised Services and FETS and Options 2A and Option 3A deliver a reduced scope of services.

6.2 Post implementation evaluation plan

A post-commissioning evaluation will be undertaken for the Project to assess whether the intended Project benefits have been achieved. The evaluation will identify opportunities for sustaining Project's benefits, as well as documenting any lessons learnt to inform improvement in service delivery and planning for future redevelopment stages.

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7 Sensitivity analysis

7.1 Summary of sensitivity analysis results

Sensitivity tests were undertaken to assess the potential outcomes of the preliminary CBA of the Project options to understand changes in the following key assumptions driving economic outcomes:

- Discount rate – tested at 3 per cent, 5 per cent and 10 per cent
- Capital costs – tested at +/- 20 per cent
- Operating costs – tested at +/- 20 per cent
- Impact delay factor – tested at +/- 10 per cent which reflects the range in impact forensic testing results may have on crime rates
- Cost of road incidents (fatalities and serious injuries) – tested at +/- 20 per cent which reflects a range in potential costs of road incidents
- Hospital admissions rate in relation to waterborne illnesses – tested at +/- 20 per cent
- GVA per worker – tested with GVA per worker representing at state-wide level
- Return in research – tested at +/- 20 per cent to reflect varying returns in research outcomes
- Rental yield for freed-up space – tested at +/- 20 per cent to reflect fluctuation in the rental market
- Carparking daily rate – tested at +/- 20 per cent to represent a range of potential carparking rates
- Total time savings from optimal facility layout – tested at +/- 20 per cent to represent varying levels of efficiency gains
- Best case scenario – tested at - 20 per cent costs and + 20 per cent benefits
- Worst case scenario – tested at + 20 per cent costs and - 20 per cent benefits

Table 33: Sensitivity analysis results, incremental to Option 1 (Base Case) (\$2022/23, discounted at 7 per cent over 20-year appraisal period, \$'m)

Sensitivity test	Option 1A		Option 2A		Option 3A	
	NPV	BCR	NPV	BCR	NPV	BCR
Baseline	\$116.4	1.19	\$76.8	1.18	\$4.3	1.01
Discount rate						
Lower at 3%	\$407.9	1.51	\$260.1	1.47	\$161.5	1.29
Lower at 5%	\$235.1	1.34	\$151.6	1.32	\$67.4	1.14
Higher at 10%	\$4.5	1.01	\$5.7	1.02	\$(52.9)	0.85
Capital costs						
-20%	\$208.7	1.41	\$137.3	1.39	\$71.7	1.20
+20%	\$24.2	1.03	\$16.3	1.03	\$(63.0)	0.87
Operating costs						
-20%	\$144.7	1.25	\$99.4	1.25	\$22.3	1.05
+20%	\$88.2	1.14	\$54.1	1.12	\$(13.6)	0.97
Impact delay factor						
-10%	\$62.8	1.10	\$41.2	1.10	\$(39.3)	0.91
+10%	\$170.1	1.28	\$112.3	1.27	\$48.0	1.11

Sensitivity analysis

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Sensitivity test	Option 1A		Option 2A		Option 3A	
	NPV	BCR	NPV	BCR	NPV	BCR
Cost of road incidents						
-20%	\$107.9	1.18	\$70.5	1.17	\$(2.3)	0.99
+20%	\$125.0	1.21	\$83.1	1.20	\$10.9	1.03
Hospital admissions						
-20%	\$116.3	1.19	\$76.6	1.18	\$4.2	1.01
+20%	\$116.6	1.19	\$76.9	1.18	\$4.5	1.01
GVA per worker						
Average GVA per worker in NSW	\$128.3	1.21	\$86.9	1.21	\$13.7	1.03
Return in research						
-20%	\$66.0	1.11	\$51.4	1.12	\$(9.5)	0.98
+20%	\$166.9	1.28	\$102.1	1.25	\$18.2	1.04
Rental yield						
-20%	\$112.1	1.19	\$72.5	1.17	\$4.3	1.01
+20%	\$120.8	1.20	\$81.1	1.19	\$4.3	1.01
Carparking rates						
-20%	\$115.5	1.19	\$76.1	1.18	\$3.6	1.01
+20%	\$117.4	1.19	\$77.4	1.19	\$5.0	1.01
Optimal layout time savings						
-20%	\$116.3	1.19	\$76.7	1.18	\$4.3	1.01
+20%	\$116.5	1.19	\$76.8	1.18	\$4.4	1.01
Best case scenario	\$237.0	1.49	\$160.0	1.48	\$89.6	1.26
Worst case scenario	\$(4.1)	0.99	\$(6.4)	0.99	\$(81.0)	0.84

Source: PwC analysis (2022) of information provided by Genus Advisory, Health Infrastructure NSW (2022), Lidcombe Forensic Precinct FIS draft v3 (20221130); NSWHP, NSWPF, FASS (2022), CETL – TIL LFP Cost Benefit Analysis_PWC, Research activity report 2020; Deloitte (2014); KMPG (2018); Antonio Ciccone and Robert E. Hall (1996), Productivity and the Density of Economic Activity; ABS (2021), Australian System of national Accounts; IHPA (2022), National Efficient Price Determination 2022-23 NWAU; NRMA (2017), cost of crashes; TfNSW (2015), serious injuries in NSW 2005 to 2015; Cameron et al, (2022), Evaluation of an increase in roadside drug testing in Victoria based on models of the crash effects of random and targeted roadside tests; Australian Institute of Criminology (2014), Effective drink driving prevention and enforcement strategies: Approaches to improve practice; BOCSAR (2021), NSW Local Government Area excel crime tables; Dalla Pellegrina (2008), Court delays and crime deterrence; Australian Institute of Criminology (2011), Counting the cost of crime in Australia: A 2011 estimate; TfNSW (2022), Travel Zone Projections 2022.

The results of the sensitivity analysis demonstrate that all three Project options remain economically viable under most sensitivity tests. Option 1A is the best performing option with the highest NPV under all sensitivity tests.

8 Qualitative factors and distributional analysis

8.1 Qualitative factors

The key social, economic and environmental impacts of the LFP Project are summarised in Figure 3 below.

Figure 3: Summary of social, economic and environmental impact of LFP



8.2 Distributional analysis

Investment in the Project will impact a range of beneficiaries with differing scale. Within the context of the preliminary CBA, distribution analysis is used to identify the benefits that accrue to each beneficiary to understand the equity of the investment across the different beneficiary groups to understand who are benefiting or bearing the costs. Overall, the Project will provide:

- Improved community outcomes for the NSW community through reduced crime rates, detection in waterborne illnesses and benefits of pathology research
- Improved workplace efficiency and environment for employees of FASS, Specialised Services and FETS
- Increased employment, education and research opportunities within the LFP.

Table 34 provides an overview of the distributional analysis of benefits across key beneficiaries.

Table 34: Distribution of benefits across beneficiary groups

Economic impact	Analysis type	Producers	Consumers	Workers	Government
Economic benefits					
Reduction in crime from increased efficiency in the criminal conviction process	Quantitative		✓		✓
Reduction in driving offences from efficiency in alcohol and drug testing	Quantitative		✓		✓
Improved health outcomes associated with increased environmental toxicology testing	Quantitative		✓		✓
Increased collaboration arising from collocation of services	Quantitative	✓	✓	✓	✓
Improved translational research outcomes	Quantitative	✓	✓	✓	✓
Opportunity cost of freed-up space in existing facilities	Quantitative	✓			✓
Consumer surplus from increased carparking	Quantitative		✓	✓	
Efficiencies arising from purpose-built facility layout	Quantitative	✓	✓	✓	
Avoided capital cost associated with the Lidcombe FASS site	Quantitative				✓
Residual value	Quantitative				✓
Improved productivity from collocation within the LFP	Qualitative	✓	✓	✓	
Reduction in reportable incidents and increased staff safety from contemporary and purpose-built facilities	Qualitative			✓	
More efficient service delivery and greater return on investment	Qualitative	✓	✓		
Maintenance efficiencies through scale and collocation	Qualitative				✓
Increased capacity and efficiency to meet demand at acute facilities	Qualitative		✓		✓
Cessation of travel across multiple sites	Qualitative			✓	
Flexibility for future changes in scope and technology	Qualitative	✓	✓	✓	
Improvements in the disposal of waste material, reducing environmental and operational costs	Qualitative	✓			✓
Increased resilience to future events and ability to enact management plans faster	Qualitative	✓	✓	✓	✓
Increased workforce attraction and retention	Qualitative	✓		✓	
Long term resilience to climate change – fire/flooding, water access and contamination, increased temperatures and droughts	Qualitative	✓	✓		✓
Improvements in public safety	Qualitative		✓		✓
Improved reputation of NSW Government forensic and pathology services	Qualitative				✓
Improved ability to support Government policy development	Qualitative				✓
Distributional analysis of quantitative economic benefits (PV, discounted at 7%, real \$2022/23)					

Qualitative factors and distributional analysis

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Economic impact	Analysis type	Producers	Consumers	Workers	Government
Option 1A total incremental economic benefits		\$380.1	\$150.9	\$3.7	\$184.4
Option 2A total incremental economic benefits		\$235.8	\$103.4	\$2.5	\$151.0
Option 3A total incremental economic benefits		\$170.4	\$121.0	\$2.7	\$136.7

Source: PwC analysis (2022) of information provided by Genus Advisory Health Infrastructure NSW (2022), Lidcombe Forensic Precinct FIS draft v3 (20221130); NSWHP, NSWPF, FASS (2022), CETL – TIL LFP Cost Benefit Analysis_PWC, Research activity report 2020; Deloitte (2014); KMPG (2018); Antonio Ciccone and Robert E. Hall (1996), Productivity and the Density of Economic Activity; ABS (2021), Australian System of national Accounts; IHPA (2022), National Efficient Price Determination 2022-23 NWAU; NRMA (2017), cost of crashes; TfNSW (2015), serious injuries in NSW 2005 to 2015; Cameron et al, (2022), Evaluation of an increase in roadside drug testing in Victoria based on models of the crash effects of random and targeted roadside tests; Australian Institute of Criminology (2014), Effective drink driving prevention and enforcement strategies: Approaches to improve practice; BOCSAR (2021), NSW Local Government Area excel crime tables; Dalla Pellegrina (2008), Court delays and crime deterrence; Australian Institute of Criminology (2011), Counting the cost of crime in Australia: A 2011 estimate; TfNSW (2022), Travel Zone Projections 2022.

9 Conclusions and recommendations

The results of the preliminary CBA of the LFP Project options indicate that all options would generate positive benefits in terms of NPV and BCRs greater than one. Based on Project assumptions and parameters, Option 1A would deliver the highest net benefits to community, with an NPV of \$116.4 million and BCR of 1.19. While Option 2A delivers a similar BCR as Option 1A, it presents a lower net economic benefit to the community (NPV of \$76.8 million).

Sensitivity tests were undertaken to assess the potential outcomes of the preliminary CBA of the LFP Project options due to changes in key assumptions that underpin the analysis. Options 1A and 2A remain economically viable under most sensitivity tests.

The largest benefits are driven by the ability of the project options to produce increasing translational research, reflecting the delivery of the centre for forensic innovation and research across all options. The benefits of collocating different services within Lidcombe also produces great collaboration benefits, improving productivity within the LFP area. The monetisation method for estimating the increased collaboration arising from collocation of services is based on the number of FTE collocated in the LFP and does not consider the types of services and effectiveness of these services in their collocation. As a result, Option 3A, the collocation of FASS and FETS services may be understated in the collaboration benefit that would arise from this option.

It is noted that some of the benefits associated with the Project options are not able to be quantified, for example, increased resilience to future adverse events, improved reputation of NSW Government forensic and pathology services and the ability to be flexible and adapt to the changing technology and trends in forensic and pathology services. As these benefits increase in line with the capacity of the facility and collocation of FASS, Specialised Services and FETS, the exclusion of these benefits from quantification in the CBA is not expected to impact on the ranking of the options.

DRAFT

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APPENDIX 5

LIDCOMBE FORENSIC PRECINCT

MASTER PLAN REPORT – VOLUME 1
REV C 03 NOV 2022



VERSION CONTROL SCHEDULE

Project: LIDCOMBE FORENSIC PRECINCT

Document: 10618 - LFP Master Plan Report

Version	Date	Document Owner	Approved By
A	27/10/2022	Michelle Lan	Brent Railton
B	01/11/2022	Michelle Lan	Brent Railton
C	03/11/2022	Michelle Lan	Brent Railton

ACKNOWLEDGEMENT OF COUNTRY

We acknowledge and pay respects to the Traditional Custodians of the Country now known as Lidcombe: The Gandangara people and in the broader Western Sydney region, the Darug and Guringai peoples. Their spirit can be found across the region and we honour the memory of their ancestors and Elders, past and present.

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APPENDIX 11 – COST PLAN
APPENDIX 12 – PRECINCT PLAN REPORT (2015)



1.0 EXECUTIVE SUMMARY

1.0 EXECUTIVE SUMMARY

AIM OF THE MASTER PLAN REPORT

This report has been prepared as part of a Master Plan ‘refresh’, to inform the Investment Decision Document (IDD) for the Lidcombe Forensic Precinct (LFP).

The LFP is proposed to be located at the corner of Joseph Street and Weeroona Road, Lidcombe.

Silver Thomas Hanley (STH), in conjunction with Cox Architecture, NSW Health Infrastructure (NSWHI) and RP Infrastructure, had previously developed a Precinct Plan for the site in 2015, refer to Appendix 12. The Forensic Medicine and Coroner’s Court Complex (FMCCC), completed in 2018, was the first stage of the Precinct Plan development.

The purpose of the Master Plan refresh, is to revisit and interrogate the 2015 Precinct Plan, and develop an updated Master Plan to encapsulate the current scope of services for the site. Furthermore, the objective of the Master Plan report is to develop the design fundamentals to meet the requirements of the key stakeholders and inform the IDD.

BACKGROUND

Due to aging existing buildings, lack of future proofing potential, and service inefficiencies, in late 2021, a joint infrastructure committee between NSW Health Pathology (NSWHP), NSW Police Force (NSWPF) and NSWHI agreed that an integrated Forensic Precinct, bringing together the forensic specialties of NSWHP and NSWPF, would be the next stage of development at the LFP site.

The 2015 Precinct Plan had identified the following:

- The south west corner of the site would potentially be the development location for a new building, and would be able to accommodate precinct partners
- Carparking would be located to the north of the site
- A central hub could be developed into shared facilities in the future

The Master Plan refresh will interrogate these findings.

PROJECT SCOPE

The Master Plan report has been developed to understand the site, its constraints, strengths, and how the site can be best developed to accommodate state-wide facilities to become a world class Forensic Precinct.

The scope of services for LFP includes new facilities for:

- NSW Health Pathology Forensic & Analytical Science Service (NSWHP FASS)
- NSWHP Specialised Services
- NSW Police Force Forensic Evidence & Technical Service (NSWPF FETS)
- Potential university partnerships

PREVIOUS DOCUMENTS

The primary documents reviewed for the preparation of the Master Plan refresh were:

- NSW Lidcombe Forensic Precinct Scoping Document, revision 2.2, dated 28.10.22, prepared by Johnstaff
- NSW Forensic Hub Stakeholder Engagement Plan, version 1.5, prepared by Johnstaff
- Schedule of Accommodation, version 2.5, dated 28.10.22, prepared by Johnstaff

COST

Genus Advisory has prepared cost estimates for the Master Plan. The current total project cost in Cost Plan XXX is \$XXX

MASTER PLANNING OPTIONS

Keeping in mind the site constraints and opportunities, the consultant team reviewed a total of 7 options.

Of the 7 options considered, the Project Working Group (PWG) identified Option 5 as the preferred design solution. This is reviewed further under section 6 of this report.



01/ LIDCOMBE FORENSIC PRECINCT SITE (LFP)
 02/ 2015 PRECINCT PLAN BY STH AND COX ARCHITECTURE
 03/ FMCCC, COMPLETED IN 2018, STAGE 1 OF LFP

2.0

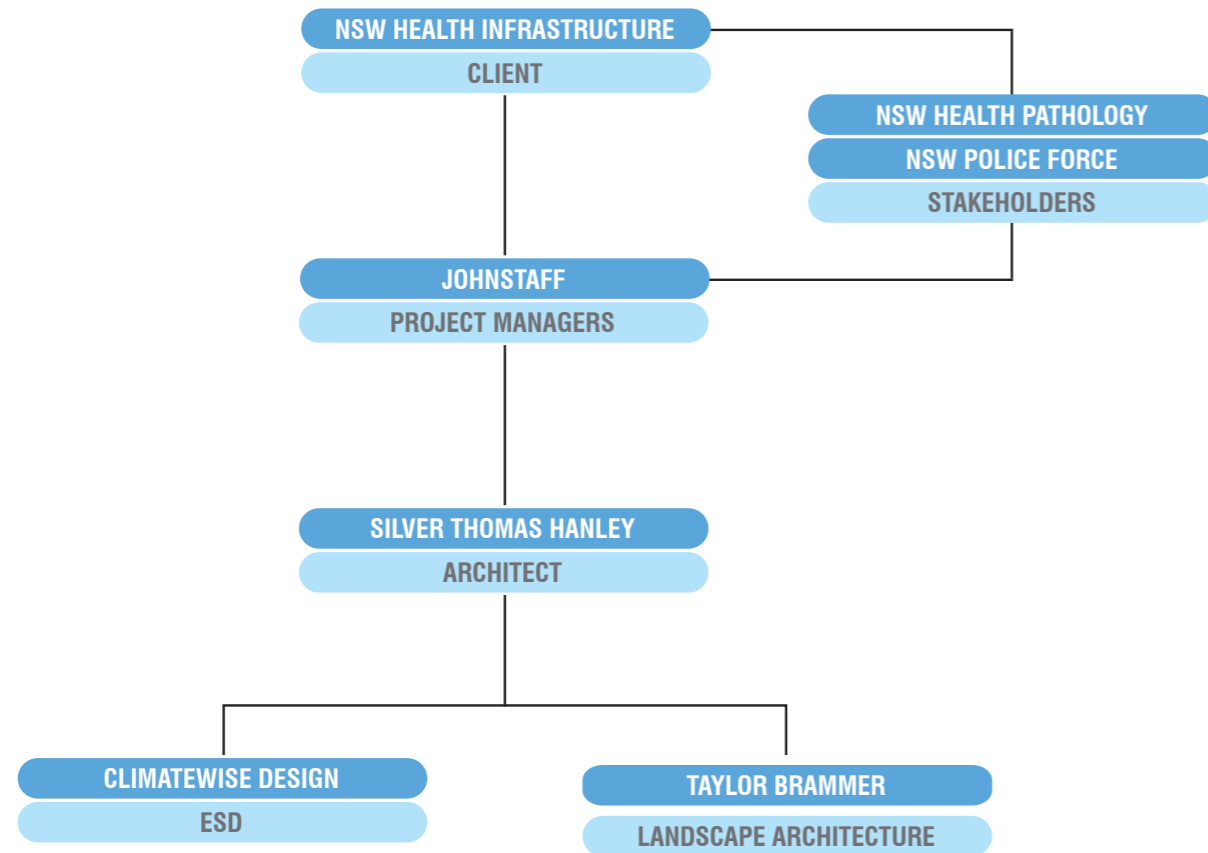
TERMS OF REFERENCE



2.0 TERMS OF REFERENCE

2.1 PROJECT TEAM

The Project Design Team comprises:



2.2 METHODOLOGY

The following Master Planning methodologies were undertaken:

- Review of available documentation for the site and for the project
- Site assessment of local environment, physical and authority constraints and opportunities
- Development of zonal Master Plan options
- Consultation with Johnstaff, NSWHI, stakeholders, and STH subconsultants – ClimateWise Design and Taylor Brammer Landscape Architects
- Option scoring based on feedback from the above team, and selection of preferred option

2.3 STAKEHOLDER ENGAGEMENT

The stakeholders identified for LFP are:

- NSW Health Pathology (NSWHP)
- NSW Police Force (NSWPF)
- Potential involvement from Western Sydney University (WSU) and/or University of Technology Sydney (UTS)

The Stakeholder Engagement Plan is detailed in the document prepared by Johnstaff, and included in the appendices.

STH presented the Master Plan options to the PWG on 29.09.22, and pros and cons of each option were discussed for the purposes of selecting the preferred option. The preferred option was confirmed by the PWG on 06.10.22.

2.4 DOCUMENTATION REVIEW

The following documents were reviewed in preparation of the Master Plan for LFP and are attached in the appendices:

- NSW Lidcombe Forensic Precinct Scoping Document, revision 2.2, dated 28.10.22, prepared by Johnstaff
- NSW Forensic Hub Stakeholder Engagement Plan, version 1.5, prepared by Johnstaff
- Schedule of Accommodation, version 2.5, dated 28.10.22, prepared by Johnstaff
- Quantified Tree Risk Assessment Report, dated August 2022, by Mark McHugh
- Net Zero Pathway for FASS Lidcombe, dated May 2022, by NSW Planning Industry & Environment
- Main Building Existing Laboratories Condition Assessment Report - Engineering Services, dated 21.05.19, by A.G.Coombs Advisory
- FASS Main Building Existing Laboratory Conditions Assessment - Architectural Services Report, dated 23.05.19, by A.G.Coombs Advisory and Woods Bagot
- Heritage Assessment - Former Mineral Resources Building, dated 28.05.19, by Weir Phillips Heritage and Planning
- Destructive Hazmat Report, dated May 2019, by Prensa
- Services Survey Plan, dated 30.05.16, by Cardno
- Level Details and Contours Survey Plan, dated 28.06.16, by Cardno
- Forensic Services Precinct Plan, dated 07.12.15, by STH
- Existing building plans:
 - Demountables
 - DNA Laboratory
 - Main FASS Building
 - FASS Blocks A, B, C, D, E, and F
 - Mineral Resources Building (MRB)



3.0
SERVICE SCOPE SUMMARY

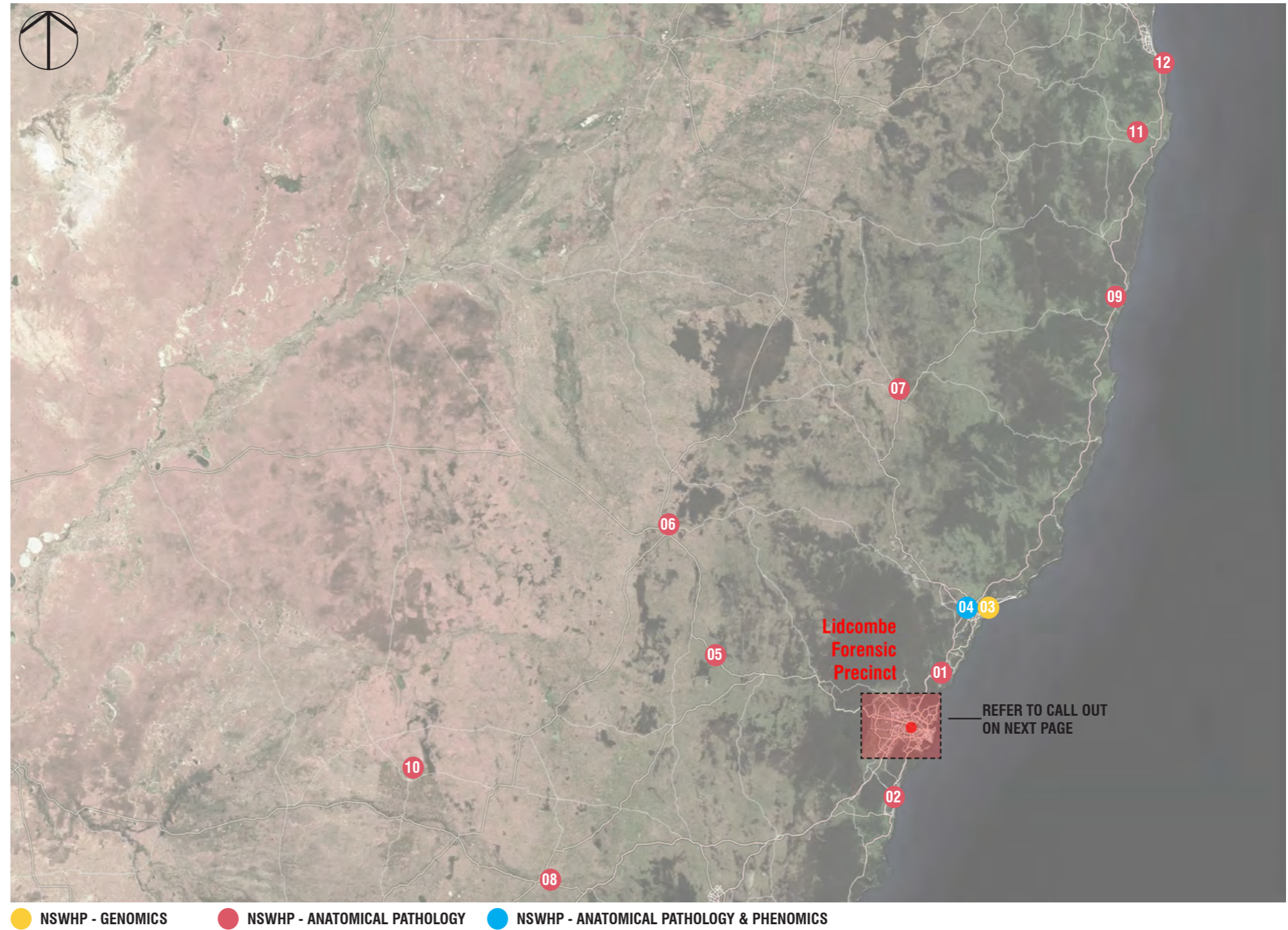
3.0 SERVICE SCOPE SUMMARY

3.1 EXISTING SERVICES

The services provided by NSWHP and NSWPF FETS currently occupy numerous sites across Sydney.

The sites are indicated on the diagrams on the following pages.

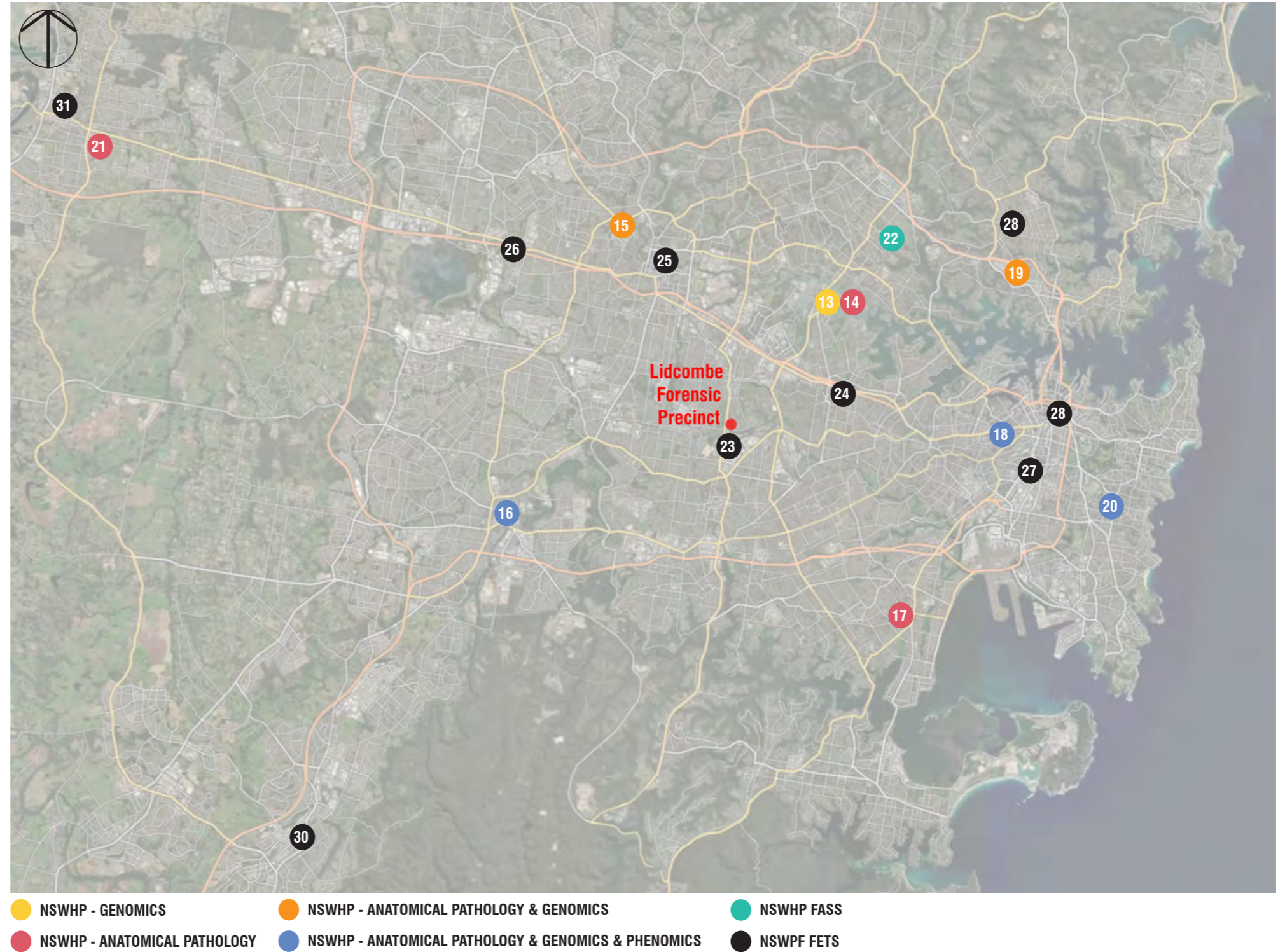
01	GOSFORD HOSPITAL LABORATORY	58KM
02	WOLLONGONG HOSPITAL LABORATORY	62KM
03	JOHN HUNTER HOSPITAL MOLECULAR MEDICINE	122KM
04	JOHN HUNTER HOSPITAL LABORATORY	122KM
05	ORANGE HOSPITAL LABORATORY	191KM
06	DUBBO HOSPITAL LABORATORY	190KM
07	TAMWORTH HOSPITAL LABORATORY	312KM
08	WAGGA WAGGA HOSPITAL LABORATORY	364KM
09	COFFS HARBOUR HOSPITAL LABORATORY	441KM
10	GRIFFITH HOSPITAL LABORATORY	462KM
11	LISMORE HOSPITAL LABORATORY	603KM
12	THE TWEED HOSPITAL LABORATORY	678KM



3.0 SERVICE SCOPE SUMMARY

3.1 EXISTING SERVICES(CONT.)

13	MOLECULAR MEDICINE LABORATORY CONCORD	7KM
14	CONCORD HOSPITAL LABORATORY	7KM
15	WESTMEAD HOSPITAL LABORATORY	10KM
16	LIVERPOOL HOSPITAL LABORATORY	11KM
17	ST GEORGE HOSPITAL LABORATORY	12KM
18	ROYAL PRINCE ALFRED HOSPITAL LABORATORY	13KM
19	ROYAL NORTH SHORE HOSPITAL LABORATORY	15KM
20	RANDWICK HOSPITAL CAMPUS LABORATORY	19KM
21	NEPEAN HOSPITAL LABORATORY	33KM
22	DRUG TOXICOLOGY UNIT (MACQUARIE HOSPITAL)	12KM
23	HIGH TECH CRIME, TECHNICAL EVIDENCE & SCIENCE BRANCH METROPOLITAN EXHIBIT & MISCELLANEOUS PROPERTY CENTRE (POTTS HILL)	1KM
24	SCENE OF CRIME OFFICERS (BURWOOD)	6KM
25	DNA RESULTS MANAGEMENT FINGERPRINT OPERATIONS (POLICE HQ PARRAMATTA)	10KM
26	PEMULWUY CRIME SCENE ZONE (PEMULWUY)	13KM
27	ENGINEERING INVESTIGATION UNIT (ALEXANDRIA)	14KM
28	SYDNEY CRIME SCENE ZONE PHARMACOLOGY SERVICES UNIT BALLISTICS INVESTIGATION SECTION (SURRY HILLS)	16KM
29	SCENE OF CRIME OFFICERS (CHATSWOOD)	16.5KM
30	SCENE OF CRIME OFFICERS (CAMPBELLTOWN)	28KM
31	SCENE OF CRIME OFFICERS (PENRITH)	34KM



3.0 SERVICE PLANNING SUMMARY

3.2 PROPOSED SERVICES SCOPE

The scope of services for LFP includes new facilities for:

NSWHP FASS

- Criminalistics
 - Illicit Drugs Analysis Unit (IDAU)
 - Forensic Biology and Forensic DNA Laboratory
 - Chemical Criminalistics Unit (CCU)
- Forensic Environmental Toxicology
 - Forensic Toxicology Laboratory (FTL)
 - Drugs and Driving Toxicology Laboratory (DDTL)
 - Clinical and Environmental Toxicology Laboratory (CETL)
- Water Microbiology Laboratory
- Legionella Reference Laboratory
- Trace Inorganics Laboratory
- Drug Toxicology Unit

NSWHP Specialised Services

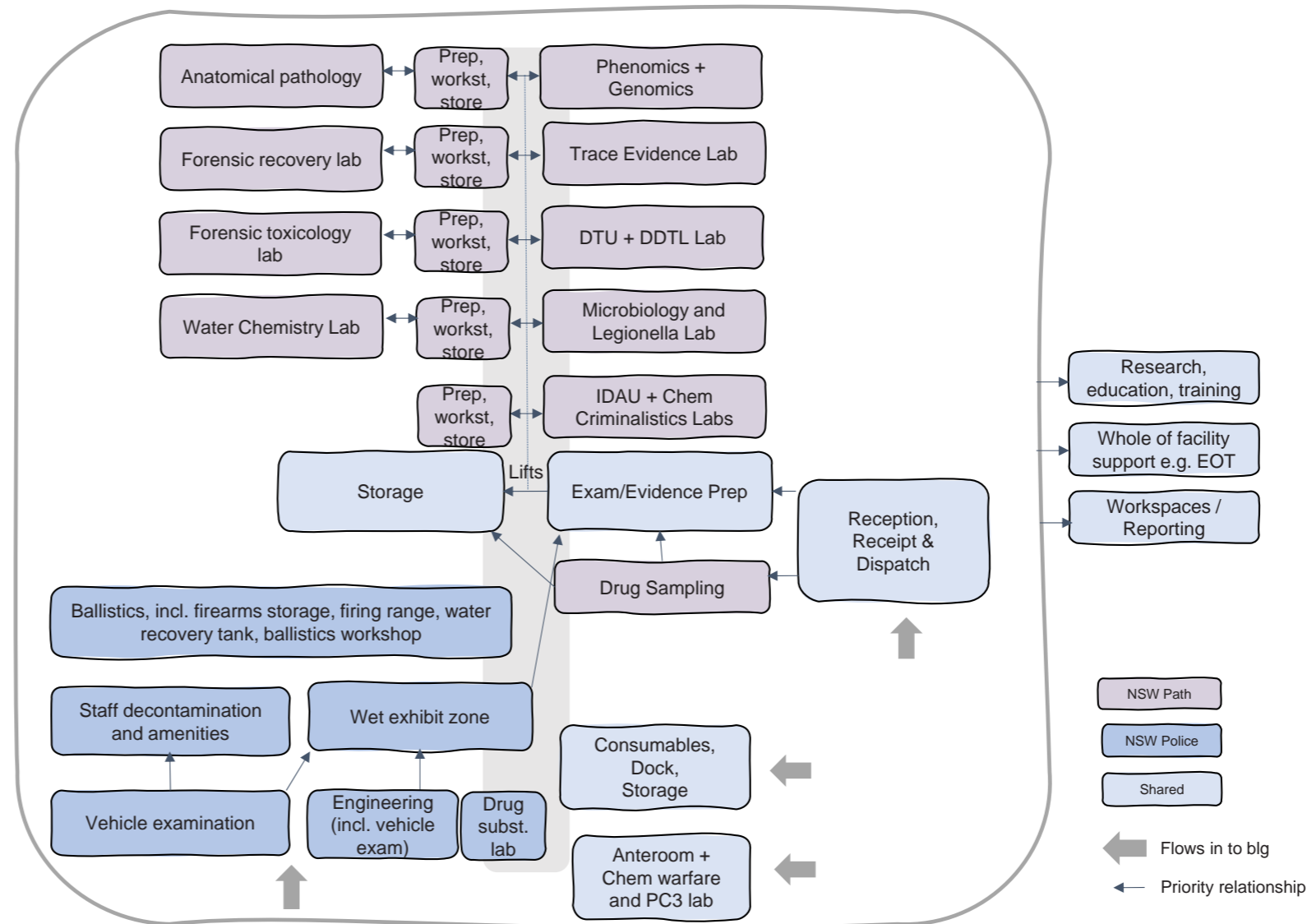
- Phenomics
- Genomics
- Centre for Forensic Innovation and Research Excellence
- Anatomical Pathology / Offsite Digital Processing

NSWPF FETS

- Crime Scene Services Branches (CSSB)
- Identification Services Branch (ISB)

There may also be potential university partnerships within the Precinct.

Further details can be found in the Scoping Document, revision 2.2, dated 28.10.22, prepared by Johnstaff



FUNCTIONAL RELATIONSHIPS DIAGRAM - REFER TO SCOPING DOCUMENT BY JOHNSTAFF

4.0

THE SITE



4.0 THE SITE

4.1 LOCATION

The suburb of Lidcombe is located approximately 15km west of Sydney CBD. Lidcombe town centre is focused around the train station and provides a local shopping and minor commercial precinct. Lidcombe is bordered by the largely residential suburbs of Auburn, Berala, Regents Park, the industrial suburb of Chullora and the Rookwood Cemetery.

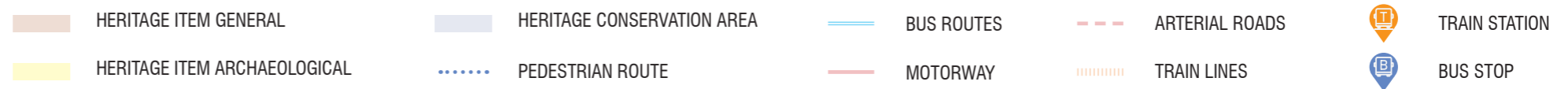
The precinct that is the focus of this study is located approximately 2.2 kilometres south of Lidcombe Town Centre. It is bounded by Joseph Street to the west, Main Avenue to the north, and Weeroona Road to the south. Bus routes to the site have an average a trip length of 15 minutes from Lidcombe, Berala, and Regents Park train stations. The precinct sits within the Cumberland City Council boundaries.

The precinct is surrounded by a range of land uses including:

- Residential immediately to the north and east
- University of Sydney and TAFE facilities and Rookwood Cemetery further to the northeast
- A golf course immediately to the west
- Residential further to the west
- Rail lines and the Mary Wade Correctional Centre immediately to the south
- Predominantly industrial uses further to the south



SITE LOCATION PLAN














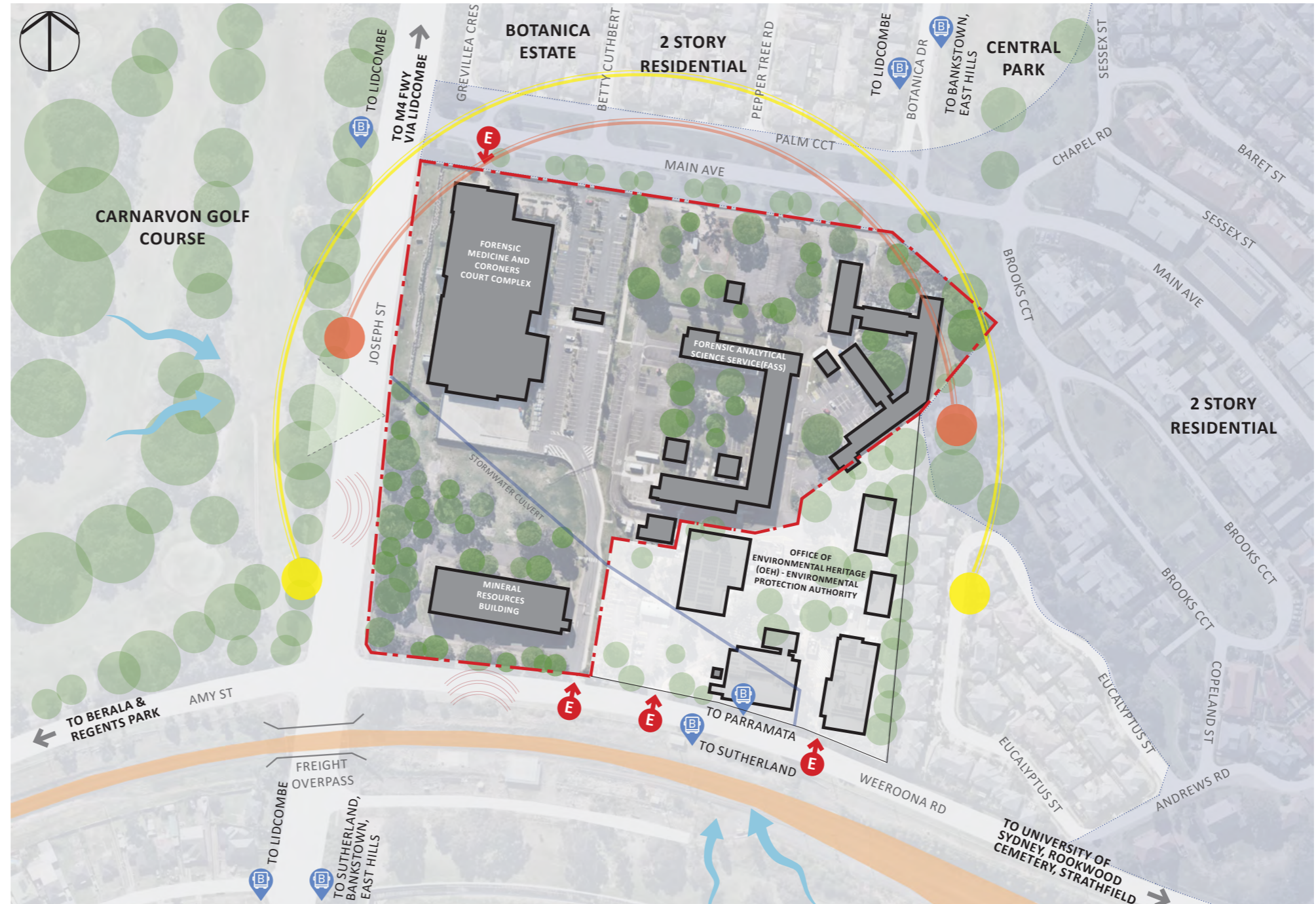
4.0 THE SITE

4.2 SITE PLAN

The proposed site is located at the corner of Joseph Street and Weeroona Road, and is accessed by Weeroona Road

The overall site dimensions are 320 metres east-west and 260 metres north-south, at furthest points. Without including the FMCCC, the site provides approximately 42,140 sqm of land area.

-  HERITAGE CONSERVATION AREA
-  TRAFFIC NOISE
-  SITE BOUNDARY
-  SIGNIFICANT VEGETATION
-  VIEWS
-  RAILWAY TRACKS
-  EXISTING ENTRANCE
-  PREVAILING WINDS
-  SUMMER SUNPATH
-  WINTER SUNPATH
-  BUS STOP



SITE ANALYSIS PLAN

4.0 THE SITE

4.3 TOWN PLANNING PARAMETERS

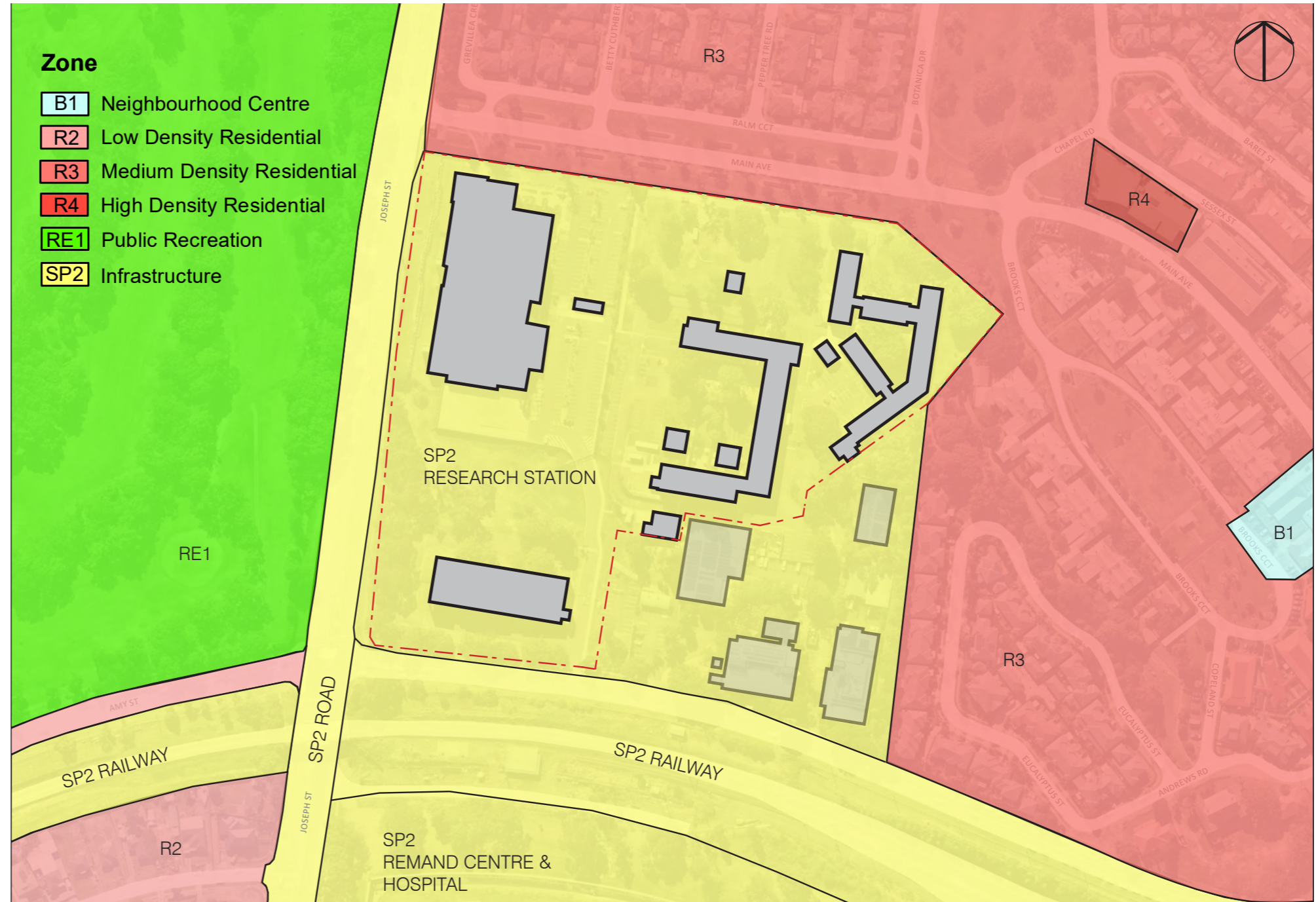
The precinct sits within the Cumberland City Council boundaries.

4.3.1 Zoning

The site is zoned SP2 Infrastructure 'Research Station'.

4.3.2 Title/Ownership/Site Lots

The site is located at DP200/1249372 and is currently owned by Health Administration Corporation.



LEP ZONING INFORMATION OVERLAID ON A SITE AERIAL IMAGE

4.0 THE SITE

4.3.3 Heritage Considerations

There are no heritage items located on the proposed LFP site, however, the adjacent residential areas to the north and east of the site, including Main Avenue, are known as the Former Lidcombe Hospital site, and is a Heritage Conservation Area. This Area has specific controls and includes zoning for Low to Medium Density Residential, a Neighbourhood Centre and open space for Public Recreation. The controls of this site should be considered in the overall context of the LFP development.

The Superintendents Residence for the Former Lidcombe State Hospital, is also heritage listed, and is located at the current Mary Wade Correctional Facility.

A brief list of historical precinct uses include:

- 1885. A reformatory for boys was built on part of the site; however, this was never used for its intended purpose.
- 1891. Surgical facilities were developed, marking the start of the development of a hospital on the site.
- 1892. The Rookwood Asylum for the Aged and Infirm was established in the unused reformatory buildings.
- 1913. The Rookwood State Hospital and Home was developed on the site, which had a name change in 1927 to the Lidcombe State Hospital.
- 1969. Buildings currently occupied by FASS built as part of the former Lidcombe Hospital.
- 1997. Lidcombe Hospital was closed.
- 2000. The portion of the former Lidcombe Hospital to the north of the precinct, which has since been developed as Australand's Botanica Residential Estate, was used as the media village for the Sydney Olympics.
- Current: The FASS facility is separated by security fencing and controlled access points. FMCCC – Stage 1 of the LFP – was completed in 2018.

More historical details regarding the site can be found in 'A Historical Tour of Lidcombe Hospital' by Gregory Marcar and John Ballard, 1995.



- 01/ BROOKS MEMORIAL CLOCKTOWER (1964) - LIDCOMBE HERITAGE GROUP
- 02/ BROOKS CCT (1911) - LIDCOMBE HERITAGE GROUP
- 03/ HISTORICAL PLAQUE - MAIN AVE (CURRENT)
- 04/ BROOKS MEMORIAL CLOCKTOWER (CURRENT)
- 05/ BROOKS CCT (CURRENT)

4.0 THE SITE

4.3.4 Setbacks

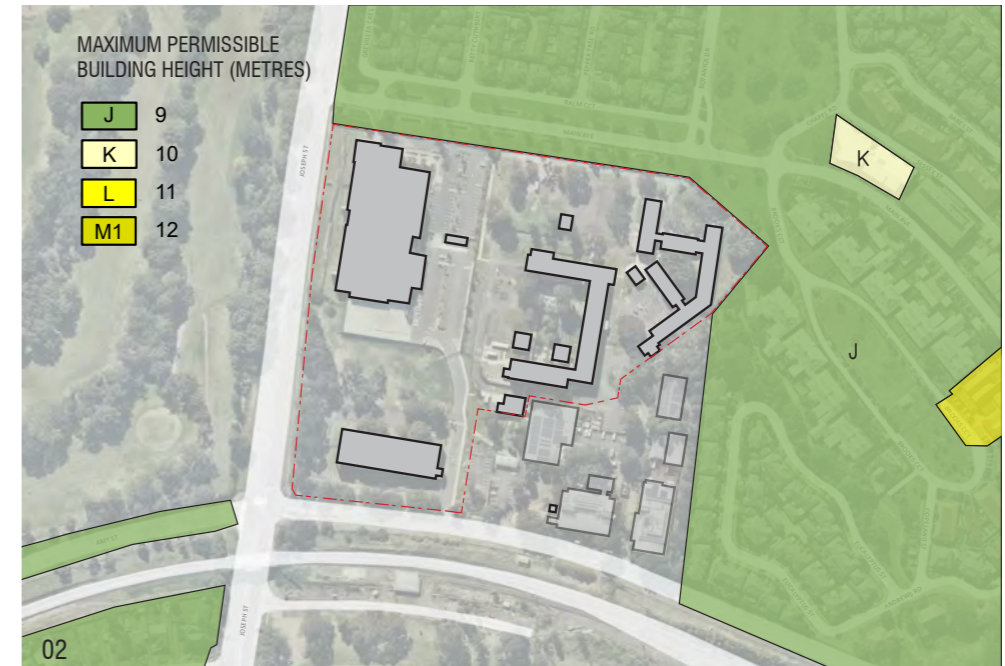
Based on the provisions of the Cumberland City Council DCP, the predominant setback for the site is 5 metres minimum. The setback at the north-eastern corner is 4.5 metres.

4.3.5 Height Limits

Height limits and Floor Space Ratio for the site are not defined by the Cumberland City Council LEP, and multi-storey developments are allowable.

4.4 SITE SURVEY/TOPOGRAPHY

The site slopes generally from east to west, with a fall of approximately 14m across the precinct from its highest to lowest points. The lowest part of the site is along the western boundary, towards the Mineral Resources Building (MRB) in the south west corner of the site; the land is battered along the MRB frontages to meet the street level. An existing culvert is located towards the middle of the site on the western side of the precinct.



- 01/ REQUIRED SETBACKS
- 02/ SURROUNDING BUILDING HEIGHT LIMITS
- 03/ EXISTING CONTOURS



4.0 THE SITE

4.5 ENVIRONMENT

The existing environment around the site is varied:

- To the north, Main Avenue is a quiet, wide residential street, dotted with tall mature palms. Houses along this street are generally 2 storeys high. Central Park, a small neighbourhood park, is located towards the north-eastern end of the site.
- 2 storey houses in the Former Lidcombe Hospital Site Heritage Conservation Area bound the site to the east.
- Along the west, Joseph Street is a busy arterial road, which separates the site from the lush greenery of Carnarvon Golf Course.
- Weeroona Road along the southern site boundary is a quiet road, from which the FASS facilities and FMCCC back of house is accessed. Freight tracks run along the opposite side of Weeroona Road.
- The majority of the site is fenced off from the surrounding environment, there is vegetation screening along the north, east, south, and south-western boundaries. Within the site, there is a scattering of mature trees and a mix of disparate building types.



4.6 SUN AND WIND ORIENTATION

Across the site, there is good access to northerly sunlight. The predominant prevailing wind is south westerly. Refer to the site analysis plan in section 4.2.



- 01/ CENTRAL PARK
- 02/ 2 STOREY HOUSES, FORMER LIDCOMBE HOSPITAL SITE CONSERVATION AREA
- 03/ JOSEPH STREET AND CARNARVON GOLF COURSE
- 04/ ROAD ACCESS INTO SITE FROM WEEROONA RD
- 05/ LANDSCAPE SCREENING TO THE SITE ALONG MAIN AVENUE

4.0 THE SITE

4.7 BIODIVERSITY, FLOOD, BUSHFIRE, GROUNDWATER & MINE SUBSIDENCE

BIODIVERSITY

The Cumberland Local Government Area (LGA) is a highly urbanised landscape within the Cumberland Basin of western Sydney. It has approximately 2.6% of native vegetation cover, and ten of eleven native vegetation communities in the area are under threat. Many native plant and animal species recorded in the area are also endangered. The Cumberland Biodiversity Strategy 2019, details the current threats and management strategies.

Further investigation into biodiversity threats and mitigation should be undertaken in subsequent phases of this project.

FLOOD

Parts of the site, in particular surrounding the stormwater culvert, may be subject to 1% Annual Flood Extent Exceedance. Parts of Main Avenue, Joseph Street, and Weeroona Road may also be affected.

Further investigation should be conducted in subsequent project phases.

BUSHFIRE

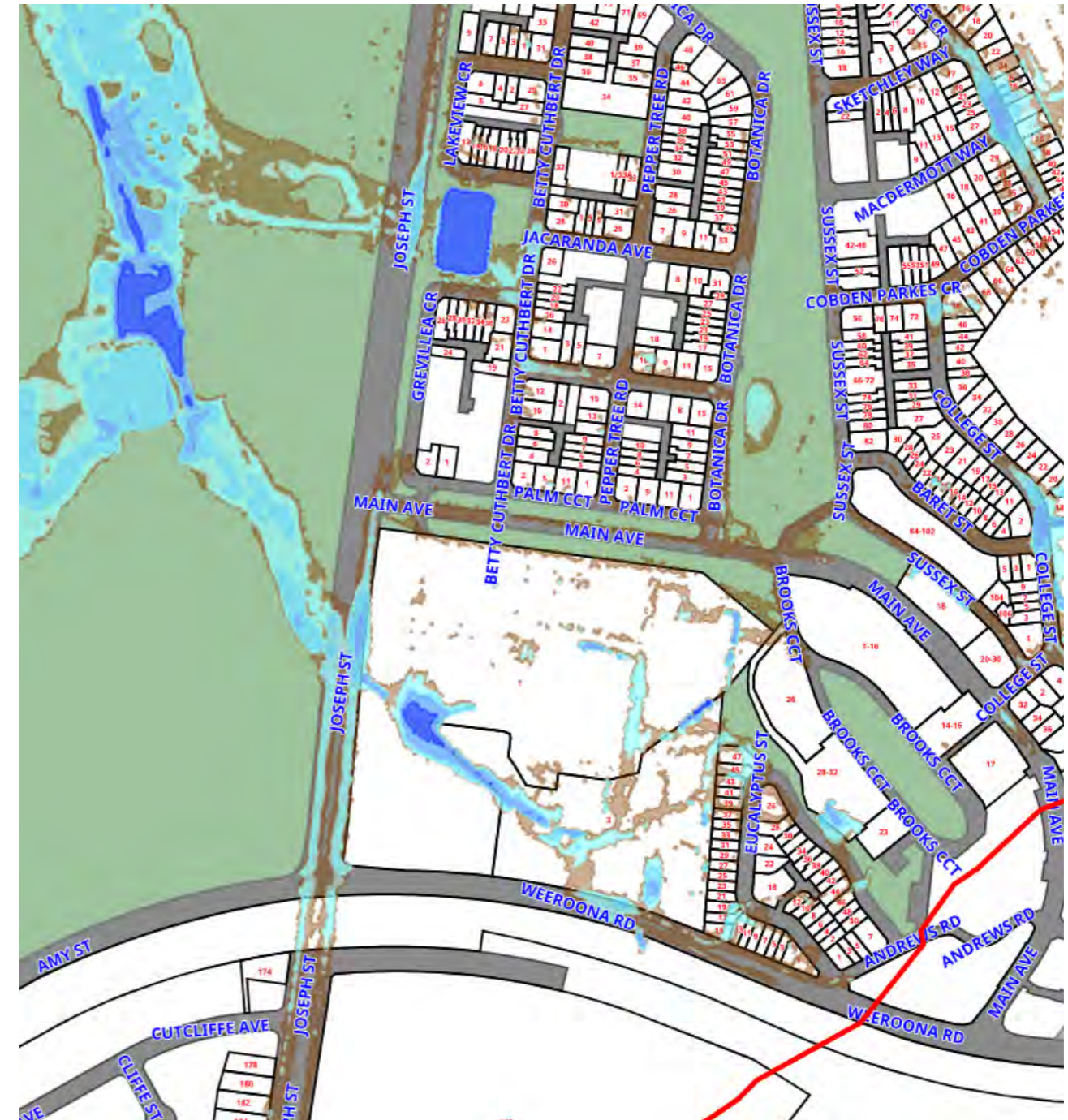
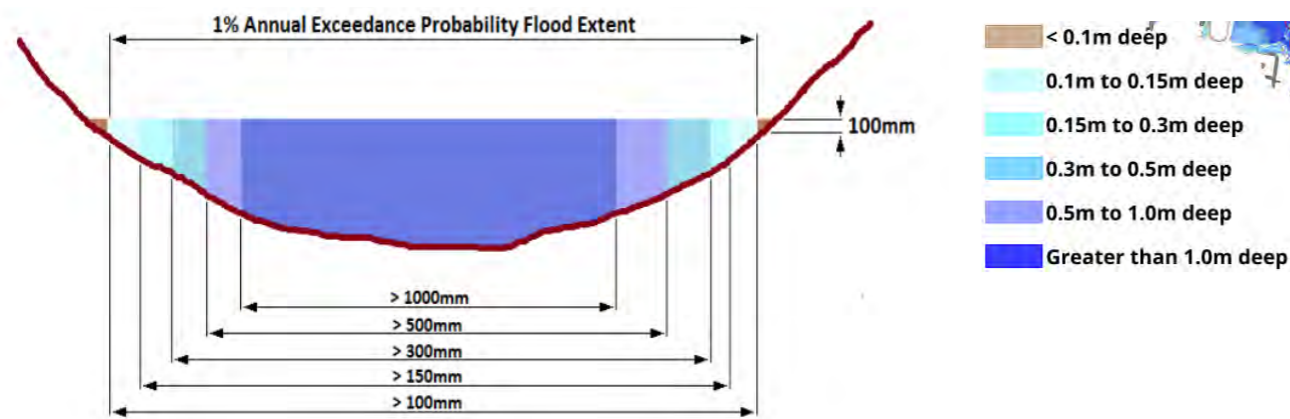
The site is not bushfire prone.

GROUNDWATER

Further site investigations are required in subsequent phases to determine groundwater inflows and quality / chemistry.

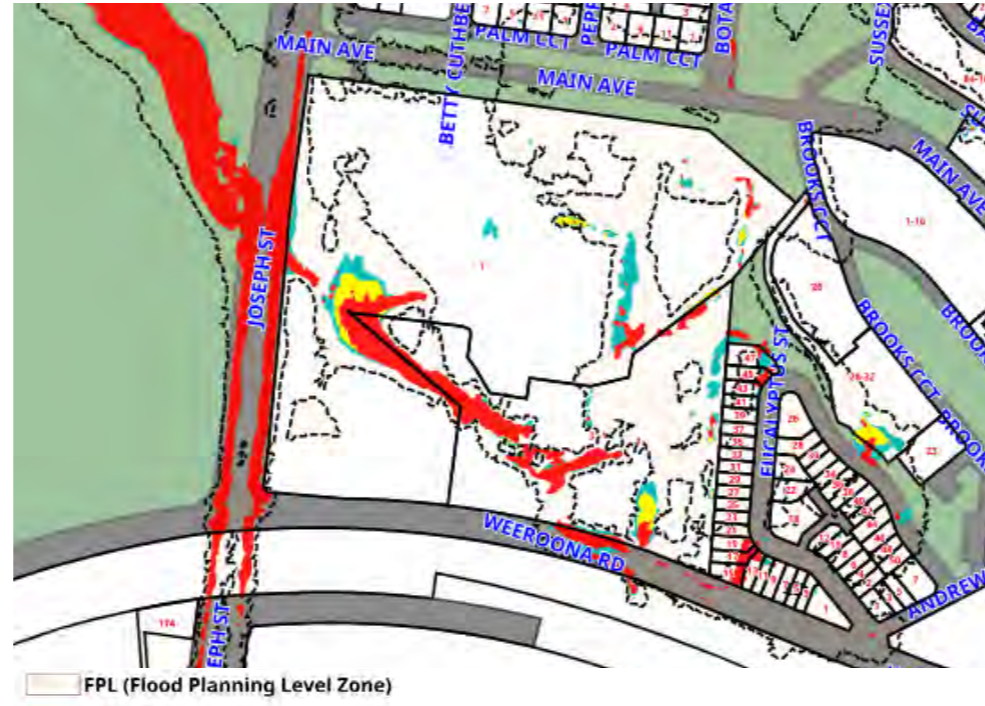
MINE SUBSIDENCE

The site has not been subject to mining



01/ MAP 8 - OVERLAND FLOOD STUDIES, OCTOBER 2021, CUMBERLAND CITY COUNCIL

4.0 THE SITE



01/ MAP 2 - 1% FLOOD HYDRAULIC CATEGORIES MAP, CUMBERLAND CITY COUNCIL



02/ MAP 3 - PROVISIONAL FLOOD HAZARD CATEGORIES, CUMBERLAND CITY COUNCIL



03/ MAP 4 - FLOOD RISK PRECINCTS, CUMBERLAND CITY COUNCIL



04/ MAP 5 - FLOWPATHS, CUMBERLAND CITY COUNCIL

4.0 THE SITE

4.8 NEIGHBOURING SERVICE PROVIDERS ON THE SITE

The proposed joint NSWHP / NSWPF facility at the Lidcombe site will have the benefit of being located adjacent the FMCCC, Australia's largest coroner's court and forensic medicine facility.

The FMCCC is located at the north-western corner of the site and was completed in 2018 as Stage 1 of the Precinct development.

The FMCCC currently provides services to NSWPF, as such, services adjacencies will allow greater cross-collaborative efficiencies. Furthermore, FMCCC and FASS are currently each other's services continuity plan, and future connectivity must be considered in the design of the precinct.

4.9 ADJOINING PROPERTIES

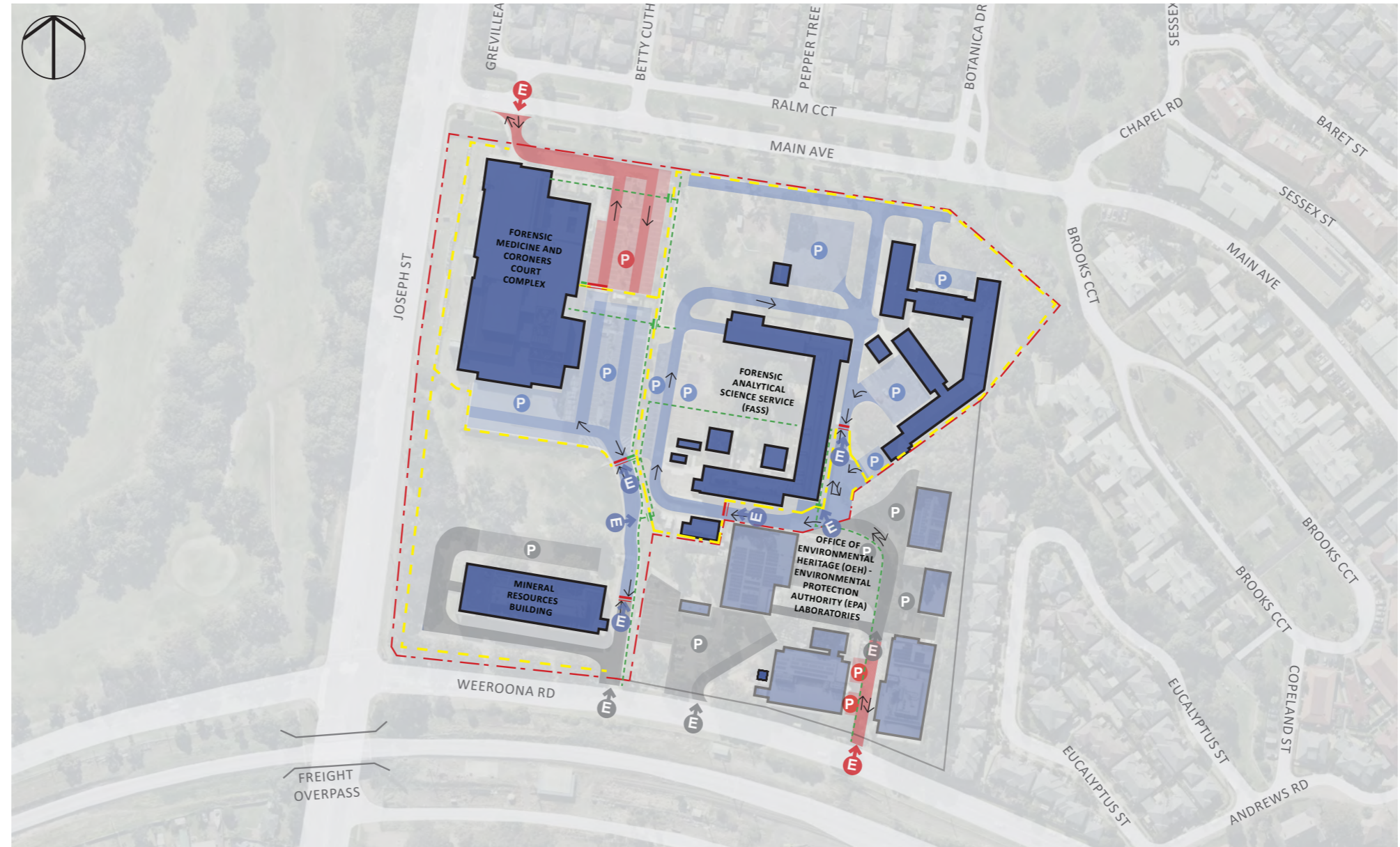
Located along the south-eastern boundary of the site is a parcel of Crown Land. The Office of Environment and Heritage currently operate 2 storey facilities across this area.

4.10 SITE ACCESS

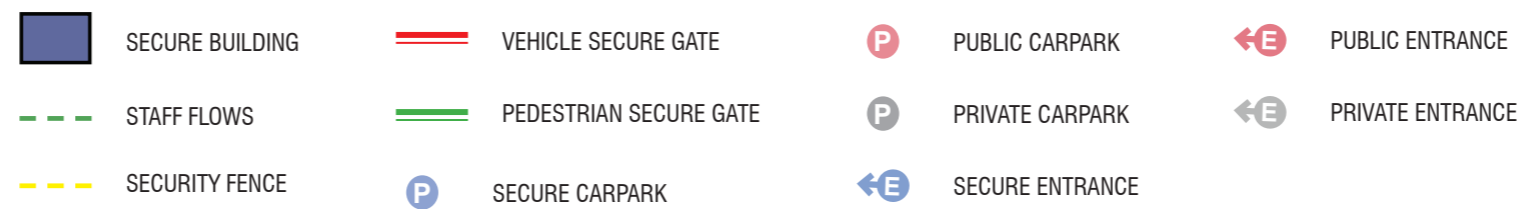
Vehicular and pedestrian access is predominantly at the south of the site along Weeroona Road.

The majority of the site is enclosed by secure fencing and swipe access gates.

At the north of the site, there is public vehicle and pedestrian access to the FMCCC.



EXISTING SITE ACCESS AND SECURITY DIAGRAM



5.0

BUILDING ASSET ASSESSMENT



5.0 BUILDING ASSET ASSESSMENT

5.1 BUILDING ASSET OVERVIEW

The following is a summary of existing building assets and current issues. Also refer to the diagrams on the following pages, and the existing building plans and audit reports in the appendices.

NSW HEALTH PATHOLOGY

SPECIALISED SERVICES

NSW Health Pathology Specialised Services including Anatomical Pathology, Genomics and Phenomics are spread across numerous laboratories at NSW hospital sites. The furthest facility from LFP is located at Tweed Hospital. A centralised facility offers an opportunity for these services to be collocated.

FASS

There are a range of buildings currently located on the proposed LFP site that have been constructed and/or upgraded at various phases during its history. FASS currently occupies multiple aging buildings across this site, with a total gross floor area of approximately 10,000m². The existing infrastructure is nearing its end of life and is unable to be expanded or upgraded to allow for contemporary, best practice laboratory facilities suitable for meeting the growing forensic testing needs of NSW.



Image: FASS main building - northern facade

The main FASS building is 3 stories high and has a narrow – 17.5m wide – and long floor plate, which renders expansion and / or upgrades for contemporary laboratory spaces difficult. Currently vertical access through the building is via stairs, and large pieces of equipment are craned into the building. The basement level is subject to flooding.



Image: 1-2 storey FASS laboratories at east of site

The sprawling 1-2 storey buildings to the east of the main FASS building houses laboratories and shared administrative areas. Each block is approximately 9.5m wide. The buildings are extremely aged and have no lift access.



Image: demountable

Two demountables are currently being used by the FASS facility for sample and file storage.



Image: dangerous goods store

A small dangerous goods store is located outside the site, adjacent the OEH building.



Image: gas storage

Gas storage is located externally in various locations around the existing buildings.

Former Mineral Resources Building (MRB)

The MRB is owned by NSW Health and NSWHP, and is currently in severe disrepair, with the basement subject to flooding. A heritage assessment report completed in 2019 on behalf of NSWHI ascertained it is not Heritage listed, but is significant as an example of Brutalist Architecture. The building has been vacant since the late 1990s, and a condition audit report is currently being commissioned as part of the IDD process. Access into the building is currently limited due to health concerns.

NSW POLICE FORCE

FETS

FETS occupies multiple NSWPF sites across the Sydney Metropolitan area. Some infrastructure issues currently being faced include:

- Disparate locations create service inefficiencies
- Alexandria facility has insufficient space for collocated services
- Pemulwuy facility is rented and not owned by NSWPF, with rental agreement due to expire in 2024. The current facility is inadequate for the services needs

FURTHER INVESTIGATIONS

The following site investigations may need to be conducted in following phases:

- Building survey
- BCA assessment
- Structural assessment
- Engineering services assessment
- Security assessment
- Hazardous materials assessment

5.2 EXTERNAL AREAS SITE INVESTIGATIONS

The following external site investigations will need to be conducted in following phases by qualified specialists:

- Contamination
- Geotechnical



Image: MRB

5.0 BUILDING ASSET ASSESSMENT

- 1 FORMER MINERAL RESOURCES BUILDING (MRB)**
 3 storey concrete building
 GFA: 4,320m²
- 2 FORENSIC MEDICAL & CORONERS COURT COMPLEX (FMCCC)**
 (A) FMCCC BUILDING
 3 storey building
 GFA: 11,000m²
 (B) SUBSTATION
- 3 FORENSIC ANALYTICAL SCIENCE SERVICE (FASS)**
 (A) Division of Analytical Laboratories (DAL) (Main Building)
 3 storey brick building
 GFA: 7,025m²
 (i) North Wing
 (ii) Main Wing & Reception
 (iii) South Wing
 (iv) Demountable - Dry Laboratory
 (v) Demountable - Administration
 (B) Laboratories
 1 and 2 storey brick buildings
 GFA: 2,640m²
 (C) Substation
 GFA: 175m²
 (D) Carport
 (E) Carpenter's Workshop
 (F) Dangerous & Flammable Goods Store
- 4 OFFICE OF ENVIRONMENT & HERITAGE (OEH) - ENVIRONMENT PROTECTION AUTHORITY (EPA) LABORATORIES**
 (A) Water Science & Ecotoxicology
 (B) EPA Chemistry Laboratory
 (C) Motor Vehicles Emissions Laboratory
 (D) DEC Environmental Science Facility
 (E) Boat Shed



EXISTING BUILDING USES

5.0 BUILDING ASSET ASSESSMENT



EXISTING BUILDING HEIGHTS

6.0 MASTER PLAN



6.0 MASTER PLAN

6.1 ZONAL MASTER PLAN

Seven zonal options were considered during the Master Planning process by the consultant team, taking into account the Schedule of Accommodation (SOA), Scoping Document, and site and authority constraints.

Zones were considered in terms of:

- Neighbouring site context qualities
- Current site availability
- Site and authority constraints
- Area requirements to support the SOA
- Area requirements for carparking
- Project staging and future expansion

Following is a high-level summary of each option. Details of each Option are included in the appendices.

OPTION 1

- Very high multi-storey building development, with small footprint, at the north of the site
- Carparking located at the southwest corner of the site
- Remainder of the site developed as a place holder for future expansion

- ← VEHICULAR ACCESS
- ← CONNECTIVITY FLOWS
- INDICATIVE SECURE POINTS



6.0 MASTER PLAN

OPTION 2

- Staged low scale developments across the north of the site
- Carparking located at southwest corner of the site



6.0 MASTER PLAN

OPTION 3

- Very high multi-storey building development, with small footprint, at the southwest corner of the site
- Carparking located at the north of the site
- Remainder of the site developed as a place holder for future expansion



6.0 MASTER PLAN

OPTION 4

- Multi-storey building development at the southwest corner of the site
- Staged carparking at the north and centre of the site
- Remainder of the site (northeast) developed as a place holder for future expansion



6.0 MASTER PLAN

OPTION 5

- Multi-storey building development at the southwest corner of the site
- Staged carparking at the north and northeast of the site
- Remainder of the site (centre) developed as a place holder for future expansion



6.0 MASTER PLAN

OPTION 6

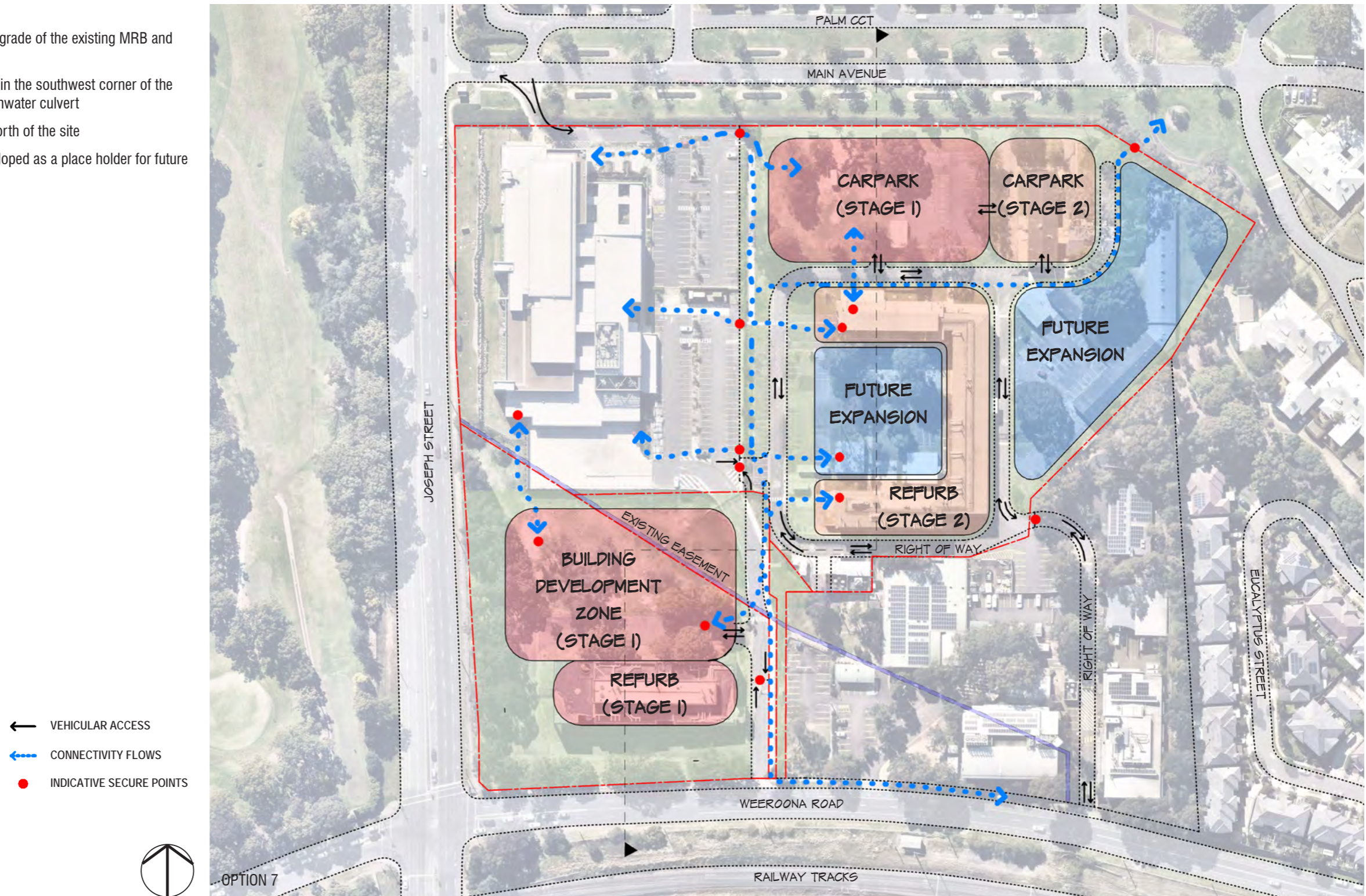
- Staged low scale developments across the southwest corner and centre of the site
- Staged carparking at the north and northeast of the site



6.0 MASTER PLAN

OPTION 7

- Retention and extensive upgrade of the existing MRB and FASS buildings
- New building development in the southwest corner of the site, over the existing stormwater culvert
- Staged carparking at the north of the site
- Remainder of the site developed as a place holder for future expansion



6.0 MASTER PLAN

6.2 HIGH-LEVEL SOA

A Schedule of Accommodation (SOA) summary is included on this page, refer to the appendices for the full SOA. Option 1A of the SOA has been used to inform and develop the zonal Master Plan options.

Based on the SOA, the proposed Gross Floor Area (GFA) is 34,977m². A planning contingency of 10% brings the floor area to 38,475m².

Furthermore, 540 new car spaces were briefed for the Precinct. The car park numbers have been developed based on the Cumberland Development Control Plan (DCP) for industry redevelopments, which calculates 1.3 car space per 100m² / GFA. Based on this calculation, the estimated staff car park spaces are 449, plus 86 police fleet vehicles. For the IDD the proposed car park provision is 540 car parking spaces.

The car park numbers will need to be tested in the next stage of planning and will include consideration of Transport NSW partnership, alternate green travel plans, as well as the car park being managed by a third-party provider.

A car park area study is available in the Master Plan presentation located in the appendices.

Service	Net Briefed Area	Func Group Gross/Net Factor (Circ 32%)	Net Area + Circulation Total	Travel & Engineering (40%)	Planning Contingency (10%)
FASS	6,961	2,227	9,188		
NSWHP Specialist Services	3,500	1,120	4,620		
FETS	3,811	1,219	5,030		
Shared areas	4,656	1,490	6,146		
TOTAL BRIEFED	18,927	6,057	24,984	34,977	38,475

SCHEDULE OF ACCOMMODATION SUMMARY OPTION 1A

6.0 MASTER PLAN

6.3 MASTER PLANNING OPTIONS CONSIDERED

The following feedback was provided by HI and the PWG during the Master Planning process:

OPTION 1

PROS

- Building site is readily available
- Carpark located as good road access
- Generous future expansion space

CONS

- The scale of building would not be favourable with neighbouring residential area
- Vertical transport may be an issue given the height of the building
- Noise and light pollution from the building will have negative impact considering the building is staffed 24/7

OPTION 2

PROS

- Buildings are discrete
- Landscaped break out areas for collaboration

CONS

Separate buildings does not lend itself to a collaborative environment

Staging limits building locations and service continuity

OPTION 3

PROS

- Ease of external deliveries to the building without having to go further into the site
- Vertical transport may be an issue given the height of the building

CONS

- Light and noise pollution from carpark, staff access 24/7

OPTION 4

PROS

- Lower height building considered beneficial for workflow
- Carpark closer to the building

CONS

- Noise and light intrusion onto neighbours
- Carpark not ideal for development of future expansion

OPTION 5

PROS

- Lower height building considered beneficial for workflow
- Carpark at perimeter allows central space for future expansion
- Development does not build over the entire site – central future expansion hub still available
- Singular building brings all services together and allows greater opportunity for users to collaborate (the main objective of the project)

CONS

- Potential noise and light intrusion onto neighbours, however as carpark is at a lower scale it can be screened

OPTION 6

PROS

- Lower height building
- Carparking at perimeter

CONS

- Total rebuild across the entire site reduces future expansion potential
- Poor connectivity between buildings, with main entry road and site level changes separating developments
- Design does not lend itself to a collaborative environment

OPTION 7

The existing FASS and MRB buildings were dismissed for re-use, due to the buildings being at end of life and the building footprints not lending themselves to functional use.

PREFERRED OPTION AND NEXT STEPS

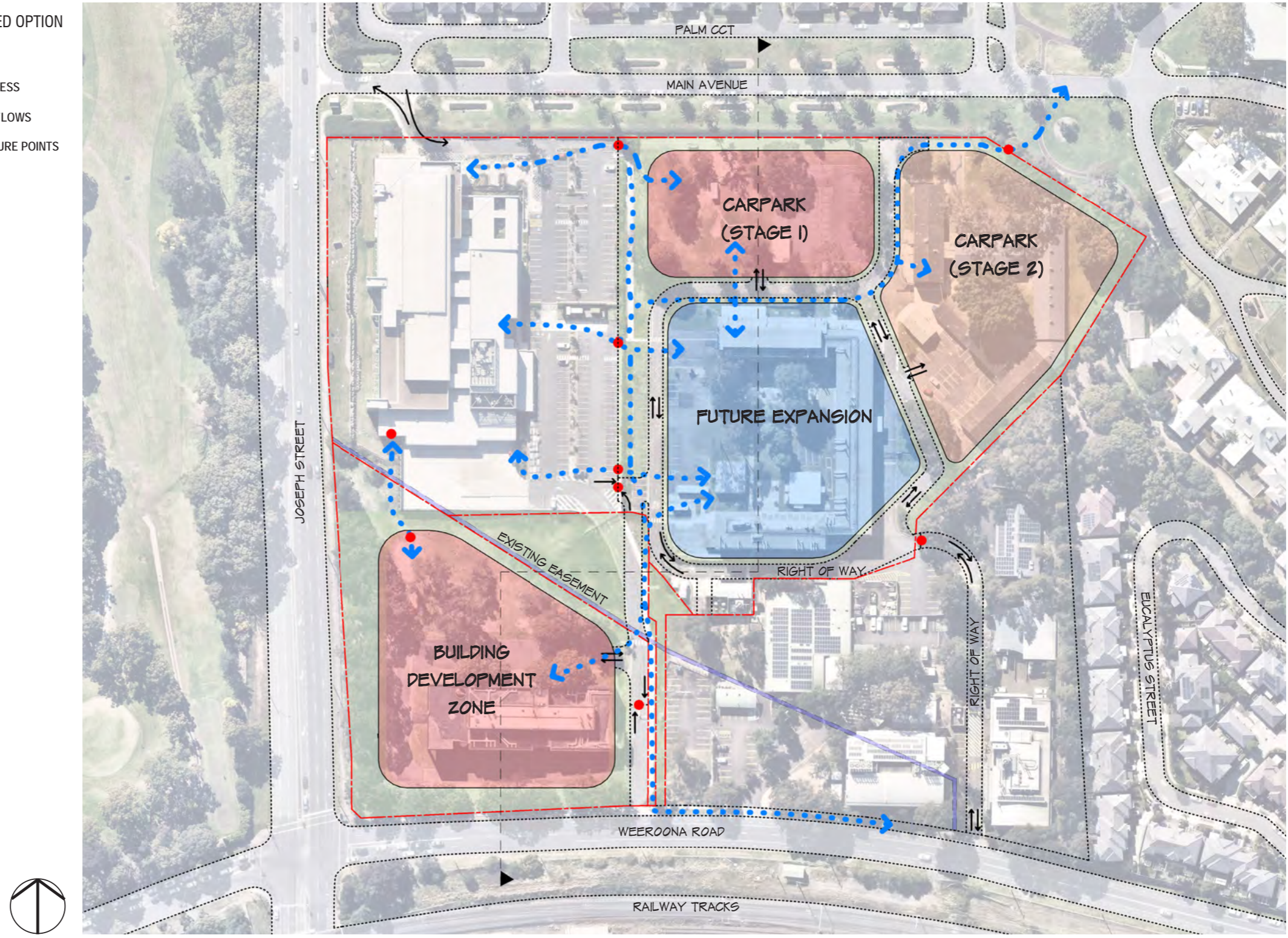
Option 5 was selected as the preferred option by the PWG on 29.09.22. At the following PWG meeting on 06.10.22, the following was noted:

- Potential undercroft carparking to be investigated in subsequent project phases;
- Carparking provision to be further interrogated in subsequent project phases;
- Access points and traffic flow studies to be investigated in subsequent project phases;
- Option 2 was the next most highly rated after Option 5. Should Option 5 not be endorsed for further development, that Option 2 be reconsidered to be fewer buildings, keeping in mind site availability is limited and staging would be required.

6.0 MASTER PLAN

OPTION 5 - PREFERRED OPTION

- ← VEHICULAR ACCESS
- ← CONNECTIVITY FLOWS
- INDICATIVE SECURE POINTS



7.0

MASTER PLANNING DESIGN PRINCIPLES



7.0 MASTER PLANNING DESIGN PRINCIPLES

7.1 ARCHITECTURAL

A range of design considerations informed the solutions incorporated in the zonal Master Plan options, with the aim to create a world class, integrated forensic service.

Key design features that were identified as a priority include:



AMENITY & WELL BEING

access to daylight and natural ventilation

access to views

access to nature and open space



access / mobility around site

connectivity between buildings

best practice urban design principles:

- connected to surroundings
- people focused spaces
- place making
- connection with Country



SECURITY

secure site entry

secure building entry

DISCRETENESS

minimise impact to residential zones

height of building appropriate for the streetscape

building set back appropriate for the streetscape



SERVICE SCOPE

interconnectivity between departments

shared and collaborative spaces

effective future expansion strategy



7.0 MASTER PLANNING DESIGN PRINCIPLES

7.2 LANDSCAPING

The proposed design of the campus seeks to create a contemporary environment that supports human connections and interactions in a sustainable manner.

Through design outcomes that create desirable spaces a sense of community will be fostered to the benefit of the users of the site and the wellbeing of all.

Through engagement with the relevant Aboriginal elders of the area, a deeper understanding of the site and Country broadly is to be understood with the intent to regenerate the native planting and ecologies of the area. Amongst other benefits to the project and the users of the site, this will regenerate the flora and fauna of Country creating a low maintenance and sustainable outcome for generations to come.

Four design principles have been developed to guide the redevelopment of the campus in a contemporary design environment.

These principles are focused on creation of a campus which is focused on the wellbeing of people and regenerating the natural environment of the place.

The design principles and relevant design outcomes are outlined in the Landscape Master Plan report, included in the appendices, and are to be tested in future design phases to guide the development of the campus.



7.0 MASTER PLANNING DESIGN PRINCIPLES

7.3 ECOLOGICALLY SUSTAINABLE DESIGN

The sustainability strategy is structured around four key climate resilience and wellbeing themes; Zero Carbon, Green Infrastructure, Sustainable Water, and Circular Resources.

The Master Plan's holistic approach to these themes has established a framework of sustainable design and planning measures that will help deliver a precinct that delivers on the range of NSW Government sustainability and resilience targets, including the Government Resource Efficiency Policy (GREP) and the Net Zero Policy (Stage 1 2030 and final stage 2050) for NSW. In particular the master plan structure places occupant wellbeing as one of the highest priorities, providing extensive daylight, clean air, thermal comfort and nature connections for staff in a setting that will support them in doing their life's best work.

The ESD Master Plan report is included in the appendices.



- LFP project target of One Planet footprint (long term)
- Zero Organic Waste by 2030



- Net Zero 2035 target
- LFP Climate Risk & Adaptation Plan



- GREP - Green Star Buildings Equivalent



- Reconciliation by Design – connection with Country
- Nature-based carbon offsets



- Exploring Regenerative outcome as long term goal



- Green Infrastructure to support place making and urban amenity



- Biophilic Design to be a key project metric (e.g. 100% nature connection)

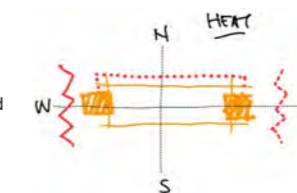


Zero Carbon

- 100% Electrification (incl. maximised PV, EV)
- Superior Passive
- Timber construction



- Solar orientation allows optimum daylight with best-value fixed external sun-shading, = minimised energy costs & optimised comfort

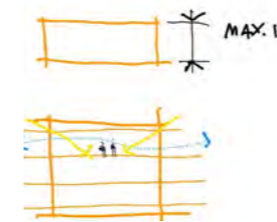


- Cores to narrower E-W ends, as heat shields. Allows free floor plates with optimised healthy conditions (daylight, views, x-vent), and complete fitout flexibility



Green Infrastructure

- Health & Wellness / Healing nature
- Climate risk management
- Biodiversity

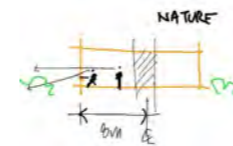


- Max. 16m deep floors allows full daylight penetration, cross-flow ventilation (when desirable), and views to outside, = optimised passive performance, superior wellbeing, minimised energy costs



Sustainable Water

- RW harvesting
- WSUD, Reclaim systems

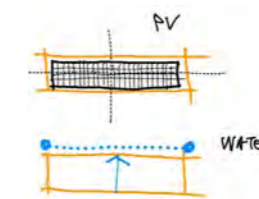


- 'No person ever >8m from Nature connection' (works with 16m deep floors) = proven biophilic benefits



Circular Resources

- Zero Organic Waste
- Zero non-hazardous waste
- Reduced hazardous waste



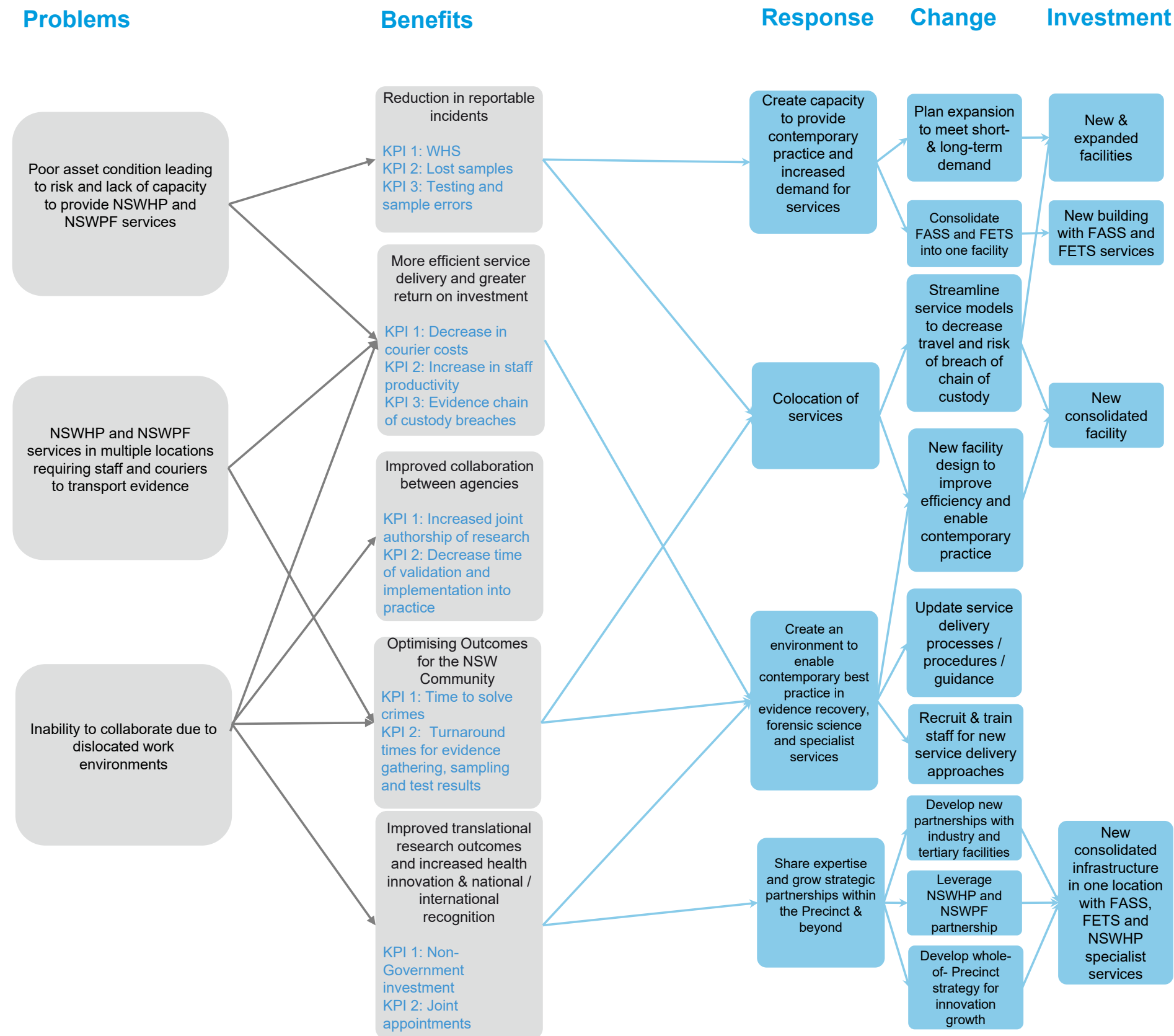
- Roof form allows maximised PV array (solar farm)
- Keeping single pitch allows optimised water harvesting



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Lidcombe Forensic Precinct – Benefits and Investment Options Mapping



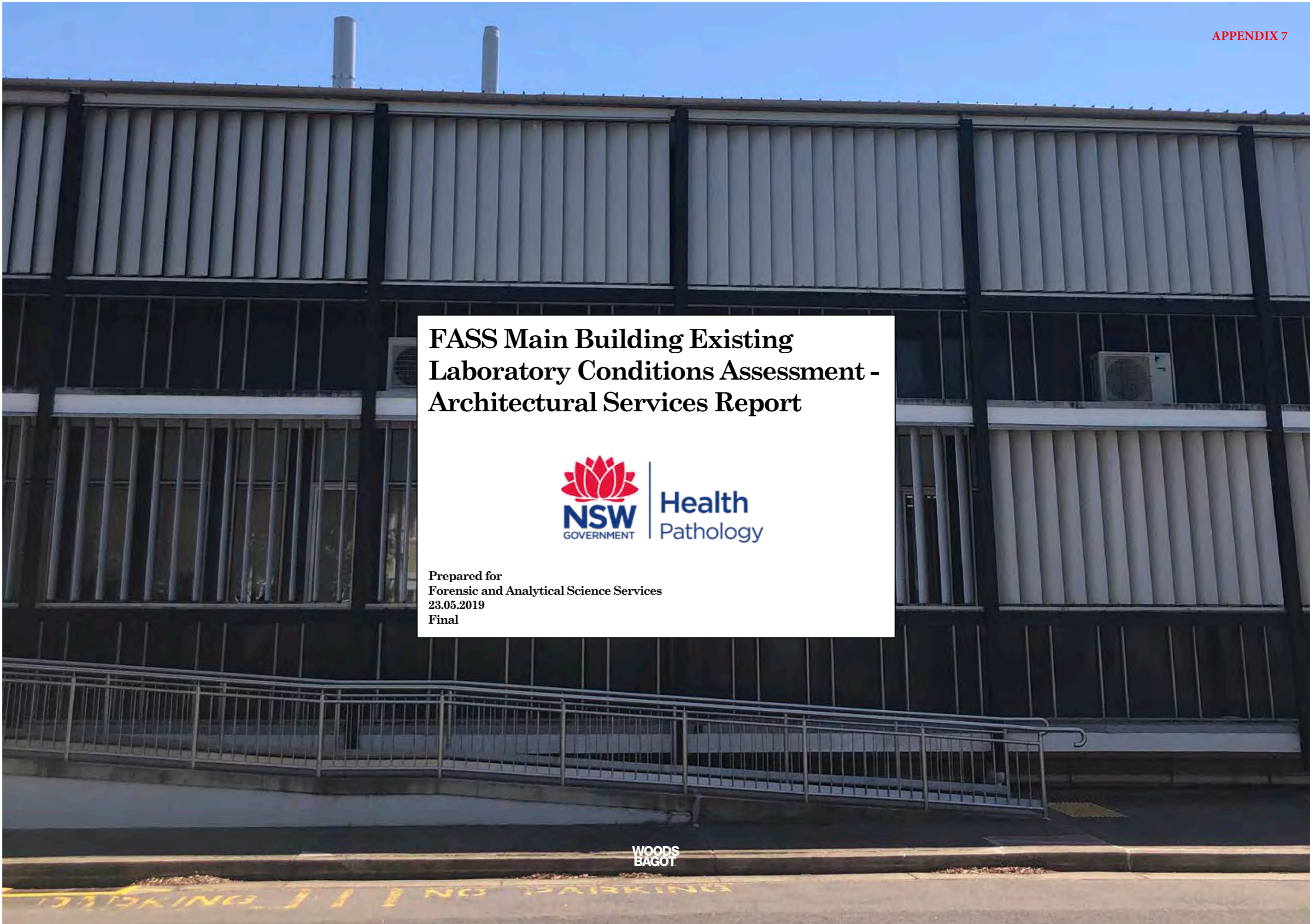
Vision

A world-leading precinct providing integrated and innovative forensic and scientific services to sustain and advance the *health and safety* of the NSW community

FASS Main Building Existing Laboratory Conditions Assessment - Architectural Services Report



Prepared for
Forensic and Analytical Science Services
23.05.2019
Final



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1.0 Summary

1.1

Summary Executive Summary

What is this report about?

The intent of this report is to provide a condition assessment of the Forensic & Analytical Science Service (FASS) 'Main Building' located in Lidcombe, NSW and compare how this facility measures up to current contemporary, best practice standards in laboratories, as well as identify any limitations within the Main Building that may impact on its ongoing suitability as an effective centre for forensic testing services.

This report is based on a condition assessment undertaken on the 25th to 26th of February 2019.

The scope of this report is limited to the review of internal laboratory spaces. Please note that the external façades, including the roofing and surrounding ground area was not reviewed and will not be discussed in this report.

The report will review the spaces from an Architectural and laboratory design perspective discussing the following aspects of the facility:

- Physical layout and condition of the base building interior fabric;
- Quality and condition of the finishes within the laboratory fit-outs;
- General quality of the space and amenity for users of the building;
- Review against current laboratory standards highlighting any risks or safety issues observed within current laboratory layouts; and
- Discuss any limitations in adapting the interior spaces/layouts to provide contemporary, best practice laboratory spaces into the future.

An assessment of the Main Building infrastructure, including the serviceability, ongoing maintenance and future replacement of plant will be discussed in a separate report by A.G.Coombs.

Why is it important?

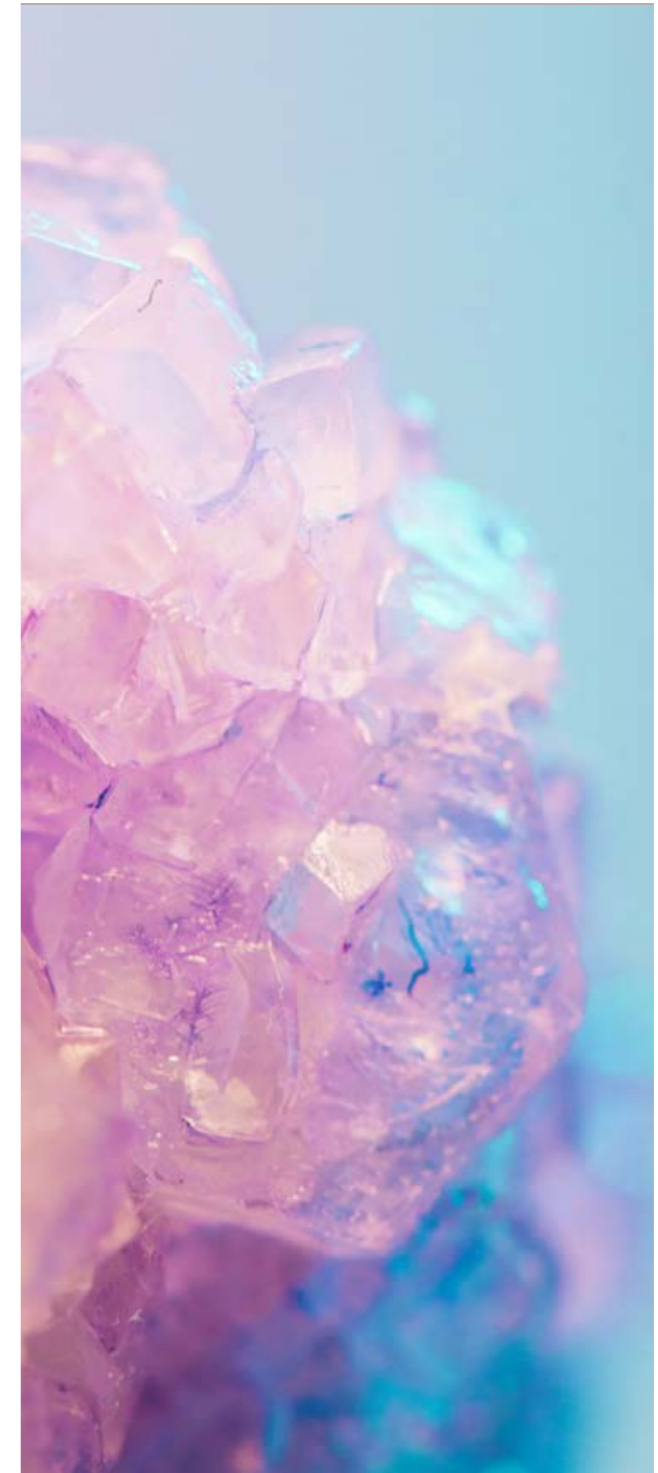
Laboratories have evolved significantly since the late 1960's when this building was officially opened.

Contemporary laboratory planning responds to and embraces the evolution of new technologies and processes that have improved efficiencies and quality of research and analysis.

They also respond to the fact that these are workspaces that are not only required to be functional, but should also provide a safe, vibrant and healthy environment for users.

The quality of the physical laboratory space will have a direct impact on the effectiveness of any type of research or analytical/testing processes that occurs within in.

This report will provide a basis for future decision making by FASS on ongoing investment into the Main Building and infrastructure.



1.1 Summary Executive Summary

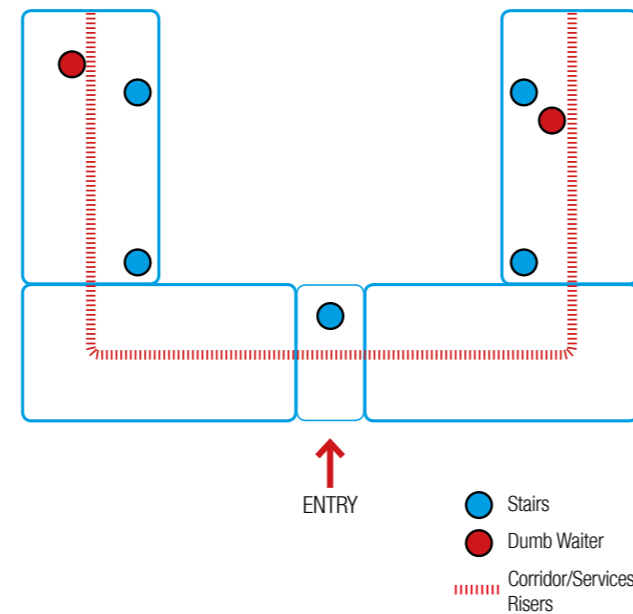
What are the major findings & results?

Building Floor plate

The Main Building was designed around a historical approach to research which was very compartmentalised and insular, which is reflected in the building floor plate design, structure and main services reticulation strategy.

The floor plate is laid out in a U shaped configuration with the main entry located at the centre of the base of the U, effectively creating 4 modules. Each module is also divided longitudinally by a services riser/spine which forms one side of a central corridor, further dividing the space.

These inherent features limits the capability of the building to be adapted into larger more flexible spaces that would suit more contemporary laboratory models.



Accessibility and Movement

The vertical and horizontal access paths within the building is also limited. The building is serviced by two dumb waiters that are located at the opposite ends of the building and does not contain a passenger lift. The dumb waiter has limited spatial and weight carrying capacity, so larger items would need to be transported via the stairs. The absence of a passenger lift significantly compromises access to the building by mobility impaired persons.

There are stairs located at the primary and secondary access points to the building which provide vertical access and are part of the escape routes from the building. The current laboratory fitouts includes the main circulation corridor within their zones, and would need to allow free egress through their secured zones in an emergency, which is not ideal.

Building structure

Generally the building structure on the upper levels appear to be in a reasonable condition. However there were areas in the lower ground levels where cracks were observed in the primary structure, and in some areas there was evidence of moisture leakage through these cracks. A review by a qualified structural engineer should be conducted to determine the significance of these issues.

Interior spaces

With the exception of the Forensic DNA Laboratory, the majority of the laboratory interiors within the building are dated and deteriorated, and would require significant refurbishment to bring them up to a reasonable condition that would be considered fit for purpose by current laboratory standards.

Generally the condition of finishes within these laboratories are quite poor with dirty or damaged sections to walls, ceilings and floor finishes observed in many locations that create gaps and crevices at junctions.

The majority of fixed lab joinery have exposed timber to, edges, underside of bench tops, inside of cupboards/ drawers etc.

There are a majority of walls within the laboratories that are painted blockwork or tiled with expressed joints, which do not provide a smooth cleanable surface and would be difficult to clean.

The majority of the external windows have seals or caulking that have deteriorated over time and are crumbling.

All of these issues contribute to a risk of contamination which would be impossible to clean if exposed to any spills that contain biological or chemical hazards. Considering the age of some of these laboratories, there would be high probability that most of these spaces have been exposed to these types of hazards during its operational life.

Hazards

Over the last 50yrs of occupancy, the interiors of the laboratories would have been exposed to numerous hazardous substances that would have been historically used in research. It would be safe to assume that a certain level of contamination exists within the existing interior fabric, especially due to the use of exposed timber in the laboratory joinery and the general state of the finishes as they deteriorate, opening up gaps and crevices, into which liquids and other substances would have found their way into.

The building also has numerous locations where asbestos is present in the materials and finishes. This is recorded in the 2016 Asbestos Survey Report by Airsafe.

1.1 Summary Executive Summary

Quality of Planning & Finishes

The adjacent chart captures an overall rating for laboratories within each unit/zone, and plots them relative to each other so that a comparison can be made between the various conditions of spaces within the building.

Scoring methodology

A rating system was utilised to provide a consistent method in mapping out the quality of the spaces and captures our observations in the following main areas:

Finishes:

This looks at the condition of the interior finishes in relation to provision of smooth, non-porous, and easily cleanable surfaces, including surface defects/damage, quality and integrity of seals at joints/junctions, finish on built-in and movable furniture, containment integrity at room boundary to reduce contamination risks from outside environment. This section was scored between 1 to 5 as follows: 1 = Replace, 2 = Refurbish, 3 = Functional, 4 = Good, 5 = Excellent

Planning:

This section assesses the overall layout and amenity within the laboratory. For example:

- If its congested or spacious, and how that affects safe movement and utilisation with the labs;
- Visual access into and throughout the lab, which contributes towards the safety and comfort within the labs; and
- Access to daylight and external views, quality of artificial lighting as well as room acoustics which contributes to the amenity of the space for users of the lab.

These were given a score from 1 to 5 as follows: 1 = Poor, 2 = Uncomfortable, 3 = Fair, 4 = Good, 5 = Excellent

Security/Safety/Services:

This section covers the access, equipment and

services provisions within the space which contribute to the security and safety of the space. This part was not specifically rated, but is provided as an overview of the current condition or provision of these items within each space, and contributes to the overall assessment in terms of compliance and safety of the space.

The following sections of the report will expand on the method utilised for the assessment and provide a more detailed view of each of the zones.

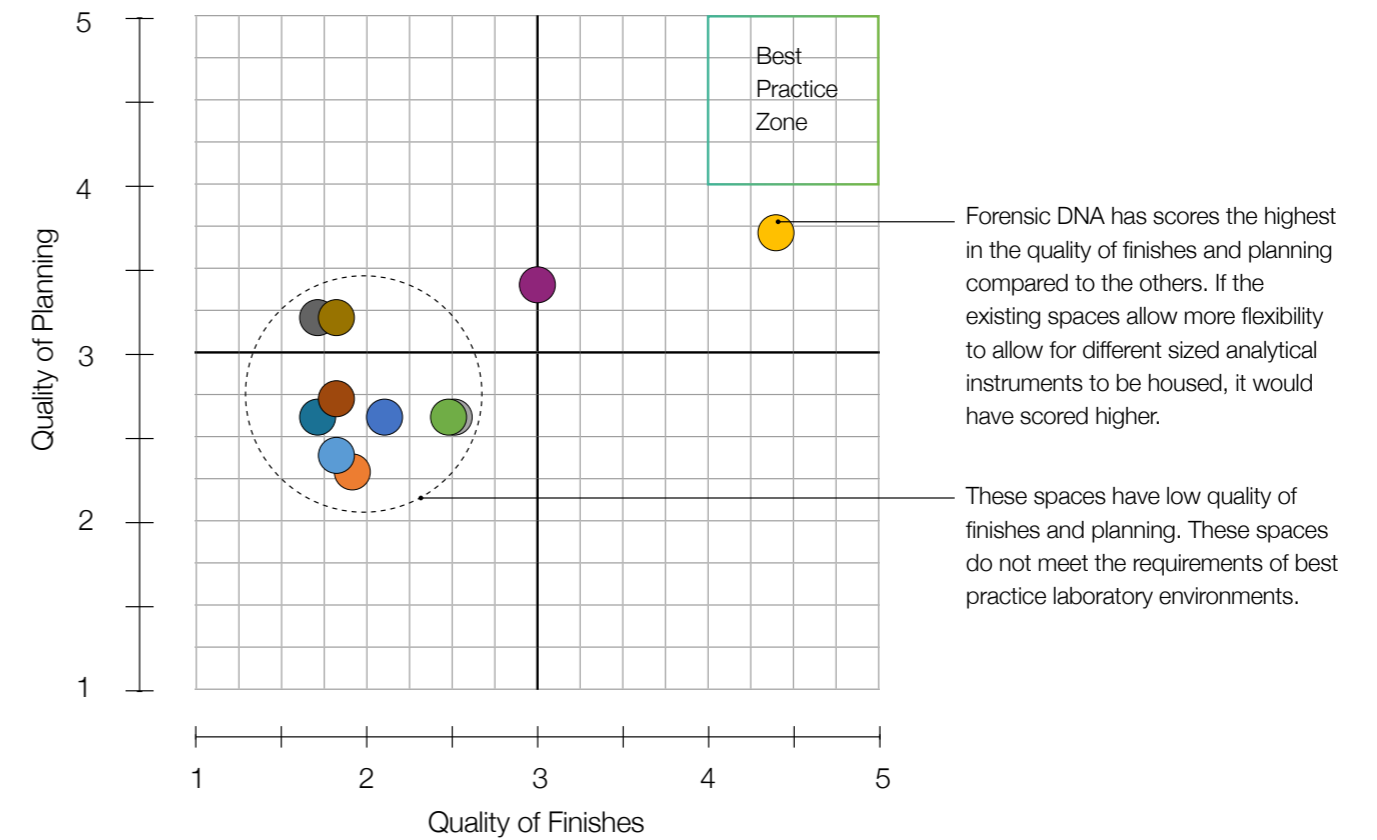
Quality of Planning & Finishes

It can be seen that the newer fit-outs, especially the Forensic DNA zones scored a higher rating compared to the older more traditional laboratories, which make up the majority of the laboratory spaces within the building.

Forensic DNA laboratory has high quality of finishes, however, it does not quite reach best practice because the dimensions of the space does not allow for the different types of analytical instruments. Otherwise, within the spaces itself, there is just enough space for staff to move around.

There is a group of units / zones that are below average in both the quality of planning and finishes scores. These spaces do not meet the requirements of best practice laboratory environments. The quality of finishes are poor, difficult to clean and have a high chance for contamination.

Overall quality per zone chart



Legend & average scores table

Unit or Zones	Finishes	Planning
Clinical & Environmental Toxicology	1.8	2.4
Water Microbiology	1.9	2.3
Forensic DNA	4.4	3.7
Forensic Toxicology	2.5	2.6
Drugs, Driving Toxicology	2.5	2.6
Illicit Drugs & Analysis Unit	2.1	2.6

Unit or Zones	Finishes	Planning
Trace Organics	1.7	2.6
Evidence Recovery Unit	1.8	2.7
Forensic Bio Receipt	3.0	3.4
Canteen	1.8	3.2
Legionella Reference Lab	1.7	3.2

2.0 The Assessment

2.1 The Assessment Introduction

Overview

The FASS was constructed in 1969, and is a concrete framed, 3 storey U shaped building.

The main entry and reception is located at the eastern side of ground level. The lower ground level is accessible from the western side courtyard level.

While the exterior of the building appears to be the original fabric, the interior of the building has undergone a number of fitout changes over the years.

The building currently houses laboratories for the following groups:

Lower Ground Level

- Forensic Bio Receipt
- Illicit Drugs Analysis Unit
- Legionella Laboratory
- As well as the staff canteen and associated plantrooms, storage and workshop spaces

Ground Level

- Forensic Toxicology
- Drugs & Driving Toxicology
- Illicit Drugs Analysis Unit
- Trace Organics
- Evidence Recovery Unit

Level 01

- Forensic DNA
- Water Microbiology
- Clinical & Environmental Toxicology

There are also some vacant laboratory spaces, located at the south east and north west sections of level 01 which have been cleared for reuse.

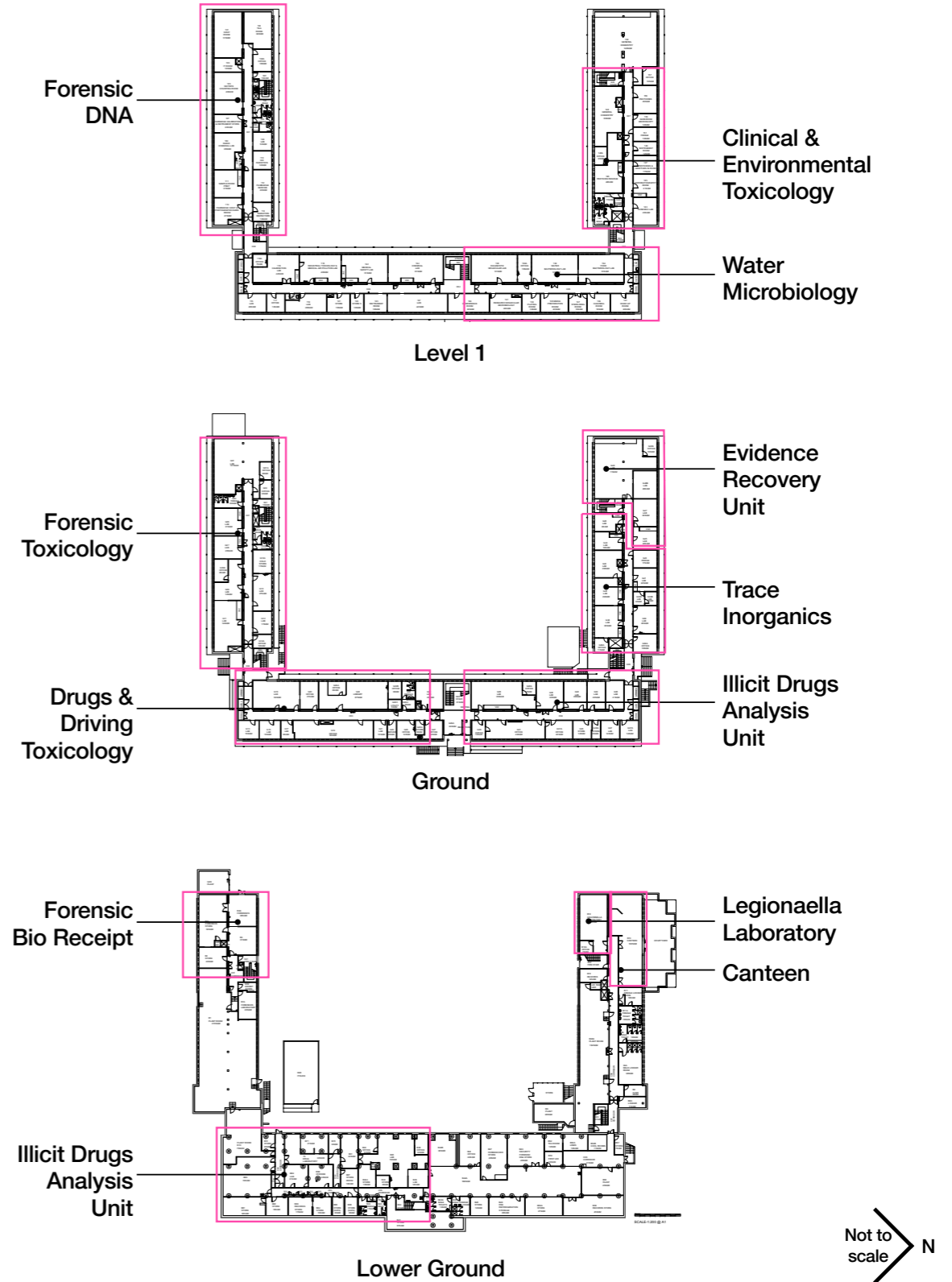
Methodology

The inspection was an assessment of the interiors, with a primary focus on the laboratory spaces. It involved a visual inspection only, and did not include any invasive inspections involving the removal of panels or movement of equipment or furniture etc. Over 1800 photos were taken during the course of the inspection of which some of the more significant issues have been included within this report.

Architecturally, the laboratory spaces were generally reviewed against *AS2982_2010- Laboratory Design & Construction - General Requirements*, focussing on the layouts, condition and quality of finishes, and highlighting any WHS or compliance risks.

It was also measured against current best practice standards for laboratories.

Zones for assessment



2.2 The Assessment Clinical & Environmental Toxicology

Overview

Dated fitout with finishes in generally poor condition with damaged or deteriorated finishes to walls, floors and ceilings. Joinery has a lot of exposed timber, and do not offer any flexibility to adapt to the changes within the labs.

Reticulation of services have been retrofitted over time, and some are not appropriately labelled or secured in place. These have resulted in numerous penetrations through joinery and building fabric that have not been appropriately sealed.

Further review recommended from a Dangerous Goods perspective to assess quantities of gas bottles and flammable chemicals that are stored within the labs.

Significant points



Painted blockwork walls and undulating surfaces not fully sealed and difficult to clean.



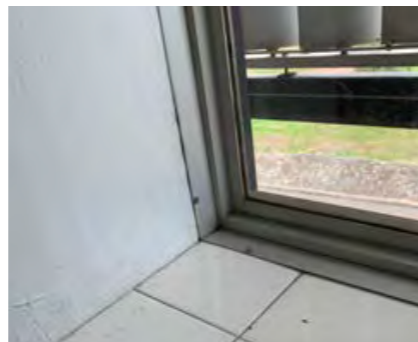
Stained vinyl flooring with deteriorated welded joints which are failing.



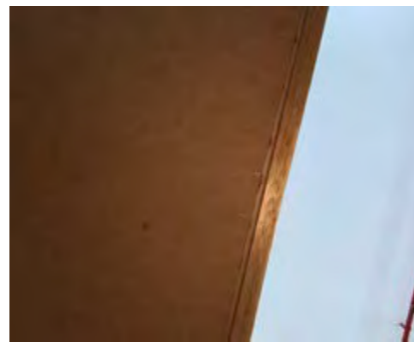
Stained vinyl flooring with open joints.



Stained vinyl flooring with open joints and sections missing. Exposed timber and pipework which are dirty and not easily cleaned.



Tiled window sills with expressed joints and seals/caulking to windows crumbling.



Exposed timber to underside of benchtops



Vinyl lifting off surface



Bulkhead panels with numerous gaps and damaged paint finish exposing timber substrate.

2.2 The Assessment Clinical & Environmental Toxicology

Significant points



Fume cupboards appear to be non-compliant or functional.



Damaged wall finished and exposed timber panels.



Perforated metal tiled ceiling are generally dirty and backing may be compromised exposing space to contaminants from ceiling space. Needs further investigation to confirm risks.



Exposed timber, and benchtop substrate exposed in cutout.



Damaged walls requiring patching and painting



Generally eye wash units are non-compliant to current standards.



Exposed/unsealed timber under benchtops. Steel hollow section framing have open ends and holes throughout would be impossible to clean out. Exposed surface mounted gas lines and power conduits difficult to clean.



Water damaged walls and vinyl floors. Stained vinyl flooring with open joints. Exposed timber blocking.



Coldroom floors rusted/stained, and generally whole room is in poor condition.



Surface mounted gas lines difficult to clean, and not adequately labelled s a safety concern.

2.2 The Assessment

Clinical & Environmental Toxicology

Significant points



Typically tops of all timber doors are not sealed. Assume the same applies to bottom edge of doors.



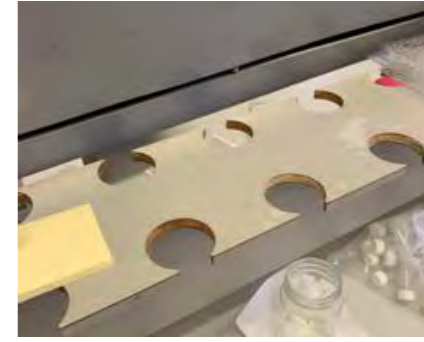
Exposed timber in all underbench cupboards.



Penetration through blockwork wall not patched/sealed.



Noted number of flammable cabinets throughout laboratory. They don't appear to be vented. Further investigation required to ensure that quantities stored within laboratories do not pose a fire hazard risk to the building.



Exposed timber substrate.



Observed number of laboratories that have gas bottles within them. Best practice is to locate them outside of lab spaces in adequately ventilated spaces. Did not notice any gas alarm sensors in these labs, which may be a safety issue. Further investigation warranted.



Note previous comment.



Note previous comment.



Numerous examples of services reticulation that have been retro fitted in-house, and not appropriately labelled or secured. This is typical of older laboratories where the flexibility and future proofing has not been considered in the original design.



Positioning of Fume cupboard is non-compliant. Needs to be min 300mm off the wall. Access to it is also congested.

2.2 The Assessment

Clinical & Environmental Toxicology

Assessment score

Room Number	Room Function	Finishes										Average	Planning					Average	Security/Safety/Services										Notes	Zone notes
		Floor	Wall	Ceiling	Bulkheads	Windows	Junctions	Furniture	Cleanability	Isolation from outside environment		Visibility with team / discipline	Overall layout / planning	Access to Daylight	Artificial Lighting	Room Acoustics		Swipe Card Access	Fume Cupboard to Bench	Fume cupboard compliance	Bio Safety Cupboards	Gas safety issue	Safety Shower provision	Eye Wash provision	Hand wash provision	Water Supply				
Clinical & Environmental Toxicology	150 157	Lab	1	2	5	1	2	2	1	1	1	1.8	1	3	5	3	1	2.6	no	1.5	no	no	no	no	no	no	no	yes	Wall cladding needs replacement, gas in fumecupboard but not working	In this wing, there is one safety shower by the toilets at the entry, toilets needs refreshing, refurbished
	155	Lab	1	2	3	no	2	1	1	2	1	1.6	1	3	5	3	1	2.6	Yes	no	no	no	no	no	no	no	no			
	148	Lab	1	2	5	1	2	1	1	2	1	1.8	1	3	5	3	1	2.1	no	2.5	no	no	Yes	no	no	no	yes			
	153	Store	1	2	4	no	no	1	1	2	1	1.7	1	3	1	3	1	1.8	no	no	no	no	no	no	no	no	yes	Dark Room - now storage for solvent storage		
	151	Freezer	1	3	3	no	no	2	1	2	5	2.4	1	3	1	3	3	2.2	no	no	no	no	no	no	no	no	no	Freezer		
	149	Lab	1	2	3	no	2	1	1	2	2	1.8	1	3	5	3	1	2.6	no	no	no	no	no	no	no	no	no			
	147	Office	3	3	3	no	2	2	3	3	5	3.0	1	3	5	3	3	3.0	no	no	no	no	no	no	no	no	no			
	146	Lab	1	2	3	1	2	1	1	2	3	1.8	1	3	5	3	1	2.6	yes	2+	no	no	Yes	no	no	no	yes	Flamable srorage cabinet too large for the space		
	145	Lab	1	3	4	1	2	2	1	2	5	2.3	1	1	5	1	1	1.8	Yes	no	no	no	no	no	no	no	Yes	Was a solvent room, with explosion proof switches + plugs, large solvent store, too large for the space. Insufficient circulation		
	143	Sorting Room	1	3	4	1	2	1	1	2	1	1.8	1	2	5	3	1	2.4	yes	no	no	no	Yes	no	no	no	yes			
Average Total			2.0											2.4																

2.3 The Assessment Water Microbiology

Overview

Similarly these labs have a dated fitout with finishes in generally mid to poor condition with damaged or deteriorated finishes to walls, floors and ceilings. Joinery has a lot of exposed timber, and do not offer any flexibility to adapt to the changes within the labs.

Reticulation of services have been retrofitted over time, and some are not appropriately labelled or secured in place. These have resulted in numerous penetrations through joinery and building fabric that have not been appropriately sealed.

Cracking observed in blockwork walls. Needs structural review.

Significant points



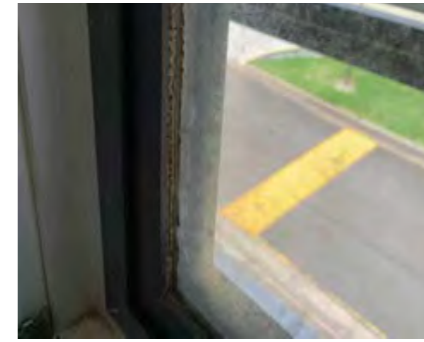
Horizontal and vertical cracks in corners of rendered walls. Recommend structural assessment.



Tiled floor and skirting would be difficult to clean. Skirting tiles pulling away from walls



Finish to joinery damaged exposing timber.



Seal/caulking to external windows crumbling. This is generally the case to all external windows.



Splashback not sealed to walls.



Timber panels in corridor damaged.



Skirting/ finish to plinth missing. Significant cracking visible.



Joinery surface stained and damaged, exposing timber substrate.

2.3 The Assessment Water Microbiology

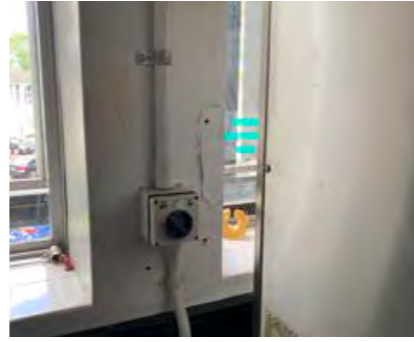
Significant points



Exposed/ unsealed timber in joinery



Damaged wall and sections of tiled skirting missing.



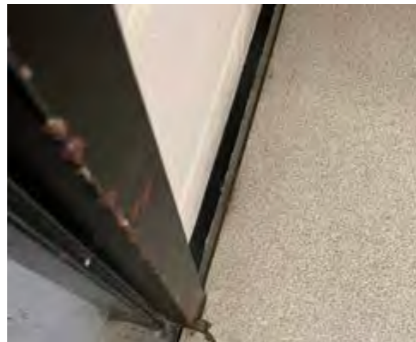
Paint finish peeling off wall



Vinyl flooring in poor condition and lifting off surface



Vinyl flooring missing.



Steel door frames damaged, and vinyl flooring in poor condition



Coved vinyl skirting pulling away from wall



Non-compliant eye wash



Painted blockwork wall with expressed joints in a number of rooms



Exposed timber in underbench cupboards.

2.3 The Assessment Water Microbiology (Vacant Laboratory)

Significant points



Open gaps between wall and flooring



Built in fume cupboard on-compliant



Timber bulkheads in need of repairs



Seals/caulking to external windows crumbling



Blockwork with exposed mortar joints



Damaged tiled splashback



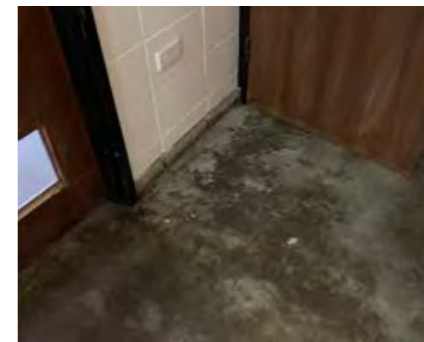
Fixed joinery with exposed timber



Dirty and damaged ceilings



Damaged bulkheads and ceilings



Sections of floors missing finishes

2.3 The Assessment Water Microbiology (Vacant Laboratory)

Significant points



Cracks in blockwork wall. Structural review recommended



Cracking in corner of masonry wall. Structural review recommended



Unsealed penetrations in wall



Cracks in walls. Structural review recommended



Damaged walls where skirting were removed.



Cracks in concrete floor. Structural review recommended



Walls damaged from removal of fixed joinery, skirting etc. Fixings need to be removed and walls patched/painted.

2.3 The Assessment

Water Microbiology

Assessment score

Room Number	Room Function	Finishes											Average	Planning					Average	Security/Safety/Services										Notes	Zone notes			
		Floor	Wall	Ceiling	Bulkheads	Windows	Junctions	Furniture	Cleanability	Isolation from outside environment	Visibility with team / discipline	Overall layout / planning	Access to Daylight	Artificial Lighting	Room Acoustics	Swipe Card Access	Fume Cupboard to Bench	Fume cupboard compliance	Bio Safety Cupboards	Gas safety issue	Safety Shower provision	Eye Wash provision	Hand wash provision	Water Supply										
Water Microbiology	141	Incubator Room	1	2	4	1	2	1	1	2	4	2.0	1	2	5	3	1	2.4	no	no	no	no	no	no	no	no	no	no	no	no	no	yes	Tiles ok but not good practice	
	139	139	1	3	4	1	2	1	1	2	3	2.0	1	2	5	3	1	2.4	no	no	no	no	no	no	no	no	no	no	no	no	no	no	na	
	134	Old food Lab	1	2	3	1	2	1	1	2	3	1.8	1	1	5	3	1	2.2	no	no	no	no	yes	no	no	no	no	no	no	no	no	yes	no gas shutdown - not used	
	137	Autoclave room	1	2	2	1	2	1	no	2	4	1.9	1	2	5	3	1	2.4	no	no	no	no	no	no	no	no	no	no	no	no	no	Yes	Moisture Damage	
	135	Media Room (Bacteria)	1	2	3	1	2	1	1	2	2	1.7	1	2	5	3	1	2.4	no	no	no	no	no	no	no	no	no	no	no	no	Yes	Bacteria room growing		
	132	Lab	1	2	4	1	2	1	1	1	4	1.9	1	1	5	3	1	2.2	no	no	no	no	no	no	no	no	no	no	no	no	no	yes		
	133	Ancillary	1	2	4	1	2	1	1	2	4	2.0	1	1	5	3	1	2.2	no	no	no	no	no	no	no	no	no	no	no	no	no	no	Makes media plates for the media lab	
	130	Lab	1	3	3	3	2	1	1	2	2	2.0	1	2	5	3	1	2.4	no	no	no	no	no	no	no	no	no	no	no	no	no	Yes	Isels are good width bu the horizontal circulation is tight	
	131	Store	1	2	4	no	2	1	1	2	2	1.9	1	2	5	3	1	2.4	no	no	no	no	no	no	no	no	no	no	no	no	no	no	Was a lab but now used as a store	
	129	Teleconference Room	2	2	2	no	2	1	1	2	3	1.9	1	2	5	3	1	2.4	no	no	no	no	no	no	no	no	no	no	no	no	no	no	Only equipment for Video conference for 1 chair and person.	
115 - 127	Vacant	1	2	2	1	2	1	1	1	2	1.4	1	2	5	3	1	2.4	no	no	no	no	no	no	no	no	no	no	no	no	no	no	All vacan with furniture ripped out, some have stayed.		
Average Total		1.9											2.3																					

2.4 The Assessment Forensic DNA

Overview

New laboratory fitout with quality lab finishes and workmanship. Lab benchtops are seamless and smooth and fully sealed on underside. Covered vinyl skirting to all floor to wall junctions. Ceiling tiles are smooth and generally well fitted. Tiled sills to external windows have been removed and replaced with smooth finished sills.

Layout of labs generally look spacious with sufficient circulation around benches and equipment.

Good example of contemporary lab fitout and detailing which makes it easier to clean and maintain.

Seals/caulking to external windows not addressed, and still crumbling.

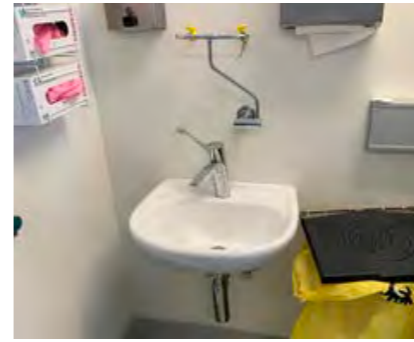
Significant points



Seals/caulking to external windows crumbling.



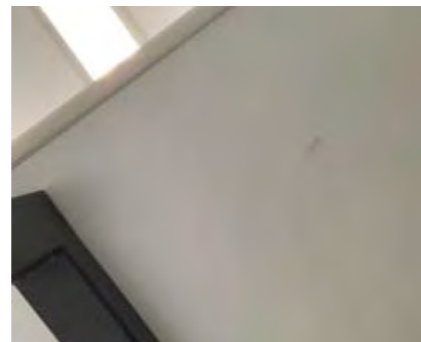
Smooth window sills and clean junctions



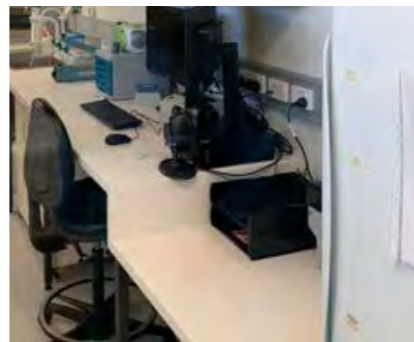
Compliant eyewash stations



Ceiling tiles are smooth and generally well fitted. Observed some tiles that have gaps to grid and require to be refitted, and also edges of tiles are not sealed.



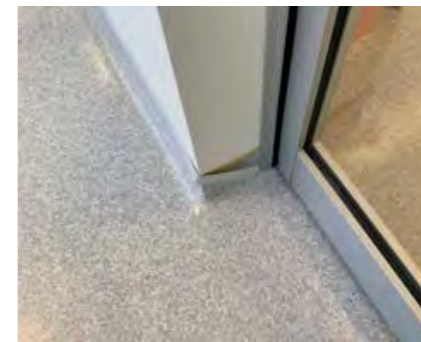
Underside of benches well sealed



Lab benches have smooth seamless finish.



Coved skirting are generally smooth and well sealed to walls



Observed a small number of instances where skirting need to be re-glued and sealed.

2.4 The Assessment Forensic DNA

Assessment score

Room Number	Room Function	Finishes										Average	Planning					Average	Security/Safety/Services										Notes	Zone notes		
		Floor	Wall	Ceiling	Bulkheads	Windows	Junctions	Furniture	Cleanability	Isolation from outside environment		Visibility with team / discipline	Overall layout / planning	Access to Daylight	Artificial Lighting	Room Acoustics		Swipe Card Access	Fume Cupboard to Bench	Fume cupboard compliance	Bio Safety Cupboards	Gas safety issue	Safety Shower provision	Eye Wash provision	Hand wash provision	Water Supply						
Forensic DNA	101 101A 101B	Ante Room, Sample Prep, Mitochondrial Lab	5	5	5	no	2	4	5	5	5	4.5	1	3	5	5	3	3.4	no		yes	no	no	no	no	no	no	no	no	no	Clean room, positive pressured, monitored	
	103	Server room	1	3	3	no	2	3	3	3	2.6	1	2	3	3	3	2.4	no	no	no	no	no	no	no	no	no	no	no	no			
	111	Robotic lysis Extraction	5	5	5	no	2	5	5	5	4.6	1	4	5	5	3	3.6	no	no	no	no	no	no	no	yes	yes	yes	large flammable liquid	safety shower needs signage			
	112	Manual Extraction	5	5	5	no	2	5	5	5	4.6	1	4	5	5	5	4.0	no	no	no	yes	no	no	yes	yes	yes						
	110	Mitochondrial	5	5	5	no	2	5	5	5	4.6	1	4	5	5	5	4.0	no	no	no	no	no	no	yes	yes	yes						
	108	Referece Lab	5	5	5	no	2	5	5	5	4.6	1	4	5	5	5	4.0	no	no	no	no	no	no									
	107	Robotic PCR Setup	5	5	5	no	2	5	5	5	4.6	1	4	5	5	5	4.0	no	no	no	no	no	no	yes	yes	yes						
	105	POST Amplification	5	4	5	no	2	4	5	5	4.4	1	4	5	5	5	4.0	no	no	no	no	no	no	yes	yes	yes	air lock					
	102	DNA analysis workstations	5	5	4	no	2	5	5	5	4.5	1	4	5	5	5	4.0	no	no	no	no	no	no	no	no	no	no	writeup				
	113	PPE Store Room	5	4	4	no	no	3	5	5	4.3	1	3	5	5	5	3.8	no	no	no	no	no	no	no	no	no	no					
	114	Office	5	5	5	no	2	5	5	5	4.6	1	4	5	5	5	4.0	no	no	no	no	no	no	no	no	no	no					
Average Total			4.4											3.7																		

2.5 The Assessment Forensic Toxicology

Overview

Generally most labs are dated and have deteriorating or damaged finishes. Instrument lab was only space that seemed to have had some recent upgrades to floor finishes, furniture and eyewash stations. Minor cracking observed in blockwork walls need structural review.

Significant points



Perforated metal tiled ceiling are generally dirty and backing may be compromised exposing space to contaminants from ceiling space. Needs further investigation to confirm risks.



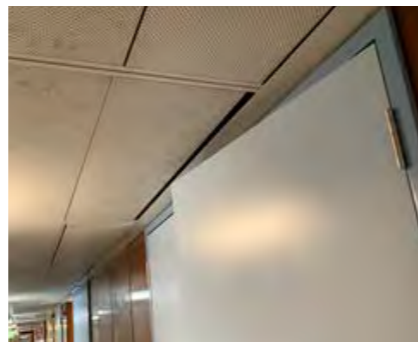
Stained or damaged vinyl flooring in numerous areas.



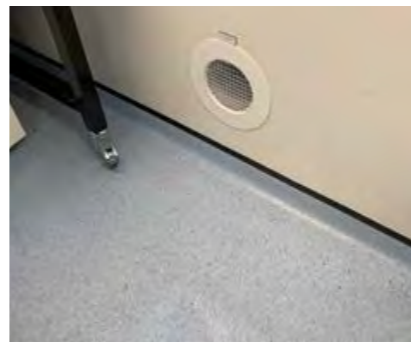
Timber skirting generally need repairs or replacement. Coved skirting would be preferred throughout.



Damaged/stained ceiling tiles. Possible leak in above ceiling services.



Ceiling tiles need to be cleaned and refitted.



Instrument lab has been upgrade with newer vinyl flooring and coved skirting.



Compliant eyewash installed in Instrument Lab.



Instrument Lab has mobile tables with smooth finishes and sealed on all sides. Good arrangement for flexibility and makes lab easier to clean/maintain.

2.5 The Assessment Forensic Toxicology

Significant points



Non-compliant positioning of Fume Cupboard and Biosafety Cabinet. Room G10.



Door threshold into cold room, dirty and hard to clean.



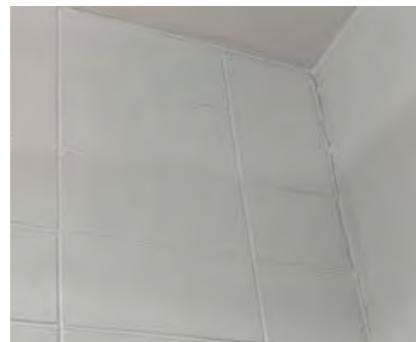
Floor/threshold to freezer door dirty



Generally timber joinery throughout labs.



Non-compliant eyewash



Generally walls not smooth or easily cleanable. Cracking noted in some areas. Structural review recommended.



Timber joinery generally throughout labs with exposed/unsealed timber.



Ceiling dirty and walls require patching and painting.



Obsolete fume cupboards.



Vinyl flooring lifting in areas.

2.5 The Assessment Forensic Toxicology

Assessment score

	Room Number	Room Function	Finishes										Average	Planning					Average	Security/Safety/Services										Notes	Zone notes
			Floor	Wall	Ceiling	Bulkheads	Windows	Junctions	Furniture	Cleanability	Isolation from outside environment		Visibility with team / discipline	Overall layout / planning	Access to Daylight	Artificial Lighting	Room Acoustics		Swipe Card Access	Fume Cupboard to Bench	Fume cupboard compliance	Bio Safety Cupboards	Gas safety issue	Safety Shower provision	Eye Wash provision	Hand wash provision	Water Supply				
Forensic Toxicology	G1 G2	Writeup	1	3	3	no	2	1	3	3	3	2.4	1	2	3	3	3	2.4	no	no	no	no	no	no	no	no	no				
	G7	Instrument Lab	4	5	3	no	2	4	4	5	4	3.9	1	4	5	3	2	3.0	no	2+	Yes	no	no	yes	yes	yes	yes	All mobile furniture			
	G10	Sampling Receiving	1	2	4	1	2	1	2	3	5	2.3	1	1	5	3	1	2.2	no	1.6	yes	no	no	no	no	no	yes	fumehood positioned next to biosafety cabinet is non compliant, too close to each other and the door			
	G9 & G11	Lab	1	3	3	no	2	1	1	1	1	1.6	1	2	5	3	2	2.6	no		yes	yes	yes	no	no	no	yes	gas not labelled, issues with cupboard positioning			
	G12		1	2	4	1	2	1	2	3	5	2.3	1	1	5	3	1	2.2	no	no	no	no	no	no	no	no	no				
	G12A		1	3	3	1	2	1	1	1	1	1.6	1	2	5	3	2	2.6	no	no	no	no	no	no	no	no	no				
Average Total													2.3						2.5												

2.6 The Assessment Drugs & Driving Toxicology

Overview

Generally most labs are dated and have deteriorating or damaged finishes. G22 lab was only space that seemed to have had some recent upgrades to floor finishes, furniture and eyewash stations.

Significant points



Generally walls not smooth, and timber joinery throughout



Fume cupboard may be obsolete and no longer usable.



Perforated ceiling tiles difficult to clean and needs to be refitted



Non-compliant eyewash



Fume cupboard location maybe non-compliant. Too close to door opening and air register.



Seals/caulking to external windows crumbling.



Vinyl coving pulling away from walls and not sealed junctions.



Vinyl coving pulling away from walls

2.6 The Assessment Drugs & Driving Toxicology

Significant points



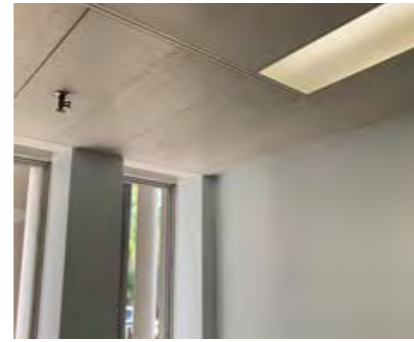
G22 lab has had some refurbishment. Compliant eyewash station and vinyl flooring with coved skirting.



Smooth ceilings in G22 lab



G22 lab - Seamless benchtops with sealed undersides. Some exposed timber at drip edge needs to be sealed.



Most lab areas have perforated tiled ceiling that are in need of a clean and refitting. However recommend replacement with smooth, cleanable tiles.



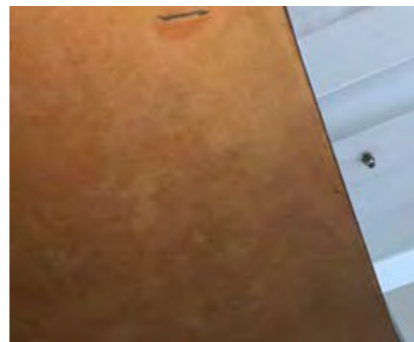
Damaged walls and timber bulkheads



Retrofitted fume cupboard exhaust has exposed ceiling cavity to room.



Timber joinery throughout



Exposed/unsealed timber to underside of benchtops.



Gas bottles within labs, not good practice.

2.6 The Assessment

Drugs & Driving Toxicology

Assessment score

Room Number	Room Function	Finishes											Average	Planning					Average	Security/Safety/Services										Notes	Zone notes
		Floor	Wall	Ceiling	Bulkheads	Windows	Junctions	Furniture	Cleanability	Isolation from outside environment		Visibility with team / discipline	Overall layout / planning	Access to Daylight	Artificial Lighting	Room Acoustics		Swipe Card Access	Fume Cupboard to Bench	Fume cupboard compliance	Bio Safety Cupboards	Gas safety issue	Safety Shower provision	Eye Wash provision	Hand wash provision	Water Supply					
Drugs & Driving Toxicology	G13 G15	Instrument Room	1	2	2	no	2	1	1	2	3	1.8	1	2	5	3	1	2.4	no	no	no	no	no	no	no	no	no				
	G16	Sample Receiving Lab	1	2	2	no	2	1	1	2	4	1.9	1	2	5	3	1	2.4	no	yes	yes	yes	yes	no	no	no	yes		Labcoats are touching each other		
	G20	Prep Room	4	2	2	no	2	1	1	2	3	2.1	1	2	5	3	1	2.4	no	no	no	no	no	no	no	no	yes				
	G17	Instrument Room	1	2	2	no	2	1	1	2	3	1.8	1	2	5	3	1	2.4	no	no	no	no	no	no	no	no	no				
	G19	Writeup	3	3	3	no	2	3	3	3	3	2.9	1	2	3	3	3	2.4	no	no	no	no	no	no	no	no	no	office space			
	G22 - G22	Research Laboratory	4	4	4	no	2	5	5	5	4	4.1	1	2	5	2	3	2.6	no	no	no	no	no	yes	yes	yes	no	Positive perssure			
	G21	Office	1	2	2	no	2	2	1	3	3	2.0	1	2	5	2	3	2.6	no	no	no	no	no	no	no	no	no				
	G23	Utility - not accessible	1	2	2	no	2	2	1	3	3	2.0	1	2	5	2	3	2.6	no	no	no	no	no	no	no	no	no				
	G25	Office	5	4	4	no	2	4	5	5	5	4.3	1	4	5	3	3	3.2	no	no	no	no	no	no	no	no	no				
	G27	First Aid	4	4	3	no	2	1	2	3	3	2.8	1	2	5	3	3	2.8	no	no	no	no	no	no	no	yes	yes	a bed for rest and wash basin			
G26	Lab	1	2	2	3	2	1	1	1	2	1.7	1	2	5	3	3	2.8	Y	1.6	no	no	no	no	no	no	yes	unused				
Average Total		2.5												2.6																	

2.7 The Assessment Illicit Drugs & Analysis Unit (Level 01)

Overview

Generally most labs are dated and have deteriorating or damaged finishes. Noted that one lab has upgraded vinyl flooring with coved skirting. Minor cracking observed in blockwork walls need structural review. Number of old fume cupboards do not appear to be functional, and newer fume cupboards may be non-compliant in their placement within lab. Eyewash are non-compliant based on current standards. Lower ground levels have ceilings and some wall finishes that are inappropriate for lab spaces.

Significant points



Tiled sill difficult to clean. Window frame needs to be sealed to adjoining surfaces. Caulking to glass crumbling.



Fume cupboards appear to be obsolete and not fit for purpose.



Vinyl flooring damaged/missing and unsealed in areas



Walls generally not smooth or easily cleanable. Retrofitted services penetrations not appropriately sealed/finished.



Non-compliant eye wash



Exposed concrete floor should be sealed, and checker plate flooring difficult to clean.



Bulkheads are uneven with gaps at junctions exposing space to ceiling cavity.



Fume cupboard position may be non-compliant and too close to side wall.

2.7 The Assessment Illicit Drugs & Analysis Unit (Level 01)

Significant points



Room G32 - Upgraded vinyl flooring with coved skirting.



Room G32 - Vinyl pulling off walls in some areas



Room G32 - Timber benching throughout lab, and exposed/unsealed timber panels visible.



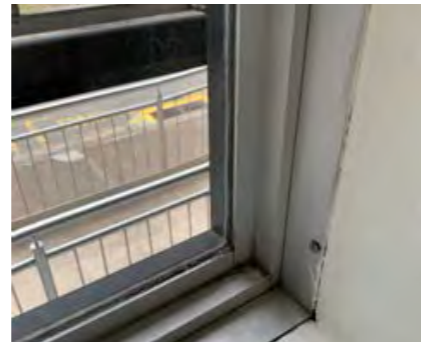
Generally unsealed timber exposed under benchtops.



Damaged ceiling tiles



Generally timber skirting with uncovered skirting throughout. Hard to clean.



External windows have crumbling seals/caulking



Perforated ceiling difficult to clean



Some cracks noted in wall junctions.



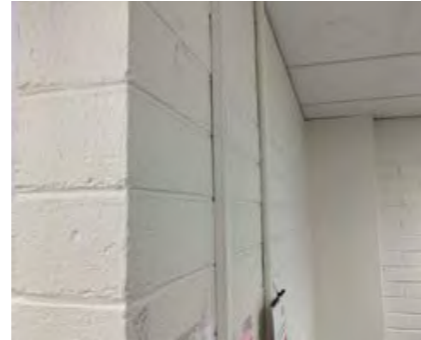
Wall penetration not sealed.

2.7 The Assessment Illicit Drugs & Analysis Unit (Lower ground Level)

Significant points



Joinery with exposed/unsealed timber



Wall generally not smooth or easily cleanable



Flooring generally dirty and deteriorating or damaged.



Large gaps at wall to ceiling junctions throughout



Inadequate air conditioning. Staff mentioned uncomfortable temperatures in labs during hotter days.



Noted cracks in walls suggesting some movement in structure.



Ceiling cavity exposed to room. Possible contamination risks.



Fibrous straw based ceilings inappropriate for lab spaces



Damaged skirting and wall finishes.



Perforated timber panels not appropriate in lab spaces

2.7 The Assessment Illicit Drugs & Analysis Unit

Assessment score

Room Number	Room Function	Finishes											Average	Planning					Average	Security/Safety/Services										Notes	Zone notes	
		Floor	Wall	Ceiling	Bulkheads	Windows	Junctions	Furniture	Cleanability	Isolation from outside environment	Visibility with team / discipline	Overall layout / planning	Access to Daylight	Artificial Lighting	Room Acoustics	Swipe Card Access	Fume Cupboard to Bench	Fume cupboard compliance	Bio Safety Cupboards	Gas safety issue	Safety Shower provision	Eye Wash provision	Hand wash provision	Water Supply								
Illicit Drugs Analysis Unit	G25	Office - security	4	4	2	no	2	4	5	5	5	3.9	1	4	5	3	3	3.2	Yes	no	no	no	no	no	no	no	no	no	no	no		
	G28	Laboratory	1	2	3	1	2	1	1	1	2	1.6	1	2	5	3	2	2.6	Yes	no	no	no	no	no	no	yes	yes		safety shower - la long way away			
	G30	Analytical Lab	1	2	3	1	2	1	1	1	2	1.6	1	2	5	3	2	2.6	no	no	no	no	no	no	Yes	no	no	fumehood too close to wall				
	G32	Analytical Lab	4	2	3	1	2	1	1	1	2	1.9	1	2	5	3	2	2.6	no	no	no	no	no	no	no	no	no					
	G34	Writeup	1	4	3	1	2	1	1	1	2	1.8	1	2	5	3	2	2.6	Yes	no	no	no	no	no	no	no	yes	office and locker location				
	G31-G33	Office	1	3	1	no	2	1	2	2	3	1.9	1	2	5	2	2	2.4	no	no	no	no	no	no	no	no	no					
	G35	Office	1	3	1	no	2	1	2	2	3	1.9	1	2	5	2	2	2.4	no	no	no	no	no	no	no	no	no					
	G35A	Kitchenette	3	3	2	no	2	1	3	2	3	2.4	1	2	5	2	2	2.4	no	no	no	no	no	no	no	no	no					
	G36	Instrument Room	1	2	2	1	no	1	1	1	no	1.3	1	2	1	3	2	1.8	Yes	no	no	no	no	no	no	no	no	office and locker location				
	G37	Office	5	4	4	no	2	4	5	5	5	4.3	1	4	5	3	3	3.2	no	no	no	no	no	no	no	no	no					
	G37A	Instrument Room	1	2	2	no	2	1	1	1	2	1.5	1	2	5	3	2	2.6	no	no	no	no	no	no	Yes	no	no	fumehood too close to wall				
	B25,29,B34,36,34	Lab	1	3	1	no	2	1	1	1	4	1.8	1	1	4	3	2	2.2	no	no	no	no	no	yes	no	yes	yes					
	B-rest of space	Lab	1	3	1	no	2	1	1	1	4	1.8	1	1	4	3	2	2.2	no	no	no	no	no	yes	no	yes	yes					
Average Total		2.1											2.5																			

2.8 The Assessment Trace In-organics

Overview

Similar to other labs, where finishes are dated and deteriorating. Timber joinery throughout with exposed/unsealed timber.

Significant points



Timber joinery throughout. Walls not smooth or easily cleanable.



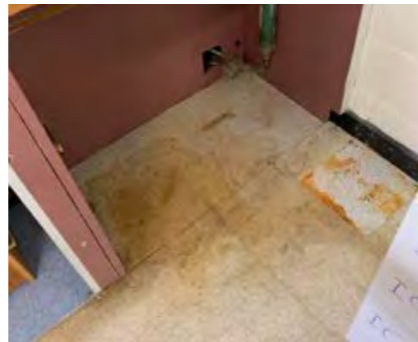
Seals/Caulking on external windows crumbling, and some areas where there are open gaps between wind frame and tiled sills.



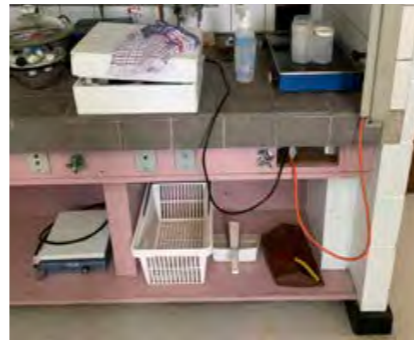
Exposed unfinished timber to most joinery.



Damaged finish to joinery bases



Stained/damaged floor vinyl



Obsolete fume cupboards no longer functional



Raw unfinished blockwork in one lab. Possibly in other areas hidden by joinery/furniture



Damaged or missing floor vinyl at numerous locations.

2.8 The Assessment Trace In-organics

Assessment score

	Room Number	Room Function	Finishes										Average	Planning					Average	Security/Safety/Services										Notes	Zone notes
			Floor	Wall	Ceiling	Bulkheads	Windows	Junctions	Furniture	Cleanability	Isolation from outside environment		Visibility with team / discipline	Overall layout / planning	Access to Daylight	Artificial Lighting	Room Acoustics		Swipe Card Access	Fume Cupboard to Bench	Fume cupboard compliance	Bio Safety Cupboards	Gas safety issue	Safety Shower provision	Eye Wash provision	Hand wash provision	Water Supply				
Trace Inrganics	G39-G41	Sample / writeup / lab	1	2	3	1	2	1	1	1	3	1.7	1	2	5	3	2	2.6	no	no	no	no	no	no	no	no	no				
	G38-G40-G42	Sample / writeup / lab	1	2	3	1	2	1	1	1	3	1.7	1	2	5	3	2	2.6	no	no	no	no	no	no	no	yes	yes	old fume hoods don't work			
	G44	HPLC Room	1	2	3	1	2	1	1	1	3	1.7	1	2	5	3	2	2.6	no	no	no	no	no	no	no	yes	yes	old fume hoods don't work			
	G46	Store Room	1	2	3	1	2	1	1	1	3	1.7	1	2	5	3	2	2.6	no	no	no	no	no	no	no	no	no	old fume hoods don't work			
Average Total			1.7											2.6																	

2.9 The Assessment Evidence Recovery Unit

Overview

Similar to other labs, where finishes are dated and deteriorating. Timber joinery throughout with exposed/unsealed timber.

Significant points



Mosaic tiled floor difficult to clean.



Generally walls not smooth or easily cleanable. Exposed timber under benchtops.



Welded joints in vinyl flooring failing exposing gaps.



Penetrations not sealed, exposing bulkhead cavity to lab space.



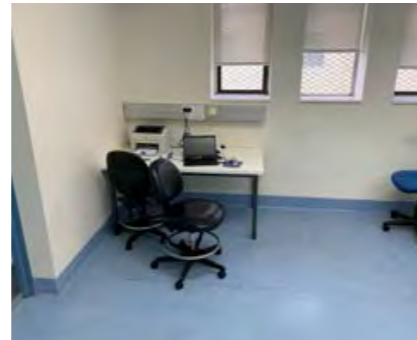
Positioning of fume cupboard may not be compliant, in relation to a/c split unit blowing air towards fume cupboard sash.

2.10 The Assessment Forensic Bio Receipt

Overview

The lab areas were generally in reasonable condition, with upgraded vinyl flooring and covered skirting, as well as newer mobile benches. The evidence store however is not as well finished or sealed. Numerous gaps noted in walls and ceilings.

Significant points



Upgraded vinyl flooring and covered skirting



Lab space generally spacious with mobile tables. Easy to maintain and clean.



Evidence store ceilings generally exposed concrete planks with gaps, not generally smooth or easily cleanable.



Penetrations through wall generally untidy and not appropriately sealed.

Assessment score

Room Number	Room Function	Finishes										Average	Planning					Average	Security/Safety/Services								Notes	Zone notes	
		Floor	Wall	Ceiling	Bulkheads	Windows	Junctions	Furniture	Cleanability	Isolation from outside environment		Visibility with team / discipline	Overall layout / planning	Access to Daylight	Artificial Lighting	Room Acoustics		Swipe Card Access	Fume Cupboard to Bench	Fume cupboard compliance	Bio Safety Cupboards	Gas safety issue	Safety Shower provision	Eye Wash provision	Hand wash provision	Water Supply			
Forensic Bio Receipt	B2A - rest of area	Receiving Area	3	3	3	no	2	3	3	3	4	3.0	2	3	5	4	3	3.4	no	no	no	no	no	no	no	no	no		
Average Total											3.0						3.4												

2.11 The Assessment Legionella Reference Lab

Overview

Similar status as older labs but with smooth ceiling tiles and cleaner environment throughout. Common issues still exist with quality of finishes. Generally lab feels spacious and provides good circulation around benches and equipment.

Significant points



Obsolete fume cupboard no longer functional



Similar issues with crumbling seals to external windows and tiled sills.



Typical issues with vinyl flooring not sealed at junctions.



Older vinyl flooring and timber skirting throughout, but appears to be well maintained & clean.

Assessment score

Room Number	Room Function	Finishes										Average	Planning					Average	Security/Safety/Services										Notes	Zone notes
		Floor	Wall	Ceiling	Bulkheads	Windows	Junctions	Furniture	Cleanability	Isolation from outside environment		Visibility with team / discipline	Overall layout / planning	Access to Daylight	Artificial Lighting	Room Acoustics		Swipe Card Access	Fume Cupboard to Bench	Fume cupboard compliance	Bio Safety Cupboards	Gas safety issue	Safety Shower provision	Eye Wash provision	Hand wash provision	Water Supply				
Legionella Reference Lab	Legionaire Reference Lab	1	2	2	1	2	1	1	2	3		1.7	4	2	5	3	2		3.2	no	no	no	no	no	no	no	yes	yes		
Average Total		1.7											3.2																	

2.12 The Assessment Canteen

Overview

Canteen has good access to daylight and views to outside. Finishes are somewhat dated and deteriorating in areas.

Significant points



Old and dirty ceilings



Junction at sink and splashback needs to be resealed.



Evidence of water damage to ceiling tiles



Vinyl Flooring lifting in areas

Assessment score

Room Number	Room Function	Finishes										Average	Planning					Average	Security/Safety/Services								Notes	Zone notes
		Floor	Wall	Ceiling	Bulkheads	Windows	Junctions	Furniture	Cleanability	Isolation from outside environment	Visibility with team / discipline	Overall layout / planning	Access to Daylight	Artificial Lighting	Room Acoustics	Swipe Card Access	Fume Cupboard to Bench	Fume cupboard compliance	Bio Safety Cupboards	Gas safety issue	Safety Shower provision	Eye Wash provision	Hand wash provision	Water Supply				
Canteen		1	2	1	no	2	2	1	2	3		3	2	5	2	3		no	no	no	no	no	no	no	no			
Average Total		1.8											3.0															

2.12 The Assessment Plantrooms

Overview

We had a brief look at the plantrooms within the building, and have listed here some key observations.

A number of cracks in structural elements were noted, and should be checked by a structural engineer to determine cause and impact on building. There was also evidence of water leaks through the structure which requires further investigation as well.

Significant points



Floor tiles have water damage and staining. Possibly asbestos tiles.



Cracks noted in concrete soffit.



Cracks noted in concrete soffit.



Cracks noted in walls with moisture seepage stains. Appears to be recent, and could be cause of staining on floors.



Recent evidence of moisture ingress from slab over



Main Building Existing Laboratories

Condition Assessment Report - Engineering Services

NSW Health Pathology



Health
Infrastructure



Property and Infrastructure Specialists



Document Authorisation

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Use of this Document

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About A.G. Coombs Advisory

A.G. Coombs Advisory provides practical building services advice to completion. With specialists in heating, ventilation and air conditioning systems, cooling towers, electrical and lighting systems, building controls, fire protection systems, and tri-generation plant, we have the breadth of skills and experience required to deliver total, integrated and sustainable building services solutions that are both technically and commercially astute. As part of the A.G. Coombs Group of companies, we are able to draw on the Group's resources and experience whilst maintaining independence where required.

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1 Executive Summary

A condition assessment of the engineering services serving the Main Building located in the NSW Health Pathology Campus at Lidcombe, was carried out on the 25-26th February 2019.

The results of the assessment displayed a range of asset conditions and ages, ranging from near new to original plant from the date of construction nearly 50 years ago.

In general, the services were adequately functional at the time of inspection for the required purpose of the spaces, however there were a number of assets which were visibly well past their intended economic service life and should be scheduled for immediate replacement or upgrade.

Figure 1 shows the estimated CAPEX forecasts for each services discipline on a 0, 5, 10 and 15 year horizon basis, with approximately \$1.5m in replacement/upgrade costs required urgently to mitigate risk of outages and/or safety incidents from occurring.

It was clear that the building has gone through several periods of refurbishment and upgrade works, with significant changes occurring to the way the space is used over this time. This has largely been achieved by incremental additions to the services rather than a more widespread redesign strategy. This is evident by the large number of supplementary wall mounted split system air conditioners, and window mounted exhaust fans in the laboratory areas working in conjunction with the original central plant.

Any significant future refurbishment works may need to consider a more widespread redesign of the services strategy to put in place a more future proof solution moving forward.

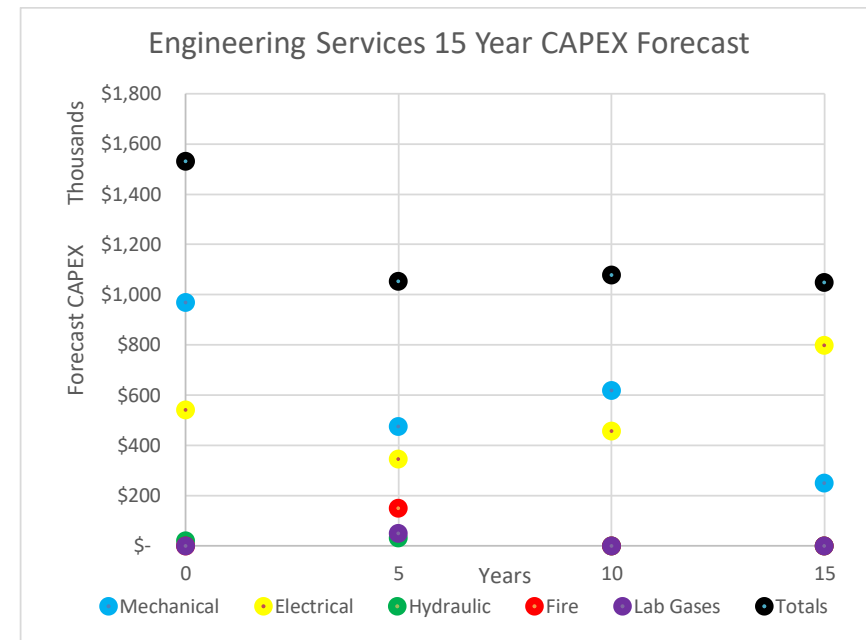


Figure 1 - 15 year forward CAPEX forecast, engineering services

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2 Introduction

2.1 BACKGROUND

The Forensic and Environmental Sciences Laboratories are located on the NSW Health Pathology Campus at Lidcombe in a circa 6,000m² two-storey brick Main Building known as the Main Building.

The Main Building houses the following laboratories:

- DNA Evidence Review Team
- Illicit Drugs Analysis Unit
- Legionella Reference Laboratory
- Forensic Toxicology
- DNA Research Laboratory
- Evidence Recovery Unit
- Trace Inorganics Unit
- Drugs and Driving Toxicology Unit
- Water Microbiology
- Clinical and Environmental Toxicology
- Forensic DNA
- 'Main Building' Amenities

These existing laboratories are aged, represent a number of efficiency and Work Health and Safety (WHS) issues, and are not considered to be fit for purpose. NSW Health Pathology (HP) requires that a condition assessment is carried out to validate the deficiencies with these areas to enable Health Pathology to source additional funds to identify the solution to address these issues.

2.2 PURPOSE

This document outlines the findings of the condition assessment of the Forensic and Environmental Sciences Laboratories contained within the Main Building.

2.3 TERMS OF REFERENCE

The analysis carried out in compiling this report is based on:

- A 'walk-through' of the office Main Building, roof and plant areas where engineering services plant and equipment were located and safely accessible (25-26th February 2019).
- Outline floor plans provided by Main Building management, dated October 2008.

This review is based on visual inspection of existing services and plant and the following qualifications are noted:

- Quantitative testing has not been carried out to verify system capacities or performance.
- The visual examinations were necessarily carried out on the basis of 'walking through' the Main Building and plant areas and did not include inspections of areas inaccessible or hidden from view.
- Assessment of plant and equipment in the Main Building is based on the general condition and its environment and did not include disconnection, stripping down for inspection and/or testing of operation of equipment and life safety systems.
- Internal inspection of plant and equipment has not been undertaken.

1.1 LIMITATIONS

This report has been specifically prepared for the organisation noted on the cover of the report.

A.G. Coombs Advisory Pty. Ltd. cannot accept any responsibility for any use of or reliance on the contents of this report by any third party.

1.2 ASBESTOS AND CONTAMINATION

A.G. Coombs Advisory is not accredited to identify asbestos type materials that may be present on the site.

A specialist organisation should be engaged to audit the Main Building and the services if a report on the presence of any asbestos materials is required.

1.3 WORKPLACE HEALTH AND SAFETY

This report does not provide an assessment of workplace health and safety issues.

2.4 CONDITION REFERENCES

The following definitions were used to rate the condition of each asset within facility on a scale of 1-5:

Condition Note	Definition
5 - Excellent	Newly installed item, or an item having received maintenance that corrected any deterioration and returned the item to as new condition.
4 - Good	An item displaying limited deterioration, which does not affect its operation, or where limited restoration has been performed. Ongoing routine maintenance will preserve the operation. Some limited maintenance actions beyond routine maintenance may be required to preserve this condition.
3 - Fair	An item that has deteriorated to a degree where maintenance, beyond routine maintenance is obviously due. Maintenance could be required to control deterioration resulting from the operation being degraded to age related wear or other cause, or alternately where maintenance could extend item life.
2 - Poor	An item that is in use but its operation or physical condition is in an unacceptable state requiring replacement or refurbishment. An item that does not meet a statutory or environmental, or WHS requirement.
1 - Unserviceable	An item that has failed and requires replacement or refurbishment.

3 Mechanical Services

3.1 OVERVIEW

The mechanical services plant serving the Main Building generally comprises the following systems:

- Central thermal plant
- Air handling units
- Split system air-conditioning units
- Outside air ventilation systems
- Exhaust ventilation systems
- Mechanical electrical
- Automatic controls

3.2 CENTRAL THERMAL PLANT

Description

The central thermal plant serving the Main Building consists of the following equipment:

- 2 off Carrier chillers (CH-1&2)
- 2 off chilled water pumps (CHWP-1&2)
- 1 off cooling tower (CT-1)
- 2 off condenser water pumps (CCWP1&2)
- 3 off gas boilers (HHWB1-3)
- 2 off heating hot water pumps (HHWP1&2)

Chillers

The chiller plant located in the basement plant room consists of the following:

Chiller	Make	Model	Installed	Type	Refrigerant	Capacity (kW)
CH-1	Carrier	30HXC140A	unknown	Screw	134-a	500
CH-2	Carrier	30HXC140A	2007	Screw	134-a	500

Chilled Water Pumps

Each chiller has a corresponding chilled water pump to reticulate chilled water through the chillers to the air handling plant. Nameplate data was no longer legible on the pumps to determine impeller size or model however both are fitted with 11kW electric motors.

Cooling Tower

There is a single Baltimore Aircoil Company (BAC) cooling tower located externally of the Main Building adjacent the main switchboard enclosure, with an 18.5kW fan motor.



Gas Boilers


There are three 'Maxitherm' gas boilers of unknown capacity located in the plant room.



Heating Hot Water Pumps


Two heating hot water pumps are located in the chiller plant room area, each with 5.5kW electric motors.


Condition, Observation and Comments

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Chiller 1	4 - Good		<p>General: This chiller appears to be a slightly newer model than chiller 2, though nameplate data could not be verified at the time of inspection.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Replace at end of life.</p> <p>Failure consequences: Since the chillers have 50% redundancy, in the event of a failure of one chiller the Main Building will still have 50% of the total cooling capacity available. In all but the warmest of weather this would typically be sufficient to maintain reasonable comfort conditions within the Main Building until the issue is resolved.</p> <p>Recommendation: Nil</p>	10%	15+ years	\$250,000
Chiller 2	3 – Fair		<p>General: This chiller appeared to be in fair working order and good condition for its age. No obvious defects or issues were noted.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Replace at end of life.</p> <p>Failure consequences: Since the chillers have 50% redundancy, in the event of a failure of one chiller the Main Building will still</p>	30%	10-15 years	\$250,000

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
			<p>have 50% of the total cooling capacity available. In all but the warmest of weather this would typically be sufficient to maintain reasonable comfort conditions within the Main Building until the issue is resolved.</p> <p>Recommendation: Nil</p>			
CHWP 1&2	3 – Fair		<p>General: The pumps appeared to be in fair working order, however were excessively dirty.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Replace pumps upon failure.</p> <p>Failure consequences: Since the pumps have duty/standby redundancy, in the event of a failure of one pump the standby pump will operate and can be used until the fault is fixed or the pumps is replaced.</p> <p>Recommendation: Clean pumps and surrounds</p>	50%	5-10 years	\$30,000

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Cooling Tower	3 – Fair		<p>General: The cooling tower appeared to be in fair working order. No obvious defects were noted. The area surrounding it was clean and unobstructed.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Replace at end of life.</p> <p>Failure consequences: A failure of the cooling tower would result in a loss of heat rejection capacity for the chiller circuit and loss of cooling throughout the Main Building for the central plant. The consequence of this is mitigated somewhat by the fact that the majority of spaces are also served by DX wall mounted split system FCUs as well, so they would likely be able to maintain relatively comfortable conditions.</p> <p>Recommendation: Nil</p>	40%	10 years	\$100,000
CCWP 1&2	3 – Fair		<p>General: Condenser water pumps in fair working order. Pump and motor casings excessively dirty.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Replace pumps upon failure.</p> <p>Failure consequences: Since the pumps have duty/standby redundancy, in the event of a failure of one pump the standby</p>	50%	5-10 years	\$30,000

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
			<p>pump will operate and can be used until the fault is fixed or the pumps is replaced.</p> <p>Recommendation: Clean pumps and surrounds</p>			
HHWB 1-3	2 – Poor		<p>General: Boilers were operational but very old. The nameplate data is in imperial units, suggesting these are the original units installed in 1969. These units have exceeded their reasonable economic life, although they appear to be functional and well maintained. Substantial corrosion was evident on the pipe and valve flanges.</p> <p>Safety: Possible risk of boiler vessel rupturing but likelihood and severity of any incident would not be high.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Replace at end of life – overdue.</p> <p>Failure consequences: In the event of failure of a single boiler it could be isolated whilst it is fixed and the Main Building continue to run on the remaining two operational units.</p> <p>Given the age of the plant it is unlikely that any breakdowns would be attempted to be repaired, rather a planned upgrade of the plant would be more sensible. Boiler lead times and seasonal weather would be important aspects to consider when timing such an upgrade.</p> <p>Recommendation: Schedule for replacement/upgrade imminently.</p>	80%	Economic life exceeded	\$300,000

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
HHWP 1&2	3 – Fair		<p>General: Heating hot water pumps are in fair working order. Pump and motor casings excessively dirty.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Replace pumps upon failure.</p> <p>Failure consequences: Since the pumps have duty/standby redundancy, in the event of a failure of one pump the standby pump will operate and can be used until the fault is fixed or the pumps is replaced.</p> <p>Recommendation: Clean pumps and surrounds</p>	50%	5-10 years	\$30,000


3.3 AIR HANDLING UNITS

Description

The Main Building is served by three central primary air handling units (AHUs) located in the basement plant area. These AHUs operate on a constant volume basis with zone temperature control achieved by zone reheat hot water coils on the ductwork entering each zone within the Main Building.

The AHUs were also fitted with Westinghouse “Precipitron” electrostatic filters to clean the air passing through them.

Condition, Observation and Comments

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
AHUs 1-3	2 - Poor		<p>General: The AHUs are functional and well maintained but well past their reasonable economic life. They appear to be the original units installed in 1969 when the Main Building was first constructed, as the gauges are in imperial units.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Replace at end of life – overdue.</p> <p>Failure consequences: A failure in one of the AHUs would lead to inhabitable spaces within the Main Building due to a lack of ventilation amenity.</p> <p>Due to potential long lead times these should be considered for replacement as a planned upgrade rather than a reactive maintenance issue.</p> <p>Recommendation: Consider scheduling for replacement / upgrade.</p>	50%	Exceeded economic life	\$300,000

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
						



3.4 SPLIT SYSTEM AIR-CONDITIONING UNITS



Description

The Main Building has numerous wall hung direct expansion (DX) split system Fan Coil Units (FCUs) throughout, which provide additional heating and cooling in addition to that provided by the central ducted AHUs. The majority of these are Daikin units and appeared to have been installed recently within one to two years. The older units consisted of a mixture of brands, including Carrier, Sanyo, Amcor and Emailair.

Condition, Observation and Comments

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
FCUs - Daikin	4 – Good		<p>General: The Daikin units appear to be of a similar age and estimated to be installed within the last 5 years. These units are in good condition and should have around 10 years economic life remaining.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Replace upon failure.</p> <p>Failure consequences: Failure of the wall mounted splits would make it difficult to maintain comfort conditions within the lab spaces, but no serious consequences would result.</p> <p>Recommendation: Nil</p>	15%	10 years	\$10,000 per ea.

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
FCUs - Carrier	3 - Fair		<p>General: The Carrier units are approximately 10-15 years old and approaching the end of their economic life</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Replace upon failure.</p> <p>Failure consequences: Failure of the wall mounted splits would make it difficult to maintain comfort conditions, but no serious consequences would result.</p> <p>Recommendation: Schedule for replacement in near future</p>	80%	5 years	\$10,000 per ea.
FCUs - Amcor	2 - Poor		<p>General: The Amcor units are discoloured and showed visible damage to the fascia and air discharge grilles. Although operational they would have exceeded their reasonable economic life.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Replace upon failure.</p> <p>Failure consequences: Failure of the wall mounted splits would make it difficult to maintain comfort conditions, but no serious consequences would result.</p>	95%	Exceeded economic life	\$10,000 per ea.

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
			<p>Recommendation: Replace immediately.</p>			
FCUs – Sanyo	2 - Poor		<p>General: The Sanyo units appear to be around 15+ years old and would be at or nearing the end of their economic life.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Replace upon failure.</p> <p>Failure consequences: Failure of the wall mounted splits would make it difficult to maintain comfort conditions, but no serious consequences would result.</p> <p>Recommendation: Schedule for replacement in near future</p>	95%	Exceeded economic life	\$10,000 per ea.
FCUs – Emailair	2 - Poor		<p>General: The Emailair units appear to be around 15+ years old and would be at or nearing the end of their economic life.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Replace upon failure.</p> <p>Failure consequences: Failure of the wall mounted splits would make it difficult to</p>	95%	Exceeded economic life	\$10,000 per ea.


Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
			maintain comfort conditions, but no serious consequences would result. Recommendation: Schedule for replacement in near future			



3.5 LOCAL EXHAUST VENTILATION SYSTEMS


Description

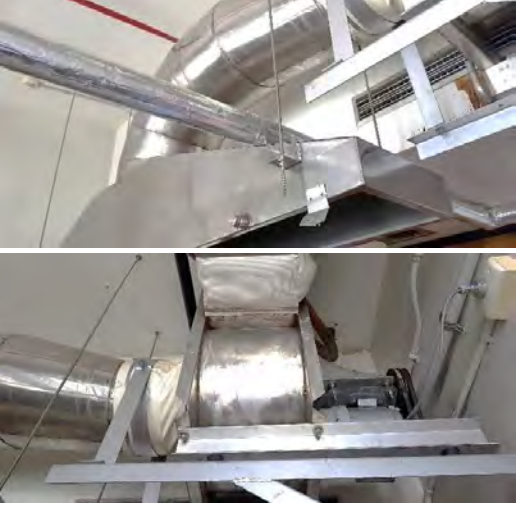
A number of local exhaust ventilation systems exist within the laboratories, for the purpose of removing fumes, odours, moisture laden air and/or localised heat from apparatus and processes.

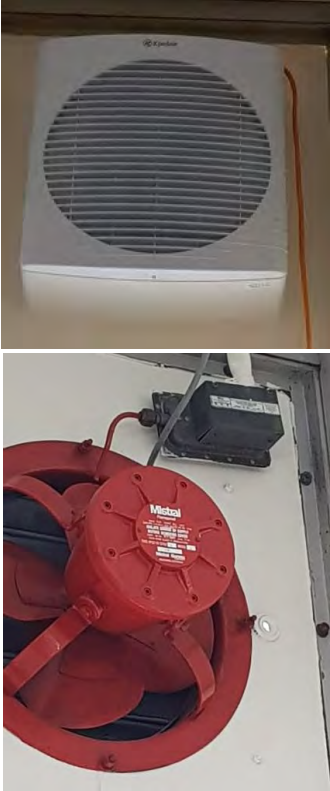
Condition, Observation and Comments

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Rm G42 Ducted Exh	4 – Good		<p>General: Rigid stainless-steel duct and hood located above a laboratory instrument, used to remove localised heat.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Replace upon failure.</p> <p>Failure consequences: No significant consequences.</p> <p>Recommendation: Nil</p>	20%	10+ years	\$8,000

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Rm G10 Ducted Exh	4 - Good		<p>General: The flexible duct and extraction hood are in good condition and operating effectively.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Replace upon failure.</p> <p>Failure consequences: No significant consequences.</p> <p>Recommendation: Nil</p>	20%	5 years	\$3,000
Rm G11 Ducted Exh	4 - Good		<p>General: The flexible duct and extraction hood are in good condition and operating effectively.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Replace upon failure.</p> <p>Failure consequences: No significant consequences.</p> <p>Recommendation: Nil</p>	20%	5 years	\$3,000

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Rm G44 Ducted Exh	3 – Fair		<p>General: The flexible exhaust ductwork is connected directly from the back of analysis equipment to an outlet in the façade of the Main Building.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Replace upon failure.</p> <p>Failure consequences: No significant consequences.</p> <p>Recommendation: Nil</p>	30%	5+ years	\$2,000

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Rm 137 Autoclave Exhaust	3 – Fair		<p>General: The stainless-steel canopy and ductwork is in fair condition and appears to be operating adequately</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Replace upon failure.</p> <p>Failure consequences: Failure would mean substantial build up of moisture laden air when the autoclave is operating. This could lead to mould issues if left unchecked.</p> <p>Recommendation: Nil</p>	30%	5+ years	\$10,000


Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Window Mounted Exhaust Fans	3-Fair		<p>General: The majority of lab areas have window mounted exhaust fans for general exhaust extraction. These were a mixture of Mistral and Xpelair units, numbering 41 in total.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Replace upon failure.</p> <p>Failure consequences: Failure of an exhaust fan would have no significant short term consequences.</p> <p>Recommendation: Nil</p>	20%	5	\$2,000 per ea.

3.6 FUME CUPBOARDS


Description


The Main Building contains approximately 40 fume cupboards (FCs) distributed throughout the laboratories, used for a range of chemistry purposes. The fume cupboards were a mixture of older built in units consisting of timber cabinets with unglazed vitrified tiles as the interior work surfaces with sliding glass sashes which may date back to when the Main Building was initially constructed, and more modern one-piece moulded glass reinforced plastic (GRP) units.



Condition, Observation and Comments


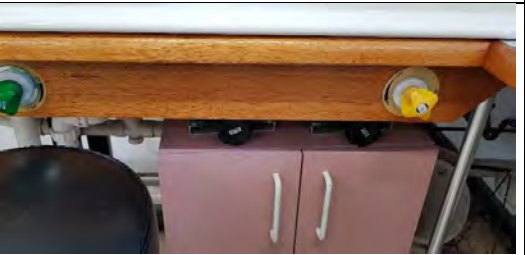
2	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Rm 150 Gen Chem FCs	1 – Unserviceable		<p>General:</p> <p>This lab contained four fume cabinets which were last tested in 2013. All exhibit significant signs of deterioration and are not fit for purpose.</p> <p>The construction of the fume cupboards appear to be timber framing with GRP base and backboard, and tiled sides.</p> <p>One had signs of a fire incident which had partially burned through the GRP base and an electrical conduit.</p> <p>Two of the cupboards were filled with an assortment of chemical bottles, one with a range of organic solvents (hexane, dichloromethane etc.) and the other contained substantial quantities of analytical reagent grade acids including hydrochloric acid 37% and sulphuric acid 98% which were sitting very close to the edge of the open fume cupboard.</p> <p>Safety:</p> <p>The chemicals being stored in the fume cupboards are highly corrosive and/or</p>	100%	Not suitable for continued use.	\$15,000



2	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
			<p>flammable dangerous goods and should be stored in a corrosive or flammable storage cabinet compliant with AS3780-2008. This is a major safety hazard to anyone working in the vicinity of this lab.</p> <p>Compliance: Non-compliant with AS/NZS 2243.8-2006 Safety in Laboratories – Fume Cupboards</p> <p>Trigger to update: Cease use immediately.</p> <p>Failure consequences: Already failed.</p> <p>Recommendation: These fume cupboards should be cleared of chemicals and discontinued from further use.</p>			


2	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Rm 148 Gen Chem FCs	1 - Unserviceable		<p>General: This lab contained 2 fume cupboards. The construction appears to be timber framing with GRP base and backboard, with tiled sides. One of the cupboards has several timber shelves inside it - both are extremely scratched and dirty and unsuitable for handling chemicals safely. The cupboards were last tested in 2013.</p> <p>Safety: The fume cupboards do not have current certification and are unlikely to comply – they should not continue to be used for handling any dangerous chemicals.</p> <p>Compliance: Non-compliant with AS/NZS 2243.8-2006 Safety in Laboratories – Fume Cupboards</p> <p>Trigger to update: Cease use immediately.</p> <p>Failure consequences: Already failed.</p> <p>Recommendation: Remove / replace</p>	100%	Not suitable for use	\$15,000



2	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Rm 124 Chem Lab FC	1 – Unserviceable		<p>General: This lab contains one fume cupboard with a GRP base and tiled sides. The sash is missing and the cupboard is filled with construction debris and heavily scratched.</p> <p>Safety: Not suitable for use as a fume cupboard</p> <p>Compliance: Non-compliant with AS/NZS 2243.8-2006 Safety in Laboratories – Fume Cupboards</p> <p>Trigger to update: Cease use immediately.</p> <p>Failure consequences: Already failed.</p> <p>Recommendation: Remove / replace</p>	100%	Not suitable for use	\$15,000
Rm 122 Med Safety FCs	1 Unserviceable		<p>General: This lab contains two fume cupboards constructed from a GRP base with tiled sides.</p> <p>Safety: Not suitable for use as a fume cupboard</p> <p>Compliance: Non-compliant with AS/NZS 2243.8-2006 Safety in Laboratories – Fume Cupboards</p> <p>Trigger to update: Cease use immediately.</p> <p>Failure consequences: Already failed.</p> <p>Recommendation: Remove / replace</p>	100%	Not suitable for use	\$15,000


2	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Rm 118 Indust Toxicology FC	1 – Unserviceable		<p>General: This lab contains one fume cupboard constructed from a GRP base with tiled sides. The sash is missing, and the cupboard is filled with construction debris and heavily scratched.</p> <p>Safety: Not suitable for use as a fume cupboard</p> <p>Compliance: Non-compliant with AS/NZS 2243.8-2006 Safety in Laboratories – Fume Cupboards</p> <p>Trigger to update: Cease use immediately.</p> <p>Failure consequences: Already failed.</p> <p>Recommendation: Remove / replace</p>	100%	Not suitable for use	\$15,000
Rm 116 Calibration FCs	1 – Unserviceable		<p>General: This lab contained two fume cupboards with a tiled base and sides, and one of the cupboards had a GRP base inlay. Both cupboards were extremely dirty and unfit for use.</p> <p>Safety: Not suitable for use as a fume cupboard</p> <p>Compliance: Non-compliant with AS/NZS 2243.8-2006 Safety in Laboratories – Fume Cupboards</p> <p>Trigger to update: Cease use immediately.</p> <p>Failure consequences: Already failed.</p> <p>Recommendation:</p>	100%	Not suitable for use	\$15,000


2	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
			Remove / replace			
Rm G7 FC	4 – Good		<p>General: This lab contained one fume cupboard - a modern single piece moulded GRP unit with a phenolic worksurface. The cupboard was last tested in November 2018 and appears to be in good condition.</p> <p>Safety: No safety issues to note</p> <p>Compliance: Compliant with AS/NZS 2243.8-2006 Safety in Laboratories – Fume Cupboards</p> <p>Trigger to update: Failure to comply with annual testing requirements.</p> <p>Failure consequences: No significant consequences.</p> <p>Recommendation: n/a</p>	15%	5 years	\$15,000
Rm G10 FC	3 - Fair		<p>General: This lab contains one fume cupboard constructed from a single piece moulded GRP unit sitting on timber framing. The cupboard was last tested in 2019 and appeared to be in fair condition.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: Compliant with AS/NZS 2243.8-2006 Safety in Laboratories – Fume Cupboards</p> <p>Trigger to update: Failure to comply with annual testing requirements.</p>	20%	5+ years	\$15,000


2	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
			<p>Failure consequences: No significant consequences.</p> <p>Recommendation: Nil</p>			
Rm G11 FCs	3 - Fair		<p>General: This lab contains three fume cupboards constructed from moulded GRP units siting on timber framing. The cupboards were last tested in 2019 and appear to be in fair condition.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: Compliant with AS/NZS 2243.8-2006 Safety in Laboratories – Fume Cupboards</p> <p>Trigger to update: Failure to comply with annual testing requirements.</p> <p>Failure consequences: No significant consequences.</p> <p>Recommendation: Nil</p>	20%	5+ years	\$15,000
Rm G12 FC	3 - Fair		<p>General: This lab contains one fume cupboard constructed from a single piece moulded GRP unit siting on timber framing. The cupboard was last tested in 2018 and appeared to be in fair condition.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: Compliant with AS/NZS 2243.8-2006 Safety in Laboratories – Fume Cupboards</p> <p>Trigger to update:</p>	20%	5+ years	\$15,000

2	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
			Failure to comply with annual testing requirements. Failure consequences: No significant consequences. Recommendation: Nil			
Rm G16 FCs	4 - Good		General: This lab contains two fume cupboards constructed from modern one-piece moulded GRP units with a sliding glass sash. The cupboards were last tested in 2018 and appear to be in good condition. Safety: No safety issues to note. Compliance: Compliant with AS/NZS 2243.8-2006 Safety in Laboratories – Fume Cupboards Trigger to update: Failure to comply with annual testing requirements. Failure consequences: No significant consequences. Recommendation: Nil	10%	5+ years	\$15,000



2	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Rm G20 Office FC	4 - Good		<p>General: This lab contains one fume cupboard constructed from a modern one-piece moulded GRP unit with a sliding glass sash. The cupboard was last tested in 2018 and appears to be in good condition.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: Compliant with AS/NZS 2243.8-2006 Safety in Laboratories – Fume Cupboards</p> <p>Trigger to update: Failure to comply with annual testing requirements.</p> <p>Failure consequences: No significant consequences.</p> <p>Recommendation: Nil</p>	20%	5+ years	\$15,000
Rm G26 FC	4 - Good		<p>General: This lab contains one fume cupboard constructed from a modern one-piece moulded GRP unit with a sliding glass sash. The cupboard was last tested in 2018 and appears to be in good condition.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: Compliant with AS/NZS 2243.8-2006 Safety in Laboratories – Fume Cupboards</p> <p>Trigger to update: Failure to comply with annual testing requirements.</p> <p>Failure consequences: No significant consequences.</p>	20%	5+ years	\$15,000

2	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
			Recommendation: Nil			
Rm G28 FC	1 – Unserviceable		<p>General: This lab contained four fume cupboards each with a tiled base and sides and sliding glass sashes. All four cupboards are extremely dirty and unfit for use.</p> <p>Safety: Unsafe for use as a fume cupboard.</p> <p>Compliance: Non-compliant with AS/NZS 2243.8-2006 Safety in Laboratories – Fume Cupboards</p> <p>Trigger to update: Cease use immediately.</p> <p>Failure consequences: Already failed.</p> <p>Recommendation: Remove / replace</p>	100%	Unsuitable for use	\$15,000


2	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Rm G30 FC	3 - Fair		<p>General: This lab contained one fume cupboard constructed from a single-piece moulded GRP unit sitting on timber framing. The cupboard was last tested in 2019 and appears to be in fair condition.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: Compliant with AS/NZS 2243.8-2006 Safety in Laboratories – Fume Cupboards</p> <p>Trigger to update: Failure to comply with annual testing requirements.</p> <p>Failure consequences: No significant consequences.</p> <p>Recommendation: Nil</p>	20%	5+ years	\$15,000
Rm G32 FC	1 – Unserviceable	Not pictured	<p>General: This lab contained one fume cupboard which was very old and in poor condition.</p> <p>Safety: Unsafe for use as a fume cupboard.</p> <p>Compliance: Non-compliant with AS/NZS 2243.8-2006 Safety in Laboratories – Fume Cupboards</p> <p>Trigger to update: Cease use immediately.</p> <p>Failure consequences: Already failed.</p> <p>Recommendation:</p>	100%	Unsuitable for use	\$15,000


2	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Rm G41 FC	1 – Unserviceable	Not pictured	<p>Remove / replace</p> <p>General: This lab contained one fume cupboard which was very old and in poor condition.</p> <p>Safety: Unsafe for use as a fume cupboard.</p> <p>Compliance: Non-compliant with AS/NZS 2243.8-2006 Safety in Laboratories – Fume Cupboards</p> <p>Trigger to update: Cease use immediately</p> <p>Failure consequences: Already failed.</p> <p>Recommendation: Remove / replace</p>	100%	Unsuitable for use	\$15,000
Rm G38 FCs	1 – Unserviceable		<p>General: There are three fume cupboards within this lab. All are constructed from tiles on top of a timber framing. They are heavily scratched and worn.</p> <p>Safety: Unsafe for use as fume cupboards.</p> <p>Compliance: Non-compliant with AS/NZS 2243.8-2006 Safety in Laboratories – Fume Cupboards</p> <p>Trigger to update: Cease use immediately</p> <p>Failure consequences: Already failed.</p> <p>Recommendation: Remove / replace</p>	100%	Unsuitable for use	\$15,000

2	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
						
Rm G40 FC	1 – Unserviceable		<p>General: This lab contains two fume cupboards constructed from one-piece moulded GRP units with sliding glass sashes. One cupboard was last tested in 2018 and appeared to be operational albeit showing heavy signs of wear and contamination. The other was clearly labelled that it was out of service.</p> <p>Safety: Unsafe for use as a fume cupboard.</p> <p>Compliance: Non-compliant with AS/NZS 2243.8-2006 Safety in Laboratories – Fume Cupboards</p> <p>Trigger to update: Cease use immediately</p> <p>Failure consequences: Already failed.</p> <p>Recommendation: Remove / replace</p>	100%	Unsuitable for use	\$15,000

2	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Rm G44 FC	1 – Unserviceable		<p>General: This lab contains two fume cupboards constructed from timber cabinets with tiled inner surfaces on one, and some form of polymer inlay on the other. Both are extremely worn and dirty and unsuitable for use.</p> <p>Safety: Unsafe for use as a fume cupboard.</p> <p>Compliance: Non-compliant with AS/NZS 2243.8-2006 Safety in Laboratories – Fume Cupboards</p> <p>Trigger to update: Cease use immediately</p> <p>Failure consequences: Already failed.</p> <p>Recommendation: Remove / replace</p>	100%	Unsuitable for use	\$15,000
Rm G46 FCs	1 – Unserviceable		<p>General: This lab contains two fume cupboards constructed from tiles on timber framing, with both sashes missing. Both cupboards had been decommissioned and were no longer in use.</p> <p>Safety: Unsafe for use as a fume cupboard.</p> <p>Compliance: Non-compliant with AS/NZS 2243.8-2006 Safety in Laboratories – Fume Cupboards</p> <p>Trigger to update: Cease use immediately</p> <p>Failure Probability (within next 10 years): 100%</p> <p>Failure consequences: Already failed.</p>	100%	Unsuitable for use	\$15,000

2	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
			Recommendation: Remove / replace			
IDAU FCs	4 - Good		<p>General: This lab contains two fume cupboards constructed from modern one-piece moulded GRP units with sliding glass sash. The cupboards were last tested in 2018 and appear to be in good condition.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: Compliant with AS/NZS 2243.8-2006 Safety in Laboratories – Fume Cupboards</p> <p>Trigger to update: Failure to comply with annual testing requirements.</p> <p>Failure consequences: No significant consequences.</p> <p>Recommendation: Nil</p>	20%	5+ years	\$15,000

2	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
						

2	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Rm B50 FCs	3 – Fair		<p>General: The drug receiving area contains two vented cabinets for handling receipt of illicit substances of unknown origin, strength or composition. They are constructed mainly of transparent polymer sheeting. They show some signs of wear and are quite dirty but otherwise suitable for the intended purpose.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: Compliant with AS/NZS 2243.8-2006 Safety in Laboratories – Fume Cupboards</p> <p>Trigger to update: Failure to comply with annual testing requirements.</p> <p>Failure consequences: No significant consequences.</p> <p>Recommendation: Nil</p>	20%	5+ years	\$15,000

4 Electrical Services

4.1 OVERVIEW

The electrical services comprise the following systems:

- Electricity supply and authority metering
- Main switchboard
- Distribution boards
- Lighting
- Exit and emergency lighting
- Telecommunications and data
- Security access control and Closed-Circuit Television (CCTV)
- Emergency power diesel generator / Uninterruptable Power Supply (UPS) systems

4.2 ELECTRICITY SUPPLY AND AUTHORITY METERING

General Description

The main high voltage and low voltage substations are located at the southern end of the Main Building. The electricity consumption is metered with a single utility meter and general information of the main electricity supply is summarised below.

Item Description	Details
High voltage provider / distributor	Ausgrid
High voltage substation number	2527
Rated total supply to the complex	1600 Amps
Low voltage supply voltage / frequency	415V / 50Hz
Fault Level	35kA RMS 1 second
Supply NMI number	NCCCZ00724
Electricity provider	Energy Australia
Electricity meter number	AMM004534 (current)
Metering K factor	300
Power factor	1 (as noted in the power factor correction indicator)

Sub mains cables are wired underground to several distribution boards which serve essential and non-essential power services in the Main Building. Mechanical and safety services are fed with separate direct supplies from the main switch room.


Most of laboratory equipment are powered by single phase power supplies while three phase power is fed to mechanical equipment such as chillers and pumps.

4.3 MAIN SWITCHBOARD

Description

The main switch board (MSB) was built by Relec Switchboards™ in June 2013 and located in the main switch room adjacent to the high voltage substation. The MSB was fabricated in accordance with AS 3439.1 to provide IP42 rated protection.

Condition, Observation and Comments

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Main Switch Board (MSB)	4 - Good		<p>General: Manufactured in 2013, the MSB shows little or no signs of deterioration. Several spare feeders are noted with enough room to expand the MSB to cater future demands as relevant.</p> <p>Safety: No safety issues are noted.</p> <p>Compliance: No compliance issues are noted.</p> <p>Trigger to update: Replace upon failure</p> <p>Failure consequences: Minimum or nil impacts within next 10 years</p> <p>Recommendation: Maintain an active service contract to regularly inspect and maintain the switchboard.</p>	20%	15+ years	\$500,000


4.4 DISTRIBUTION BOARDS



Description


Floor distribution boards are installed throughout the Main Building providing light and power services to labs and associated supporting works. Main mechanical switchboards are installed in the basement of the Main Building. The table below provides more details about the distribution boards identified during the site visit.


Distribution Board Number	Location	Serving Area/s
Switchboard 3 Switchboard 5 Switchboard 7 Switchboard 9 Switchboard 11 Switchboard 14	Level 1	These switchboards serve light and power services in labs, core and support areas on Level 1.
Switchboard 2 Switchboard 4 Switchboard 6 Switchboard 8 Switchboard 10 Switchboard 13	Ground Level	These switchboards serve light and power services in labs, core and support areas on the Ground Floor.
Switchboard 12 Switchboard BS1 Switchboard MSSB 2 Switchboard BM1 Submain DB Switchboard UPS-DB-B Switchboard EM-DB-A Switchboard EM-DB-B Switchboard MSB - 2	Basement	These boards are located at various locations in the basement and serve: <ul style="list-style-type: none"> - Light and power services for the basement services - Mechanical services for all levels - Lift services for all levels - Security and data services and peripherals - All other sundry power services in the building

Condition, Observation and Comments

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Switchboard 4 Switchboard 5 Switchboard 6 Switchboard 7 Switchboard 8 Switchboard 9 Switchboard 10 Switchboard 11 Switchboard 12 Switchboard 13 Switchboard 14 DB BS1	2 - Poor		<p>General: These are original switchboards which have been operating more than 40 years to date and are at the end of their reasonable economic life.</p> <p>Safety: It seems that no recent tests have been conducted on cables / sub mains / thermographic analyses etc. on these switchboards posting potential operational safety issues. Cables and other accessories which are hidden behind building cavities and switchboards may have deteriorating conditions further increasing potential risks like operational failure or fire.</p> <p>Compliance: Not compliant to AS 3000:2018, but compliant with the codes and standards in place at the time of construction.</p> <p>Trigger to update: Safety and non-compliance issues</p> <p>Failure consequences: Possible fire hazards, service interruptions, injuries to people, WHS non-compliance issues</p> <p>Recommendation: Consider replacing the existing switchboards with new switchboards meeting current code of practice like Wiring Rules guidelines. In the short-term approach, Residual Current Device (RCD) protection to final sub-circuits and testing of switchboards for safety operations can be considered.</p>	100%	Nil	\$15,000 each

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
						
<p>Switchboard 2 Switchboard 3 DB 6A MSSB 2 DB BM1 Submain DB DB UPS-DB-B DB EM-DB-A DB EM-DB-B DB MSB-2</p>	4- Good		<p>General: These switchboards are in good condition showing either minor or no signs of deteriorating.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: No upgrade is currently required.</p> <p>Failure consequences: Potential temporary service interruptions and other minor or nil impacts</p> <p>Recommendation: Maintain the current service contract to provide routine maintenance and testing services to ensure boards are continuously monitored and maintained to offer reliable operations.</p>	20%	15+ years	\$15,000 each

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
						

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
						


Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost

4.5 SOCKET OUTLETS


Description

Single / double pole socket outlets, which were mostly used single-phase electric power, were installed throughout the Main Building.

Condition, Observation and Comments

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
<p>Socket Outlets Category 1</p>	<p>4 - Good</p>		<p>General: On average, 30-40 socket outlets are installed in a typical lab. Most socket outlets are installed at bench height while some outlets are installed near floor level to suit relevant applications. Overall, socket outlets were in good working condition.</p> <p>Safety: No major safety issues to note.</p> <p>Compliance: Minor compliance issues to new AS 3000:2018 were observed, but there is no requirement to address these retrospectively.</p> <p>Trigger to update: Future refurbishment works may trigger a requirement to update to meet new codes and standards.</p> <p>Failure consequences: Service interruptions, potential damages to equipment, personnel injuries</p> <p>Recommendation: Replace any faulty outlets with new RCD protected outlets meeting current wiring regulations</p>	<p>20%</p>	<p>5 years</p>	<p>\$150 each</p>

Condition, Observation and Comments

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
<p>Socket Outlets Category 2</p>	<p>2 - Poor</p>		<p>General: Old style socket outlets, which are no longer specified for new projects, are nearing the end of their reasonable service life.</p> <p>Safety: Sparking is identified as a potential problem, particularly associated with these socket outlets.</p> <p>Compliance: The existing socket outlets may be subject to minor compliance obligations in the event of any future refurbishment works.</p> <p>Trigger to update: Future refurbishment works may trigger a requirement to update to meet new codes and standards. Safety issues, WHS issues and potential hazards may override this on a duty of care basis to upgrade sooner.</p> <p>Failure consequences: Possible spark issues leading to fire hazards, WHS issues, service interruptions, potential damages to equipment, personnel injuries</p> <p>Recommendation: Consider replacing socket outlets with new RCD protected socket outlets.</p>	<p>100%</p>	<p>Nil years</p>	<p>\$150 each</p>


4.6 LIGHT AND POWER SWITCHES

Description

The lighting and power switches in recently fitted out areas are modern and in good condition, while other sections of the Main Building use older style switches. Old style switches may carry issues like sparking due to poor conditions of those light switches. Lighting circuits and laboratory equipment are served by a combination of single/twin/three gang switches. The section below provides more detail of the condition of switches noted during the site assessment.

Condition, Observation and Comments

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Switches Category 1	4 - Good		<p>General: Switches appear to have been installed during recent fitout works and are in good working condition.</p> <p>Safety: No safety related issues are noted.</p> <p>Compliance: No compliance issues are identified.</p> <p>Trigger to update: Replace upon failure</p> <p>Failure consequences: Service interruptions, potential damages to equipment, personnel injuries</p> <p>Recommendation: Any alterations to existing electrical circuits shall be carried out adhering to AS 3000.</p>	20%	10+ years	\$150

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Switches	2 - Poor		<p>General: These are original switches installed around 40 years ago, generally in poor condition and in need of replacement to minimise potential issues like sparking.</p> <p>Safety: Electrical sparking can be a significant issue in laboratories which make use of highly flammable substances. Spark free switches must be installed in such areas to prevent any fire related incidents.</p> <p>Compliance: No compliance issues are identified.</p> <p>Trigger to update: Future refurbishment works may trigger a requirement to update these socket outlets to meet new codes and standards. Safety issues, WHS issues and potential hazards may override this on a duty of care basis to upgrade sooner.</p> <p>Failure consequences: Possible spark issues leading to fire hazards, WHS issues, service interruptions, potential damages to equipment, personnel injuries</p> <p>Recommendation: Replace switches with new switches to ensure safety and reliable operations in concerned areas. Any alterations to existing electrical circuits shall be carried out adhering to AS 3000.</p>	100%	Nil years	\$150


4.7 LIGHTING


Description


Lighting is a crucial factor affecting overall performance in laboratories. Precise analytical activities require higher light levels in comparison to typical clerical works. Ideally a customised lab specific lighting solution should be used to suit the intended purpose of the laboratory area.

More details of the conditions of the existing lighting applications are detailed below.

Condition, Observation and Comments

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Lighting (T8/T5) Category 1	4 - Good		<p>General: Category 1 lights have been installed recently presumably in conjunction with recent fitout works. Conditions of these fittings are good and either T8 or T5 fluorescent lights are used.</p> <p>Note: no access was granted or made available to inspect the installation conditions inside ceiling cavities.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issue to note. Any modifications to the existing lighting circuits shall be performed in accordance with AS 3000.</p> <p>Trigger to update: Replace upon failure</p> <p>Failure consequences: Inadequate lighting and productivity issues</p> <p>Recommendation: Further energy savings can be achieved if replaced Category 1 light fittings with equivalent LED fittings.</p>	20%	10 years	\$300-\$600 each

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
<p>Lighting (T8) Category 2</p>	<p>3 - Fair</p>		<p>General: Category 2 light fittings are surface mounted T8 type diffused fluorescent batten fittings and are in fair conditions. Light outputs of some fittings had reduced due to deteriorated diffuses of those light fixtures. Note: no access was granted or made available to inspect the installation conditions inside ceiling cavities.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issue to note. Any modifications to the existing lighting circuits shall be performed in accordance with AS 3000.</p> <p>Trigger to update: Replace upon failure</p> <p>Failure consequences: Inadequate lighting and productivity issues</p> <p>Recommendation: Further energy savings can be achieved if Category 2 light fittings are replaced with equivalent LED fittings.</p>	<p>60%</p>	<p>5 years</p>	<p>\$250-\$350 each</p>


Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
<p>Lighting (T12) Category 3</p>	<p>2 - Poor</p>		<p>General: Category 3 light fittings use out of date lamps identified as T12 fluorescent lamps which are no longer used in new or renovation projects. T12 fluorescent fixtures consume more energy compared to LED or T5 equivalent fittings. Note: no access was granted or made available to inspect the installation conditions inside ceiling cavities.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note. Any modifications to the existing lighting circuits shall be performed in accordance with AS 3000.</p> <p>Trigger to update: Higher energy consumptions / higher mercury content compared to T8/T5 lamps</p> <p>Failure consequences: Inadequate lighting and productivity issues</p> <p>Recommendation: Category 3 lights are not recommended to be re-used in conjunction with future upgrades being an obsolete lighting technology. It is recommended replacing T12 fluorescent light fittings with equivalent LED fittings.</p>	<p>100%</p>	<p>Nil years</p>	<p>\$250-350 each</p>


4.8 EXIT AND EMERGENCY LIGHTING

Description

The emergency lighting control system comprises EXIT signs, pictorial emergency signs and emergency luminaires installed throughout the Main Building. Emergency products are installed and maintained by Clevertronics™. Monitoring and routine testing of the emergency system are automatically performed using Clevertronic Zoneworks™, an emergency lighting management system provided by Clevertronics. Further information on the existing emergency lighting systems are detailed below.

Condition, Observation and Comments

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Emergency Luminaire Category 1	4 - Good		<p>General: Emergency luminaires and EXIT signs are maintained / single point type systems. Routine testing involving discharging batteries etc. are conducted at regular intervals as advised by HP. Category 1 emergency lighting systems possess good working condition.</p> <p>Safety: No major safety issues are identified. The emergency system appears to be well maintained.</p> <p>Compliance: The existing emergency lighting system seems to be operated in compliance with minimum standards set out by AS 2293.</p> <p>Trigger to update: Replace upon failure</p> <p>Failure consequences: Minor compliance issues or minimum other impacts</p> <p>Recommendation: Maintain current service arrangements and conduct routine testing as scheduled.</p>	10-20%	10+ years	\$200-\$400 each

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
<p>Emergency Luminaire Category 2</p>	<p>3 - Fair</p>		<p>General: Category 2 emergency luminaire systems use T8 fluorescent lamps and have good working conditions. Routine testing and other compulsory maintenance works are conducted regularly according to information given by HP.</p> <p>Safety: No major safety issues are identified. The emergency system appears to be well maintained.</p> <p>Compliance: The existing emergency lighting system seems to be operated in compliance with minimum standards set out by AS 2293.</p> <p>Trigger to update: Replace upon failure</p> <p>Failure consequences: Minor compliance issues or minimum other impacts</p> <p>Recommendation: Maintain current service arrangements and conduct routine testing as scheduled. Consider replacing these emergency lights with new emergency fixtures which are powered by LED lights to conserve energy consumed by these emergency lights.</p>	<p>50-60%</p>	<p>5+ years</p>	<p>\$200-\$400 each</p>

4.9 TELECOMMUNICATIONS AND DATA


Description


The telecommunication system manages internal /external communication requirements in the Main Building. The system is operated by a PABX (Private Automated Branch Exchange) installed in the basement of the Main Building.

The data network communication system is based on a Cat 5e network system providing services like internet, emails etc. Several standalone communications hubs are noted providing data hosting and handling services, whilst no major computer server rooms are installed.

More details of the existing telecommunication and data network systems are provided below.

Condition, Observation and Comments

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Telecommunication / Data	4 - Good		<p>General: Data and communication systems have received some upgrades at various stages showing acceptable current working conditions. It is noted that some sections / components of the system carry original equipment installed about 40 years ago.</p> <p>Overall, the existing telecommunication system appears to be working in good condition.</p> <p>Safety: No safety issues are noted.</p> <p>Compliance: No compliance issues are noted.</p> <p>Trigger to replace: Replace upon failure</p> <p>Failure consequences: Data bandwidth issues, communication problems, vulnerability to potential cyber-attacks or data security issues</p>	30%	10+ years	\$250,000

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
			<p>Recommendation: Maintain routine maintenance services ensuring reliable operating of data/communication systems. Replace or upgrade relevant old equipment to ensure longevity of service operations</p>			


4.10 SECURITY ACCESS CONTROL AND CLOSED-CIRCUIT TELEVISION


Description

A fibre-based security network system is installed, and the system is maintained by Nexus Security. The security system is in good working conditions. Several newly installed modern Internet Protocol (IP) security cameras are noted during the site visit.

Likely future business expansions of FASS may trigger the need to increase the bandwidth of the security and access control systems and relevant upgrades into the current network will be needed. Consideration needs to be given to include high bandwidth and faster network infrastructure such as Cat 6A cables and higher capacity NVRs (Network Video Recorders) ensuring systems are future proof.

Condition, Observation and Comments

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
<p>Security Access Control / CCTV</p>	<p>4 - Good</p>		<p>General: Several system accessories such as security cameras, door access assemblies etc. have been recently installed improving the system operational conditions. Overall, the conditions of the existing security and access control system are in good working condition.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: No significant triggers are noted requiring immediate upgrading to the existing security system. However, the current system is not future proof with the existing Cat5e based fibre network. A fibre network using Cat6A cables offering higher bandwidth and faster services need to be used to accommodate future proof system components like advanced cameras, sensors etc.</p> <p>Failure consequences: Unauthorized access issues, security issues associated with instruments, general security and access issues in the whole facility.</p> <p>Recommendation: Maintain the existing service works to make sure security and access control systems are well maintained.</p>	<p>30%</p>	<p>15+ years</p>	<p>\$150,000</p>

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
						

4.11 EMERGENCY POWER DIESEL GENERATOR

Description

Essential power requirements of the Main Building are supplied by a standby generator rated at 165KVA. The generator is unable to meet current essential power demands in the Main Building as advised by HP.

The generator, which was installed in 1991, appears to be well maintained and it had recorded 144 run hours at the time of our inspection was conducted.

Condition, Observation and Comments

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Standby Generator	2 - Poor		<p>General: Despite the generator still being operational, it has reached the end of its expected economic life. The current demand for emergency power in the Main Building cannot be met by the existing generator.</p> <p>Safety: The generator is installed and maintain to meet current code of practice indicating minor or nil safety issues.</p> <p>Compliance: The existing generator was installed according to the prevailing codes and standards at the time and regular maintenance and service works are carried out by service contractors meeting relevant compliance obligations.</p> <p>Trigger to replace: Inadequate capacity, control issues, reliability issues.</p> <p>Failure consequences: Loss of essential power, damages to testing assets, control failure, validity issues of samples</p> <p>Recommendation: Consider replacing the existing generator with a new generator which is sized to meet current and future emergency power demands (estimated future demand is 500KVA).</p>	100%	Economic life exceeded	\$240,000

5 Hydraulic Services

5.1 OVERVIEW

Hydraulic services generally cover all areas of the Main Building and comprise the following:


- Potable cold-water system
- Non-potable cold-water systems
- Centralised domestic hot water system
- Sanitary plumbing and sewer drainage
- Gas reticulation
- Irrigation water storage

5.2 POTABLE COLD-WATER SYSTEM

Description

The Main Building is connected to the authority water supply with a meter and Reduced Pressure Zone Device (RPZD) backflow prevention device located at the front of the Main Building. Potable water is distributed to amenities areas only, with a non-potable system reticulated to all laboratory areas.

Condition, Observation and Comments

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Authority water mains supply	4 – Good		<p>General: The mains water connection appears to be in good working order.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Authority requirements.</p> <p>Failure consequences: A failure would be dealt with swiftly by the water authority, however it may result in an outage or reduced pressure to the Main Building temporarily which could have significant interruption to operations.</p> <p>Recommendation: Nil.</p>	10%	10+ years	N/A


5.3 NON-POTABLE COLD-WATER SYSTEM

Description

The Main Building non-potable water supply is served by three CR15 Grundfos pressure pumps, each capable of 17.0m³/h, connected to two pressure bladder tanks, with a pressure setpoint on the pump system of 550kPa. The pumps operate with a duty/standby/2nd standby redundancy arrangement.

This water is then reticulated throughout the Main Building to all laboratory and wash-up areas for non-potable laboratory use only.

Condition, Observation and Comments


Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Non-potable water pressure pump system	4 – Good		<p>General: The non-potable water system appears to be in good condition. The pumps, bladders and control panel looked to be quite new, but a date on one of the bladders suggested they were installed in 2001, putting them at approximately 18 years old. They appear to be functioning adequately and with a duty / standby / 2nd standby arrangement. There is ample redundancy in the event that there is a pump failure.</p> <p>Safety: No safety issues to note</p> <p>Compliance: No compliance issues to note</p> <p>Trigger to update: Replace pumps upon failure</p> <p>Failure consequences: The system has been designed with 3N redundancy in the pumps, so the consequences of losing one or even two pumps simultaneously would be nil. If all three pumps were to fail then the laboratories would no longer be served by non-potable water and operations would cease. The probability of this occurring would be very low.</p> <p>Recommendation: Nil.</p>	30%	5+ years.	\$15,000


5.4 CENTRALISED DOMESTIC HOT WATER SYSTEM

Description

The domestic hot water is fed from a Calorifier in the basement plant room and circulated via two Grundfos UPS circulation pumps. Heating for the hot water is sourced from the heating hot water plant (DHWP).

Condition, Observation and Comments

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Calorifier	2 – Poor		<p>General: Heavy corrosion is evident around the flanges and any exposed areas of the Calorifier casing. Age of the unit is unknown but likely to have long exceeded its economic life.</p> <p>Safety: Possible risk of the tank rupturing and leaking hot water, but the likelihood and severity of any resulting injuries would be low.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Replace at end of life - overdue</p> <p>Failure consequences: Failure of the Calorifier could result in a significant water leak, and would result in an outage of hot water until the system was repaired or replaced.</p> <p>Recommendation: Schedule for replacement/upgrade imminently.</p>	80%	Exceeded reasonable economic life	\$20,000


Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
DHWP 1&2	3 – Fair		<p>General: The hot water pumps appear to be in reasonable condition and likely to be around 5-10 years old. The pumps would have at least 5 years economic life remaining.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Replace pumps upon failure</p> <p>Failure consequences: The system has been designed with 2N redundancy in the pumps, so the consequences of losing one pump would be nil. If both pumps were to fail then there would be an outage of hot water until they were repaired or replaced.</p> <p>Recommendation: Nil</p>	40%	5+ years	\$8,000

5.5 DEMINERALISED WATER TREATMENT PLANT

Description

The Main Building is served by a central ion-exchange demineralised water treatment plant located in the basement plant room. This plant consists of a series of vessels filled with cation and anion exchange resins which remove ions from the water source to produce mineral free water suitable for use in the laboratories.

Condition, Observation and Comments


Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Ion Exchange Demineralised Water Plant	4 – Good		<p>General: Demineralised water plant seemed to be in fair working order and well maintained by Insight Water Treatment Pty Ltd.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Future refurbishment or expansion.</p> <p>Failure consequences: A failure would result in an outage of demineralized water to the laboratories.</p> <p>Recommendation: Maintain existing service contract with regular service and maintenance activities.</p>	20%	5 years	\$10,000

5.6 GAS RETICULATION

Description

The Main Building is served by a metered mains natural gas supply which enters the Main Building from a meter assembly located adjacent the Main Building in a wire mesh cage towards Weeroona Road.

Condition, Observation and Comments

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Gas meter assembly	4 – Good		<p>General: The gas meter assembly is in fair condition and functioning adequately with no issues noted.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Authority requirements</p> <p>Failure consequences: A failure would be dealt with swiftly by the supply authority but could result in a gas outage whilst it is being dealt with.</p> <p>Recommendation: Nil</p>	5%	10+ years	N/A

6 Fire Protection Services

6.1 OVERVIEW

The fire protection services within the Main Building comprise the following:

- Automatic fire sprinkler system
- Fire detection and alarm installation incorporating fire indicator panels, smoke and thermal detectors, fire bells and manual call points
- Emergency warning and intercom system complete with evacuation speakers and warden intercom points
- Portable fire extinguishers

6.2 AUTOMATIC SPRINKLER SYSTEM

Description

Water supply for the sprinkler system is from the towns main at approximately 450kPa pressure, with a booster pump maintaining 800kPa for the sprinkler system. A pressure switch is located at the booster assembly which senses a drop in pressure from the sprinklers activating and shuts down the central air conditioning systems on a fire trip.

6.3 FIRE DETECTION AND ALARM SYSTEM

Description

The fire alarm system consists of a main panel located in the basement plant area, and a mimic panel located in the entrance foyer of the ground floor. The system is a Notifier system and appears to be approximately 10 years old.


6.4 EMERGENCY WARNING AND INTERCOMMUNICATION SYSTEM (EWIS)


Description


The EWIS system consists of a panel located within the main entrance connected to speakers installed throughout the building. The system appears to be approximately 10 years old.

Warden Intercommunication Point (WIP) phones are provided at the main panel and mimic panels.



Condition, Observation and Comments

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Sprinkler booster assembly	3 – Fair		<p>General: The sprinkler booster assembly appears to be in fair condition and working order.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Replace at end of life</p> <p>Failure consequences: Failure could result in a loss of pressure to the sprinkler system and poor performance in extinguishing a fire.</p> <p>Recommendation: Nil</p>	20%	5+ years	\$20,000

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
						

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Fire Detection & Alarm System	2 – Good		<p>General: The fire detection and alarm system is in good working order.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Smoke detectors should be replaced every 10 years to avoid sensitivity loss.</p> <p>Failure consequences: Failure of the fire detection and alarm system could elevate the risks in the event of a fire occurring.</p> <p>Recommendation: Maintain existing service regime, and replace ageing smoked detectors as required.</p>	20%	5 Years	\$100,000

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
						

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
						
EWIS and WIP	2 – Good		<p>General: The EWIS system is in good working order.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Replace components at end of life</p> <p>Failure consequences: Failure of the EWIS would increase the safety risks in the event of a fire occurring.</p> <p>Recommendation: Maintain existing service regime, and replace components as required.</p>	20%	5 years	\$30,000

7 Laboratory Gases

7.1 OVERVIEW

The following laboratory gases are provided within the Main Building:


- Compressed air
- Vacuum suction
- Liquefied Petroleum Gas
- Liquid Nitrogen
- Liquid Argon
- Hydrogen
- Helium
- Methane
- Argon
- Carbon Dioxide

7.2 COMPRESSED AIR

Description

Compressed air is widely used throughout the laboratories in the Main Building and is produced on site by two air compressors located in the basement plant area.

Condition, Observation and Comments


Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Compressed air plant	3 – Fair		<p>General: The compressor equipment seems to be in fair working order, though quite dated in appearance.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Replace upon failure</p> <p>Failure consequences: Failure would result in an outage of compressed air, with no significant WHS issues or damage to plant and equipment. Processes reliant on compressed air may be temporarily suspended.</p> <p>Recommendation: Nil</p>	20%	5+ years	\$20,000

7.3 VACUUM SUCTION PLAN

Description

Vacuum suction is provided by a vacuum pump and suction accumulator tank located in the basement plant area of the Main Building.

Condition, Observation and Comments


Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Vacuum Suction Tank	3 – Fair		<p>General: The vacuum suction plant appears to be in fair working order though the plant was aged and dirty.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Replace upon failure</p> <p>Failure consequences: Failure would result in an outage of vacuum suction, with no significant WHS issues or damage to plant and equipment. Processes reliant on vacuum suction may be temporarily suspended.</p> <p>Recommendation: Nil</p>	60%	5+ years	\$10,000

7.4 LIQUIFIED PETROLEUM GAS

Description

Liquefied Petroleum Gas (LPG) is stored in two 210kg gas cylinders which are currently maintained and filled by Elgas

Condition, Observation and Comments


Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
LPG Storage Tank	4 – Good		<p>General: The LPG storage tanks appeared to be in good condition and are currently filled and maintained by Elgas.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Supply company to manage system in order to maintain supply.</p> <p>Failure consequences: Failure would be dealt with by the supply company, with no significant WHS issues or damage to plant and equipment. Processes reliant on LPG may be temporarily suspended.</p> <p>Recommendation: Nil</p>	5%	10+ years	N/A

7.5 LIQUID NITROGEN

Description

Nitrogen is one of the more common laboratory gases used in the Main Building, and is therefore required in substantial quantities. A large tank of liquid nitrogen is located on a hardstand in the forecourt of the Main Building which allows the nitrogen to be boiled off and used in gaseous form via pipes reticulated to the laboratories, or for liquid nitrogen to be dispensed into dewars and used for cryogenics and similar purposes on site.

Condition, Observation and Comments


Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Liquid Nitrogen Storage Tank	2 – Good		<p>General: The liquid nitrogen tank appeared to be in fair working order and is maintained and filled by BOC. This supply agreement will switch to Coregas by late 2019. A plaque with a valve schematic engraved on it by Johnson Engineering dates the installation at September 1994</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Supply company to manage</p> <p>Failure consequences: Failure would be dealt with by the supply company, with no significant WHS issues or damage to plant and equipment. Since Nitrogen is also provided by localised cylinders an outage of the main bulk storage tank would not necessarily interrupt all areas, and critical processes reliant on Nitrogen should be served by manifolded cylinders on an auto changeover valve to provide uninterrupted supply.</p> <p>Recommendation: Nil</p>	5%	10+ years	N/A

7.6 LIQUID ARGON

Description

Like nitrogen, argon is also used widely throughout the facility and is delivered and stored in liquid form for economic reasons. A cryogenic liquid argon tank is located on a hardstand in the forecourt of the Main Building which allows for argon to be boiled off and used in gaseous form via pipes reticulated to the laboratories, or to be dispensed into dewars as a liquid and transported to different areas of the facility for local use where required.

Condition, Observation and Comments

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Liquid Argon Storage Tank	4 – Good		<p>General: The liquid argon tank appeared to be in good working order and is maintained and filled by BOC. This supply agreement will switch to Coregas by late 2019.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Supply company to manage</p> <p>Failure consequences: Failure would result in an outage of argon, with no significant WHS issues or damage to plant and equipment. Since Argon is also provided by localised cylinders an outage of the main bulk storage tank would not necessarily interrupt all areas, and critical processes reliant on Argon should be served by manifolded cylinders on an auto changeover valve to provide uninterrupted supply.</p> <p>Recommendation: Nil</p>	5%	15+ years	N/A

7.7 NON-FLAMMABLE BOTTLED GASES

Description

A range of non-flammable laboratory gases are used within the Main Building, stored in gas bottles located in the non-flammable gas store in the forecourt of the Main Building, and connected to a manifold to reticulate within the laboratories. Where necessary, smaller portable cylinders are also used and stored within the laboratories themselves. These include:

- Air
- Carbon Dioxide
- Nitrogen
- Argon; and
- Helium

Condition, Observation and Comments

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Non-flammable bottled gases	3 –Fair		<p>General: The non-flammable bottled gases were housed in a suitable secure and well-vented storage location. Condition of the manifolds appeared to be in fair working order.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Supply company to manage</p> <p>Failure consequences: Failure would result in an outage of gases, with no significant WHS issues or damage to plant and equipment.</p> <p>Critical processes are served by manifolded cylinders on an auto changeover valve to provide uninterrupted supply when a cylinder is empty or being changed.</p> <p>Recommendation: Nil</p>	20%	5+ years	\$10,000

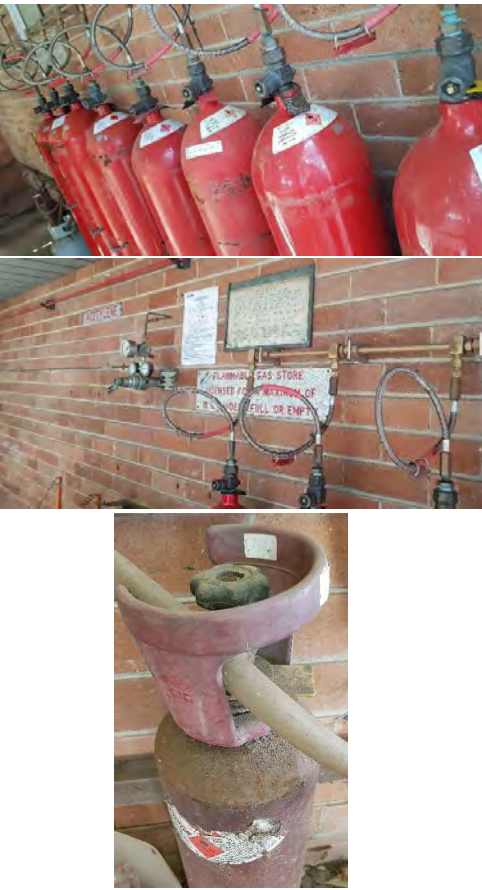
7.8 FLAMMABLE BOTTLED GASES

Description

Flammable gases for use within the facility are stored within the flammable gas store in the forecourt of the Main Building, and connected to a manifold to reticulate within the laboratories. Where necessary, smaller portable cylinders are also used and stored within the laboratories themselves. These include:

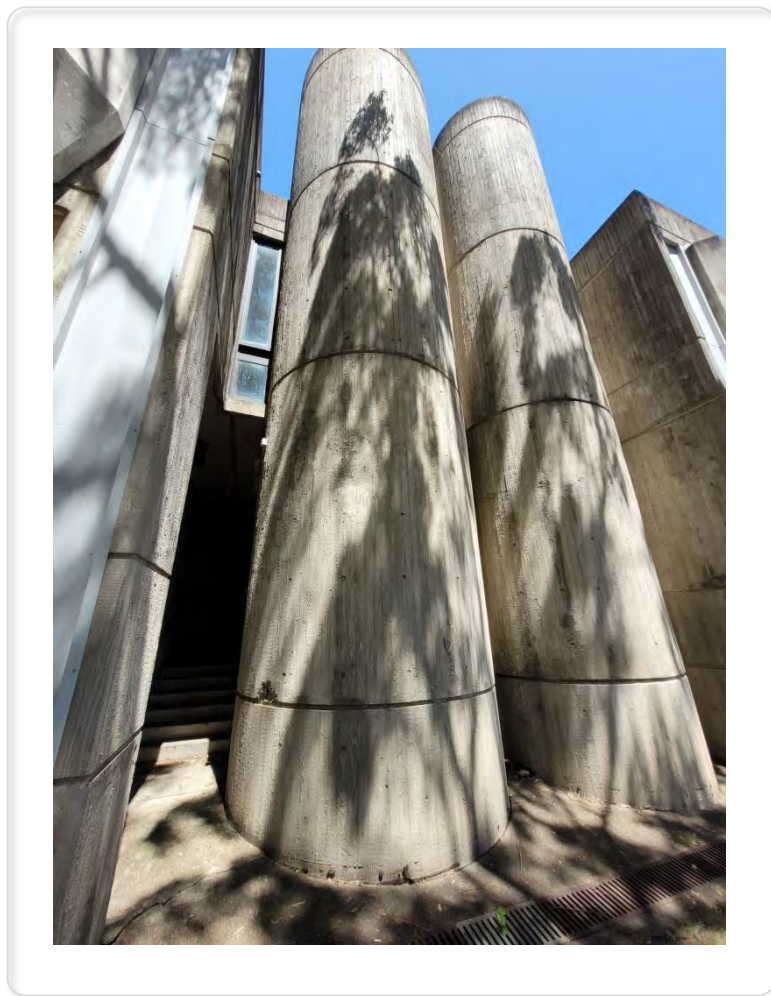
- Hydrogen
- Acetylene

Condition, Observation and Comments

Item	Condition	Photo	Comments and Recommendations	Failure Probability (within 10 yrs)	Expected Remaining Life	Est. Replacement Cost
Non-flammable bottled gases	3 –Fair		<p>General: The non-flammable bottled gases were housed in a suitable secure and well-vented storage location. Condition of the manifolds appeared to be in fair working order.</p> <p>Safety: No safety issues to note.</p> <p>Compliance: No compliance issues to note.</p> <p>Trigger to update: Supply company to manage</p> <p>Failure consequences: Failure would result in an outage of gases, with no significant WHS issues or damage to plant and equipment.</p> <p>Critical processes are served by manifolded cylinders on an auto changeover valve to provide uninterrupted supply when a cylinder is empty or being changed.</p> <p>Recommendation: Nil</p>	20%	5+ years	\$10,000

FASS Mineral Resources Building Lidcombe

STRUCTURAL ASSESSMENT REPORT



For: Health Infrastructure NSW
By: **enstruct** group pty ltd
Revision: A
October 2022



ISSUE AUTHORISATION

Project Name: FASS Mineral Resources Building Lidcombe
Project No: 6399
Report Name: FASS MRB Structural Assessment Report
Report Number: MRB-ENS-ST-RPT-001

Rev	Date	Purpose of Issue / Nature of Revision	Prepared by	Reviewed by	Issue Authorised by
A	28/10/22	Issued for DRAFT	JGR	TBB	TBB

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1 Introduction

enstruct Group have been engaged by Health Infrastructure NSW (HI) to provide a visual inspection report on the NSW Forensic and Analytical Science Service' Mineral Resources Building (MRB). The purpose of the report is to identify risks & opportunities and comment on viability for adaptive re-use of the building.

1.1 Location

The MRB is located at the Lidcombe Forensic Precinct and is a standalone building on the corner of Joseph St and Weeroona Pde.



Location of MRB

A publicly available Geotechnical Investigation Report for the adjacent site (Coffey report GEOTLCOV25551AA-AJ_Rev03 on Lot 3 of DP 850697) gives commentary on the ground conditions generally for the region, namely that the site is underlain by:

- Residual podzolic “Blacktown” soils with moderate reactivity, high plasticity and depths around 2.4m
- This is further underlain by Extremely to Highly weathered Shale.

1.2 Built Form

A limited excerpted set of architectural plans was provided on 25/10/22 by Johnstaff for this assessment and is included at Appendix A. The building was designed in 1974 and it is understood to have been constructed shortly thereafter. The building was designed to house chemical laboratories and associated services for use by the NSW Department of Mines.



The architectural drawings show:

- Site – The building was cut 2-4m into the slope of the site, which correlates with the depth to top of rock outlined in the Coffey report of Lot 3.
- Footings – Pad and strip foundations are drawn with 500mm recess from top of footing to underside of basement slab.
- Vertical Structure – Columns and walls are drawn extending through the basement slab to footings below. These are laid out in an 8.1x8.1m square grid typically, with central servicing and vertical transport spines. Columns are drawn as pairs of rectangles separated into a square configuration.
- Floorplates
 - The basement slab is drawn thinner and appears to be founded on grade with columns and walls drawn passing through without providing support.
 - The suspended slabs appear to be flat plates with no drop panels or beams.
 - The roof is drawn as a flat plate with a topping falling to perimeter drains.
- Façade - The building façade is defined by the extensive use of exposed concrete in a “brutalist” architectural style.

1.3 Current Use

The building is not currently in use and has been vacant for a number of years. Internal photos supplied to enstruct show extensive internal and external dis-repair in the ceilings, linings, FFE and structure. There appears to have been minimal stripping of internal finishes on vacating the building.

In 2021 a Risk Assessment was carried out by Health NSW on the suitability of entering the building, with the report noting 90% of the building footprint contained hazardous materials, including lead paints, asbestos and black mould. Extensive damage was noted and large restrictions on entering the building were implemented. Refer Appendix B.

2 Building Inspection

2.1 enstruct Inspection

An enstruct Senior Structural Engineer visited the building on 28 October 2022 and carried out a visual inspection of the external building form. Due to OH&S restrictions, no entry into the building was made.



Evidence of likely reinforcement corrosion and concrete spalling at roof slab joint



Cracking to external column



Cracking to external column



Evidence of likely reinforcement corrosion and concrete spalling



Evidence of likely reinforcement corrosion and concrete spalling



Cracking to loadbearing walls

2.2 Internal Observations

Due to the hazardous nature of gaining access inside the building, observations of the internal spaces and structure have been made by review of photographs provided on 17/10/22 by Johnstaff.



Water ingress at building façade



Ponded water throughout

enstruct



Extensive water damage at concrete joints and linings



Extensive water damage at internal columns



Ponded water throughout



Evidence of likely reinforcement corrosion and concrete spalling at penetrations for services



Evidence of likely reinforcement corrosion and concrete spalling at penetrations for services



Water ingress through building construction joint



Water damage to stair cores



Standing water in stair cores



Spalling concrete from slabs over



Water ingress through building construction joint



Evidence of likely reinforcement corrosion and concrete spalling in external surfaces



Failure of rooftop membrane

enstruct



Standing water at roof



Large cracks at external roof supports

3 Assessment

3.1 Deterioration and Useful Life

Consideration of the building's remaining life must be given, with buildings typically designed for a useful life of 50 years. This is based on the design load, capacity and durability provisions of AS1480 (1974) in place at the time of construction. By this measure the MRB has reached its expected useful life.

Notwithstanding the above, well-constructed and maintained buildings are often able to provide serviceable performance far in excess of their design useful life. There is an apparent degradation of the building durability based on the following observations:

- Large areas where the rooftop waterproof membrane has failed
- Lack of drainage falls to outlets
- Many areas of standing water ponding throughout the building and on the roof
- Evidence of concrete cancer at exposed surfaces
- Water entering through construction joints at the top of walls (likely causing corrosion of reinforcement)

A detailed assessment of the building would be required in all areas after stripping of internal finishes and removal of all health contaminants to fully determine the extent of this damage and viable remediation alternatives. This will require a full scope of works from a materials specialist to determine the remaining useful life of the concrete, provide testing of element concrete properties and advice on remediation methods.

Further consideration of the basement walls and foundations would be required, likely with destructive investigation to determine the level of deterioration present at these elements, noting the Coffey geotechnical engineering report measured water seepage above the footing level through rock defects.

While some areas of the building may be deemed acceptable for continued use, there is a high probability that extensive remediation of areas subject to water ingress will be required. This will be particularly onerous at walls and columns where propping of slabs will be required to take load off the joints prior to commencement of works.

3.2 Existing Drawings and Code Compliance

The original building structural drawings have not been located at this stage. If re-use of the building is to be undertaken accessing the existing structural documentation will be critical to minimise strengthening works and maximise the opportunities for re-use. We note from the existing architectural drawings that the original building structural engineer was Arup, we recommend that they be contacted to obtain a copy of the existing drawings.

If the building is to be re-used and the existing structural drawings are not available this presents the following challenges in terms of adaptive re-use:

- 1) The loading generated by use of each space will be limited to the loading associated with the description of each space on the existing architectural drawings. This



approach carries some element of risk where local reductions in capacity are agreed on a project specific basis. Caveats of this nature on the certification of structure are typically not acceptable due to the lack of certainty able to be provided.

Therefore, one of the following options would be required:

- a. Limiting the load in all areas to match the load requirements of the codes at the time of design to that nominated for the usage of the space. Structural certification of the building would be reliant upon the original certification and that the structure had been appropriately designed and constructed to the codes of the day. The structural certification would only be able to nominate that loading is aligned with the original usage and not provide certification of compliance with current codes.
 - b. If areas require an increase in loading above the previous usage strengthening of the floor plate to carry the increased load or load testing would be required after remediation works are completed to ensure the required capacity can be provided. Noting that load testing may demonstrate deficiencies in the load carrying capacity of the slab requiring strengthening, with some risk of punching shear failure which is non-ductile, and which must be avoided.
- 2) Without detailed reinforcement layouts of columns and foundations there is no way to certify their capacity. Similar to the floor plates one of the following two options would be required:
- a. Limiting the load in all areas to match the load requirements of the codes at the time of design to that nominated for the usage of the space. Structural certification of the building would be reliant upon the original certification and that the structure had been appropriately designed and constructed to the codes of the day. The structural certification would only be able to nominate that loading is aligned with the original usage and not provide certification of compliance with current codes.
 - b. If areas require an increase in loading above the previous usage strengthening of the columns to carry the increased load would be required. Strengthening could be provided through jacketing of columns and underpinning of footings (with associated temporary propping).
- 3) Significant changes in earthquake provisions were introduced since this building was constructed, with new reinforcement detailing requirements almost certainly not met by the existing structure. Similar to the floor plates one of the following two options would be required:
- a. Limiting the load in all areas to match the load requirements of the codes at the time of design to that nominated for the usage of the space. Structural certification of the building would be reliant upon the original certification and that the structure had been appropriately designed and constructed to the codes of the day. The structural certification would only be able to nominate that loading is aligned with the original usage and not provide certification of compliance with current codes.
 - b. If areas require an increase in loading above the previous usage or change to the existing lateral structure is needed strengthening/upgrade of the lateral system to meet current code requirement would likely be required. If strengthening were required the building would need to be retro-fitted with a new lateral load resisting system, including foundations, walls/bracing, and connections to the floorplate compliant with current codes.

4 Conclusion

Consideration has been given to the condition of the existing structure shown in photos and the likely pathways for investigation of the degree of damage and rectification required to make this good. These works are expected to be significant and, in the case of the roof, may require large scale replacement of structural elements.

Notwithstanding rectification of the damage, a lack of structural drawings makes detailed assessment of the structural capacity virtually impossible, so access to the existing drawings is critical to accurately assess the capacity of the existing structure.

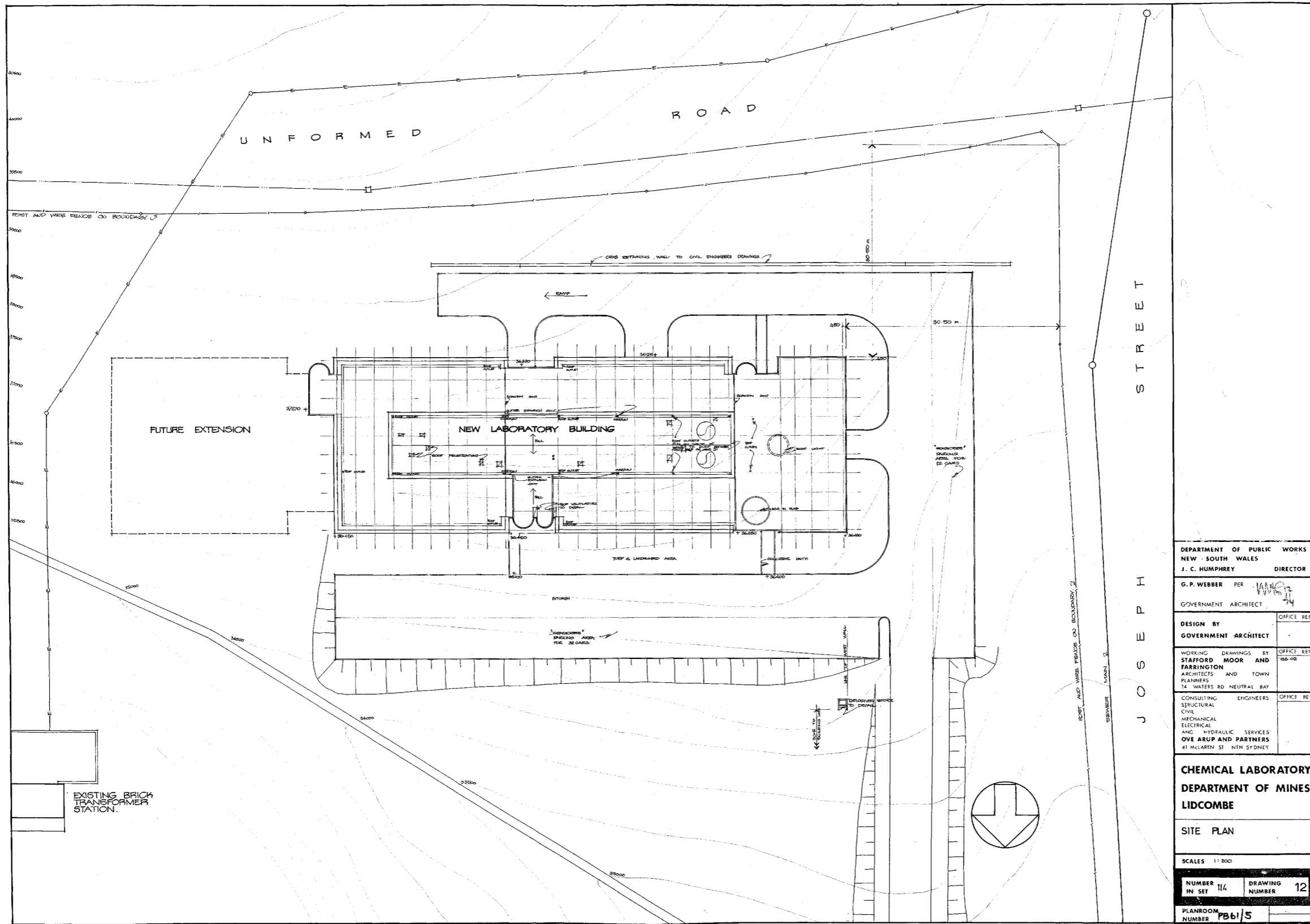
Without existing structural drawings loading and usage would need to remain aligned with the original design intent and no modification of the primary structural systems would be possible.

Without the structural drawings in the case that loading was to exceed the original design intent or if modification to the existing structure was proposed retro-fitting of capacity would be required to definitively certify the structure. The same would be required if the existing structural drawings were available and the proposed loading exceed the capacity of the existing structural system.



APPENDIX A

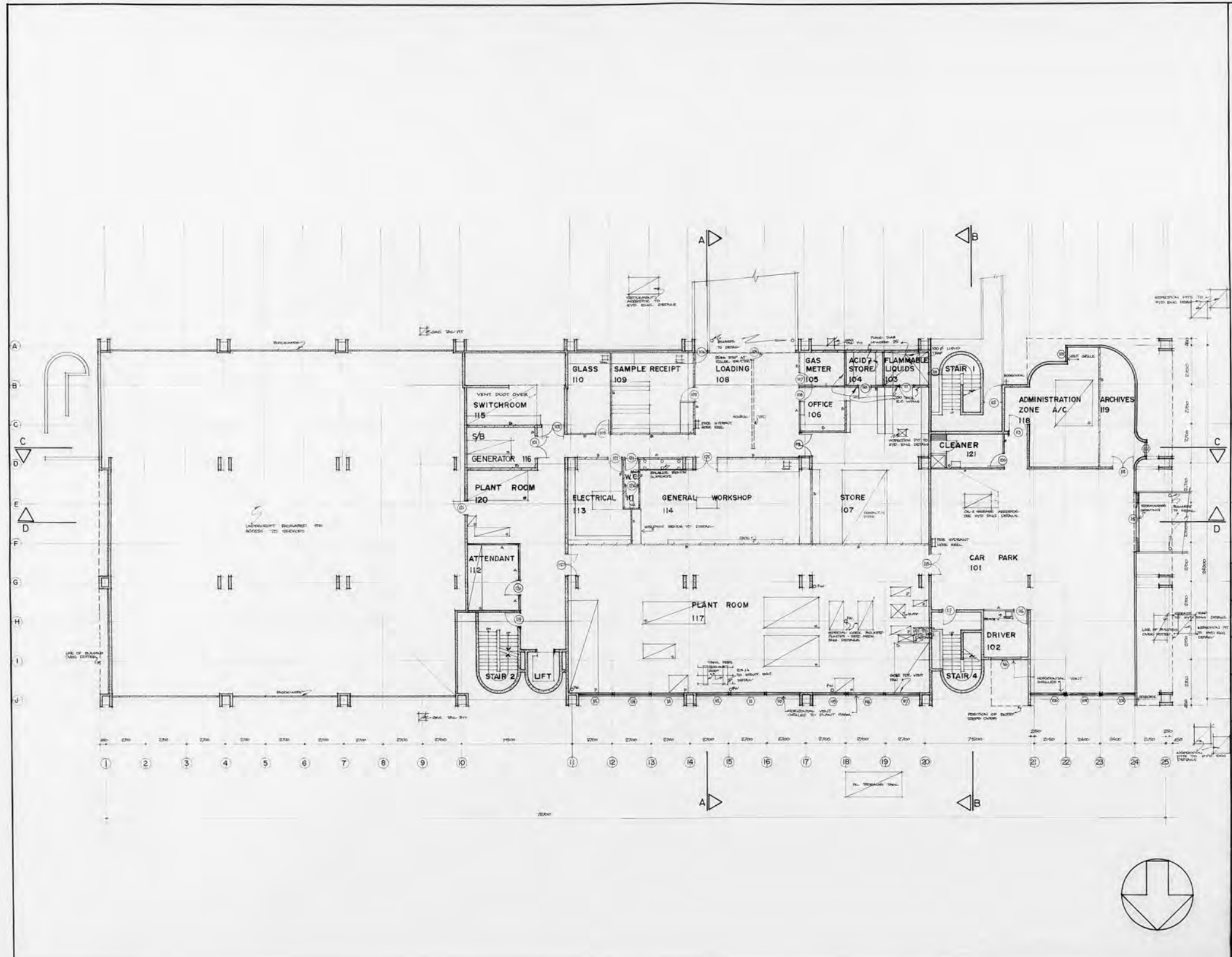
Selected Existing Architectural Drawings



DEPARTMENT OF PUBLIC WORKS NEW SOUTH WALES J. C. HUMPHREY DIRECTOR	
G. P. WEBBER PER	WAG 74
GOVERNMENT ARCHITECT	
DESIGN BY	OFFICE REF.
GOVERNMENT ARCHITECT	
WORKING DRAWINGS BY	OFFICE REF.
STAFFORD MOOR AND FARRINGTON ARCHITECTS AND TOWN PLANNERS 14 WATERS RD NEUTRAL BAY	74-05
CONSULTING ENGINEERS	OFFICE REF.
CIVIL MECHANICAL ELECTRICAL AND HYDRAULIC SERVICES OVE ARUP AND PARTNERS 41 MCILAREN ST NTH SYDNEY	
CHEMICAL LABORATORY DEPARTMENT OF MINES LIDCOMBE	
SITE PLAN	
SCALES 1:200	
NUMBER IN SET 114	DRAWING NUMBER 12
PLANROOM NUMBER PB61/5	



ROLL 514



NOTE:
 ALL ROOMS ARE TAKEN TO INCLUDE DOORS
 AND ARE APPROXIMATE TO THE
 ACTUAL DIMENSIONS AND BE OBTAINED FROM
 PLANS. DIMENSIONS OF EQUIPMENT
 ARE TO BE OBTAINED FROM THE
 MANUFACTURER'S LITERATURE.
 * DOOR SWINGS TO BE AS SHOWN UNLESS
 OTHERWISE NOTED.
 † DOOR SWINGS TO BE AS SHOWN UNLESS
 OTHERWISE NOTED.
 ‡ DOOR SWINGS TO BE AS SHOWN UNLESS
 OTHERWISE NOTED.

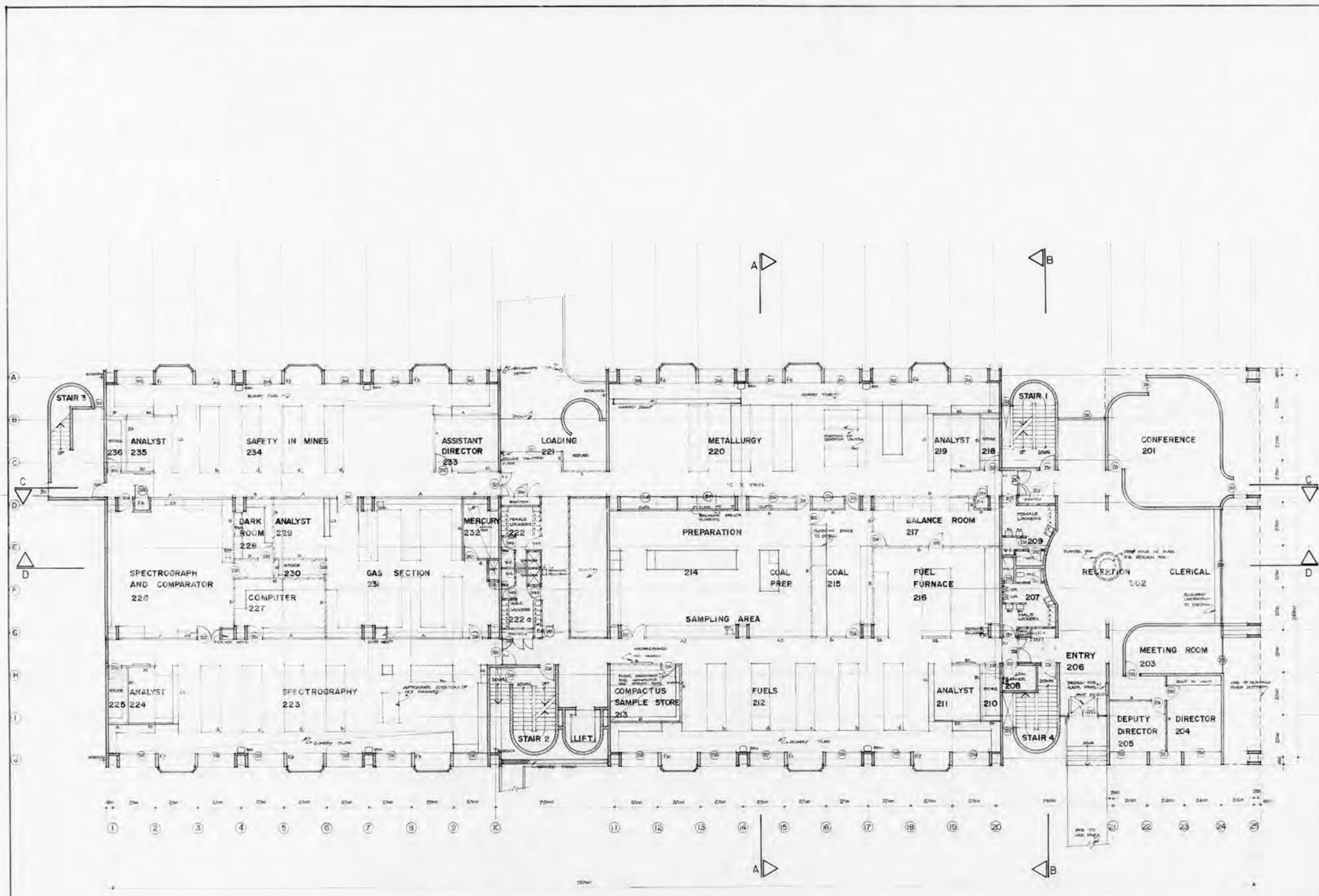
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 G. P. WEBBER ARCHITECT
 GOVERNMENT ARCHITECT
 DESIGN BY
 GOVERNMENT ARCHITECT
 WORKING DRAWINGS BY
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 FARRINGTON ARCHITECTS AND TOWN
 PLANNERS 14 WATERS RD NEUTRAL BAY
 CONSULTING ENGINEERS
 STRUCTURAL CIVIL MECHANICAL
 ELECTRICAL AND HYDRAULIC SERVICES
 OVE ARUP AND PARTNERS
 41 MCLAREN ST NTH SYDNEY

CHEMICAL LABORATORY
DEPARTMENT OF MINES
LIDCOMBE
 PLAN - LEVEL 1
 SCALES 1:100
 NUMBER IN SET 114 DRAWING NUMBER 14
 PLANROOM NUMBER PB617

ROLL 519

LEVEL 1 3/150





DOING NO. 256 257 AMENDED
 DOWN BY 250 BY 258. ABOVE
 NOTE FLOOR FINISH IN ROOM 250.

FIN. DETAILED FINISHING USE
 THESE TABLE DIMENSIONS

FIN. FIN. CUSTOMED
 B1 PARTITION TYPE
 WINDOW 40' REFER DIMENSION
 DOOR 40' REFER DIMENSION

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G. P. WEBBER PER *W.P.E.*
 GOVERNMENT ARCHITECT

DESIGN BY
 GOVERNMENT ARCHITECT OFFICE REF.

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 FARRINGTON ARCHITECTS AND TOWN
 PLANNERS OFFICE REF.
 14 WATERS RD. NEUTRAL BAY 86-05

CONSULTING ENGINEERS OFFICE REF.
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 CIVIL
 MECHANICAL
 ELECTRICAL
 AND HYDRAULIC SERVICES
 OVE ARUP AND PARTNERS
 41 M'CLAREN ST. NTH SYDNEY

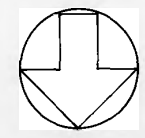
CHEMICAL LABORATORY
DEPARTMENT OF MINES
LIDCOMBE

PLAN - LEVEL 2
 RL. 87400

SCALES 1:100

NUMBER IN SET 114 DRAWING NUMBER A15

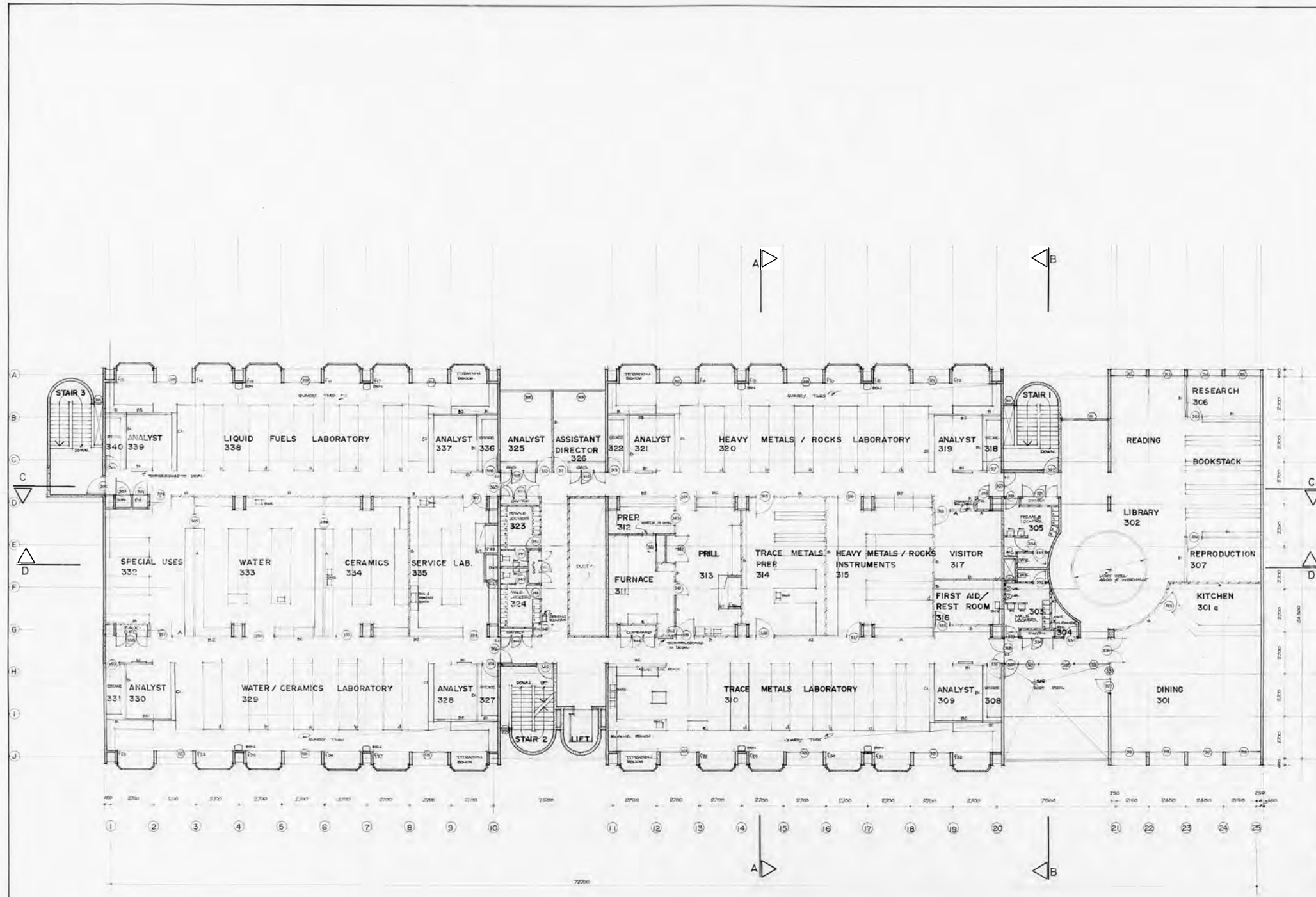
PLANROOM NUMBER PB61/8



Roll 519

LEVEL 2 37420





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 AND HYDRAULIC SERVICES
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 41 MILLAREN ST. NTH SYDNEY

CHEMICAL LABORATORY
DEPARTMENT OF MINES
LIDCOMBE

PLAN - LEVEL 3
 W.L. 41045

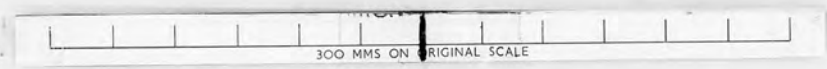
SCALES 1:100

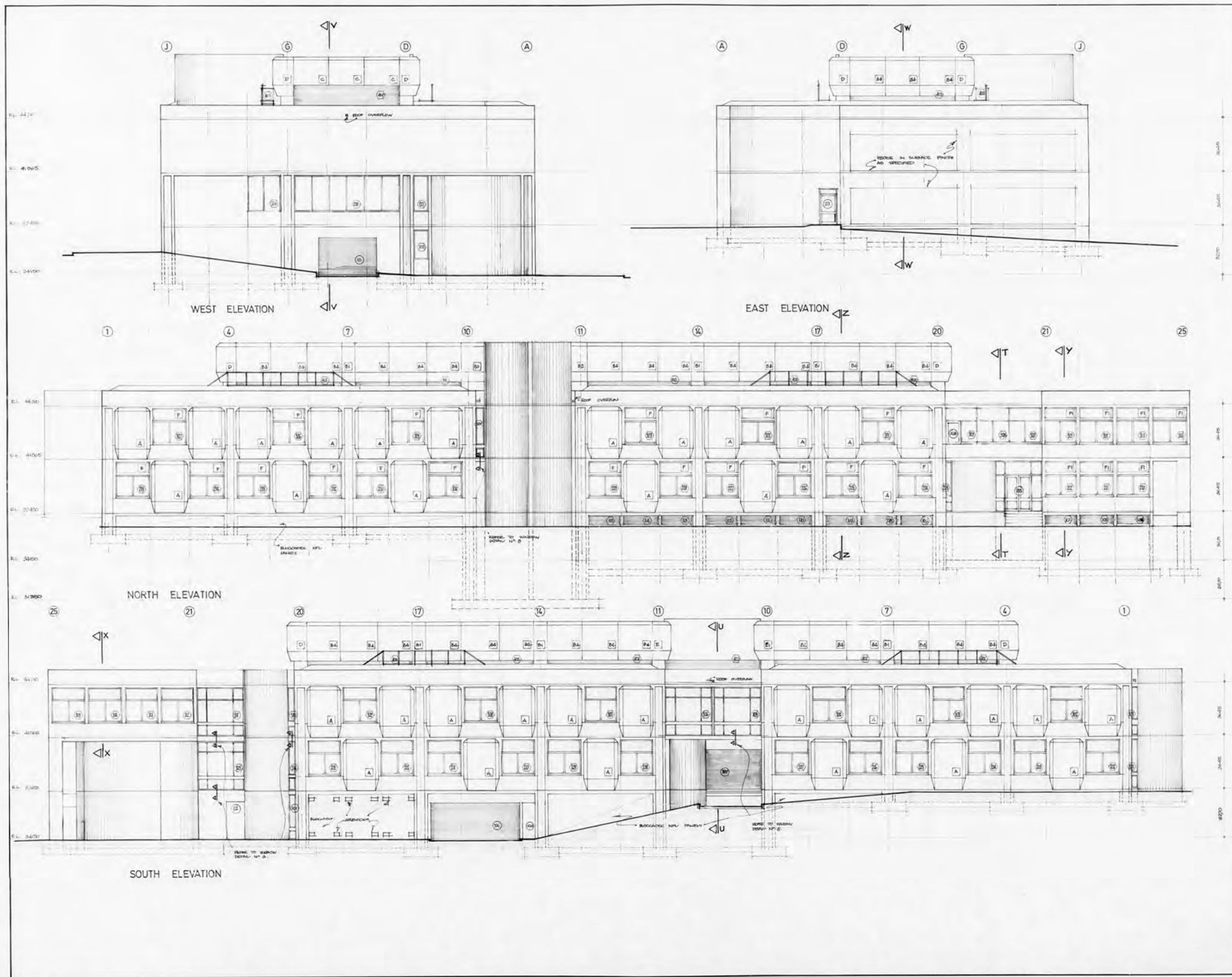
NUMBER IN SET 1/4 DRAWING NUMBER A16

PLANROOM NUMBER PB61/9

Roll 519

LEVEL 3 41045





- (P) PROJECT FILE - VERA DETAIL
- (M) MEASUREMENT - JERRY GARDNER
- (S) SECTION - JERRY GARDNER

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G. P. WEBBER PER *WWS*
 GOVERNMENT ARCHITECT OFFICE REF 74

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DEPARTMENT OF MINES
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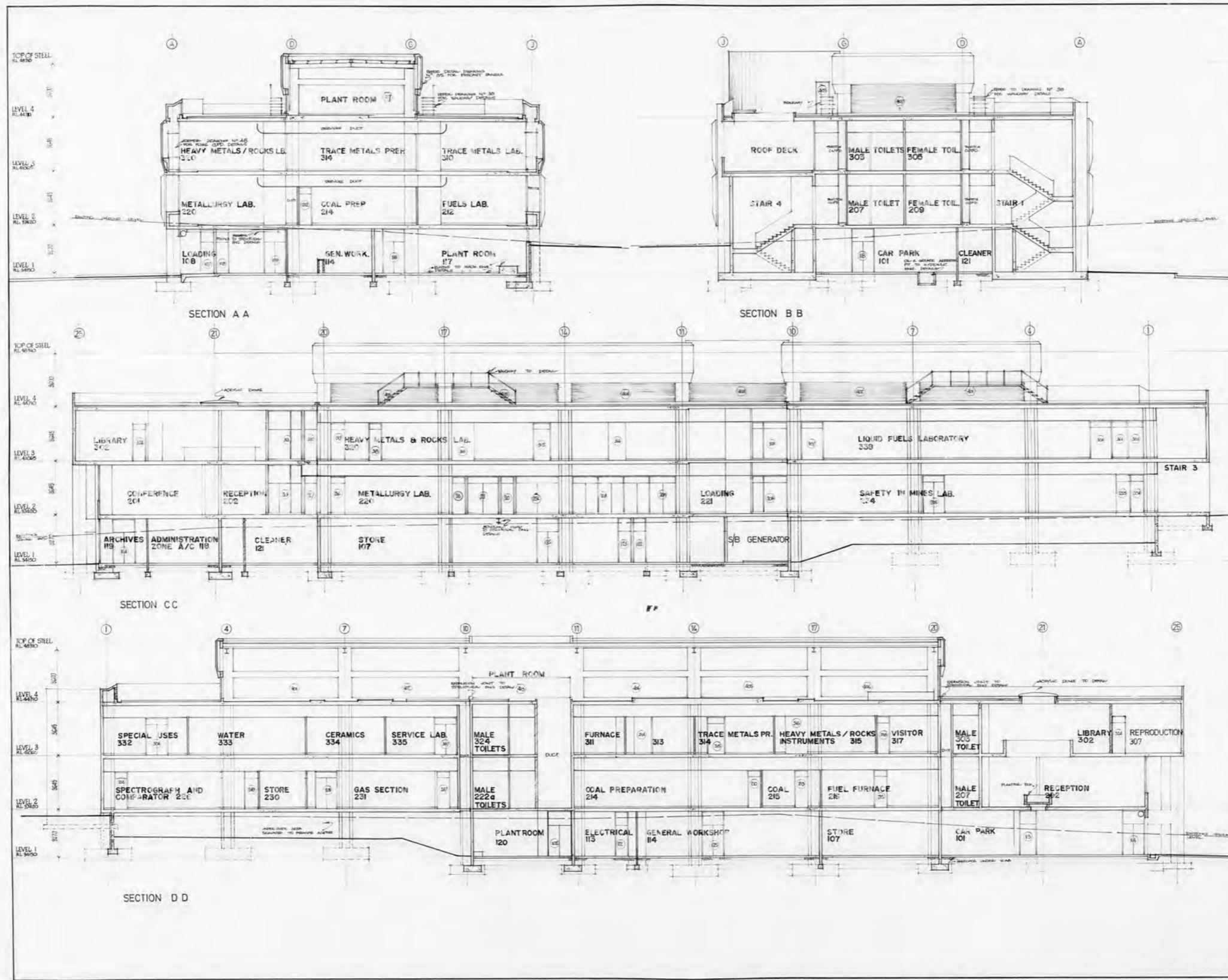
ELEVATIONS

SCALES 1:100

NUMBER IN SET	114	DRAWING NUMBER	18
PLANROOM NUMBER	PB 6/11		

ROLL 519





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CONSULTING ENGINEERS	OFFICE REF.
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CHEMICAL LABORATORY	
DEPARTMENT OF MINES LIDCOMBE	
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SCALES 1:1000	
NUMBER IN SET 114	DRAWING NUMBER 19
PLANROOM NUMBER PB61/12	

ROLL 519



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APPENDIX B

Health NSW Risk Assessment Tool Report

Risk Assessment Tool



Purpose

This risk assessment tool provides guidance to ensure a consistent approach is taken to risk assessment - when analysing *any category of risk*. This risk assessment tool is to be used for all risk assessments **with the exception of** assessing risk associated with work, health and safety hazards. When assessing WHS hazards, the [WHS Risk Assessment Record](#) must be used.

Directions

- All risk assessments should be completed by the designated risk owner
- Use the [NSW Health Risk Matrix](#) to identify the Risk Category and the risk ratings for each risk (inherent, current and/or target).
- Assess the risk with respect to the inherent risk of the event occurring, identifying the likelihood of the event occurring and impact if it did occur
 - If inherent risk rating is within risk appetite: complete risk assessment, document current controls and monitoring process, no further treatment of the risk is required except for continued monitoring
 - If inherent risk rating is outside risk appetite: complete risk assessment and document current controls including relevant performance indicators as KPI's and/or trends.
- Detail new treatments including resource requirements, performance measures, accountabilities, timeframes and monitoring and reporting schedule.

1. Completed by (risk owner)	Workplace location / Clinical Service			Date (DD/MM/YYYY)	Reviewed by and date		
Reuben Anthony, Andrew Brogden & Musa Celik	FASS – Mineral Resources Building (MRB)			15/11/2021	Andrew Brogden, 17/11/2021		
Risk description	2. Risk Category	3. Inherent risk rating	Existing controls	Performance Indicator(s)		Control effectiveness	Current risk rating
				Measure (KPI)	Current Trend		
Deterioration of MRB internal structure and environment due to disintegration of waterproof membrane on building roof. Hazardous atmospheric environment in existence. Presence of hazardous materials observed throughout 90% of building, including airborne particles consisting lead paint, mould (black mould) and asbestos.	Work Health & Safety	D	Access to building currently prohibited with approval from the Facilities Manager and Executive Director required. A mandatory imposed time limit (maximum 10 mins) is only allowed and is non-negoiable. Mandatory requirement for PPE (N95 masks minimum [rebreather preferred], full protective suit, long cuff gloves, enclosed safety goggles & hard hat).	N/A	Occurring & Increasing	Partially effective	E

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Risk Assessment Tool



<p>Collapsed ceilings observed with infrastructure detaching from fixings in ceiling cavity. Potential for equipment to fall from ceilings at anytime.</p> <p>Exposed and frayed electrical wiring leading electrical and fire hazards.</p> <p>Legacy plant equipment with components containing hazardous materials.</p> <p>Evidence of concrete cancer detected in multiple areas throughout the building.</p>							
Inaccessible basement level due to continuous flooding as well as the deterioration of internal environment	Work Health & Safety	D	Entry to basement level is prohibited	N/A	Ongoing	Partially effective	E
Damage to fire detection system due to water ingress, rendering MRB fire detection system ineffective in the event of a fire. Fire control assets cannot be safely serviced and maintained.	Facilities & Assets	D	Access to building currently prohibited with approval from the Facilities Manager required with an imposed time limit for access to the MRB.	N/A	Ongoing	Effective	E
Significant cost for internal repairs and maintenance in order to allow unrestricted and safe access to the building.	Finance	E	Access to the building is currently prohibited however no direct control measure is in place.	N/A	Ongoing	Largely ineffective	E

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Risk Assessment Tool



Treatment Plan					
4. New Treatments	Performance Indicator(s)		Person Responsible	Due Date	Target risk rating
	Measure (KPI)	Range			
<p>Decommissioning of the MRB is strongly recommended as a significant amount of maintenance/construction/repair work is required to make the building safe for access. Significant financial costs would also be required to complete this.</p> <p>It is proposed to cease all unnecessary utility services to the MRB. The MRB perimeter will continue to be monitored via existing CCTV from the Forensic Medicine Coroners Court site. External patrols by onsite security will remain possible.</p> <p>Fire services outside of the building (hydrants and booster) will continue to be maintained as per AS 1851 as there is limited risk to contractors servicing these equipment. Maintenance of the external fire assets will also ensure hydrants are available for Fire & Rescue in the event of a fire emergency.</p>	Monthly servicing	Frequency as per AS 1851 and ORD 70.	Andrew Brogden	December 2021	M

The completed risk assessment must be uploaded onto the [Statewide NSWHP Risk Register \(StaRR\)](#) as a supporting document and if necessary, it can also be printed in hard copy to support the submission of briefing documents for management action.

Once a treatment plan is complete, ensure the residual risk is calculated and the result recorded in the Risk Register.

NB: Residual risk that remains outside risk appetite must be escalated to Executive Management for review.

Residual Risk Rating
E

Entered onto NSWHP Risk Register on Risk ID Sign

Please contact Manager, Audit and Risk @ NSWPATH-InsurableRiskNSWHP@health.nsw.gov.au if assistance is required to complete a risk assessment

I declare that I understand the above conditions of entry and will follow all rules and regulations.

Signed: _____
 Signed: _____
 Signed: _____

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