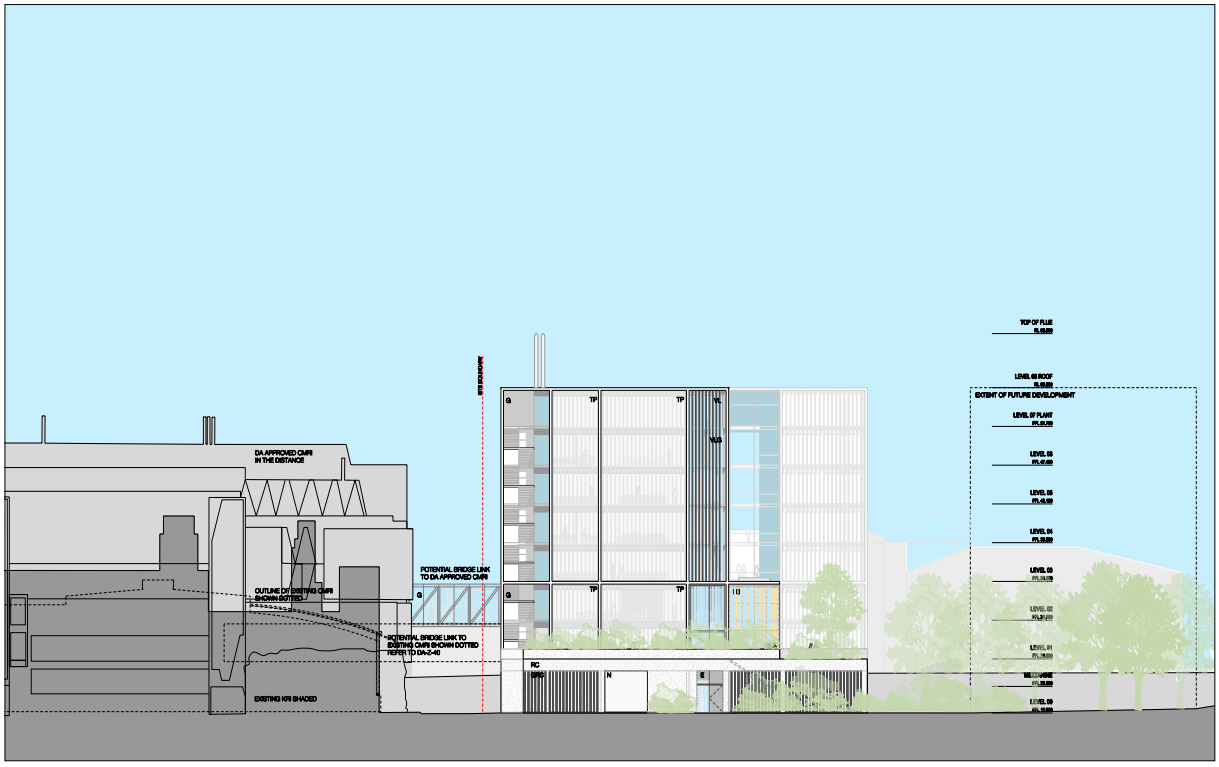

Figure 19 – North western elevation

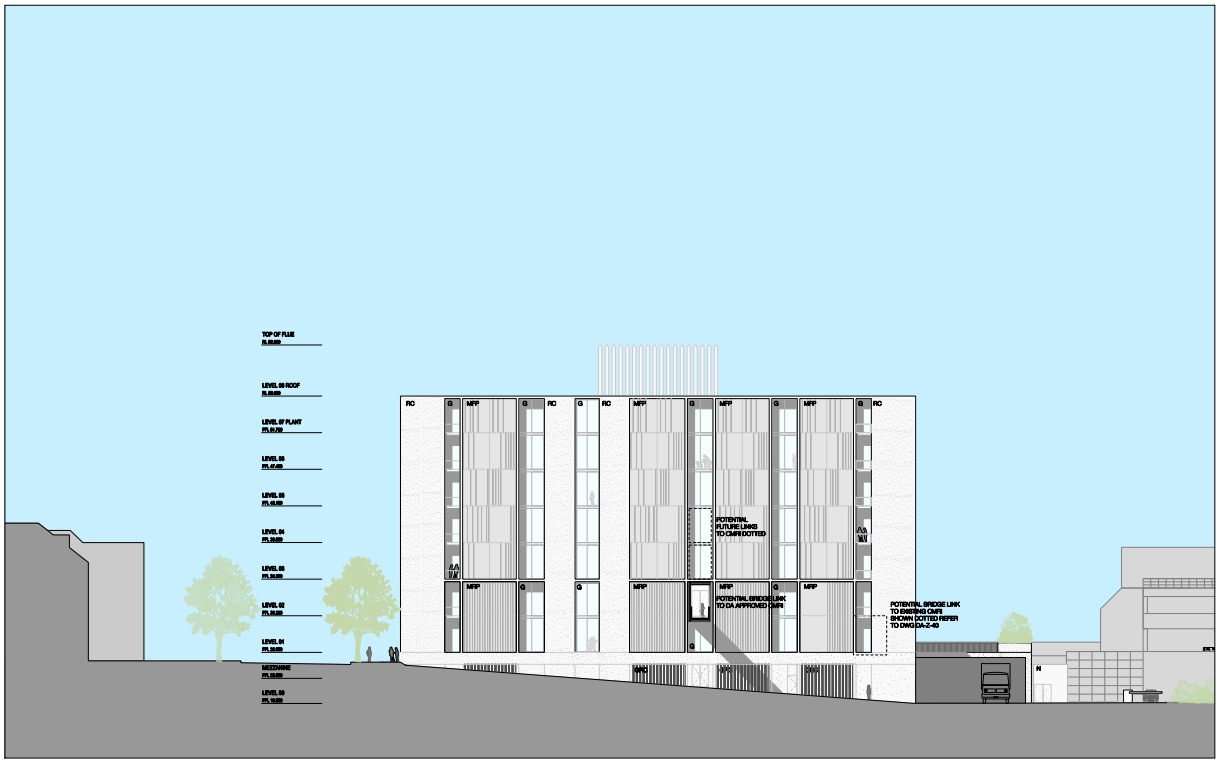

Figure 20 – North eastern elevation

Table 3 outlines the proposed building materials and facade treatment for the development.

Table 3 – Building materials and facade treatment

Component	Detail
Facade treatment	Panelised curtain wall system; vertical louvres; glass reinforced cement; reinforced concrete; translucent facade panel; metal facade panels
Landscaping/vegetation	Concrete, turf, landscaping

3.7 Landscaping

A Tree Report has been prepared by the Ents Tree Consultancy (refer to **Appendix F**), documenting existing trees on the site and commenting on the effects of the proposal. A number of trees across the site will require removal as a result of the proposal (approximately 20), in the main trees located within and adjoining the footprint of the proposed building. Over 30 trees are proposed to be retained.

A plan of the proposed landscaping for the development is included within the Landscape Plans and specifications, prepared by Scape, included within **Appendix E**. The proposed design provides:

- Retention of trees along the site's Hawkesbury Road frontage;
- Provision of a raised courtyard and feature tree at the rear of the proposed building;
- Bicycle parking along the site's Hawkesbury Road frontage;
- Provision of feature street tree at the front of the building along Hawkesbury Road;
- Low level planting along the building's Hawkesbury Road frontage; and
- Provision of planting and landscaping to the rear of the site integrating with the future at grade car parking area;

Landscaping is proposed to be undertaken as relevant to each construction stage.

3.8 Ecological Sustainable Development

As set out in Arup's ESD Report (**Appendix G**) the proposed development will incorporate a number of ESD initiatives into the design and operation of the proposed development. These are discussed in further detail in Section 5.22.

3.9 Access, Loading and Parking

3.9.1 Vehicular Access

Two vehicle access points are proposed as part of the redevelopment of the site, both of which relate to internal Hospital roads/service-ways (private roads) that are accessed from Hawkesbury Road.

Cars will be able to enter the site and the rear car parking area from along the service way to the south. This access point is intended only to operate as an entry point for WMI cars. WMI cars will be able to exit the car parking area to the north, onto Hospital Road.

The existing vehicle access point located centrally along the site's Hawkesbury Road frontage is proposed to be removed.

3.9.2 Pedestrian Access

The main pedestrian entry to the new WMI building will be from Hawkesbury Road.

Due to the topography of the site, the upper ground floor (which is the main pedestrian entry level) is raised above the natural ground level along Hawkesbury Road, resulting in an elevated entrance served by stairs and a ramp. The raised floor levels also respond to floor levels of adjoining buildings (CMRI and KRI), enabling links and connections to be established that are level.

The design and positioning of the stairs and ramp ensures that both 'able' and 'disabled' persons can share the same entrance to the building.

Existing pedestrian pathways along Hawkesbury Road will not be affected by the proposed development, and suitable measures are to be implemented during construction in order to minimise potential impacts.

3.9.3 Delivery and Servicing

Delivery and servicing vehicles are to enter and exit the site from along Hospital Road. The access point serves a covered loading dock and is separated from the WMI car park exit point. A separate ramped open service vehicle bay is also proposed, which will provide access to the outdoor hazardous waste/dangerous goods store.

3.9.4 Car Parking

A total of 50 at-grade car parking spaces will be provided along the site's western boundary dedicated for WMI. This quantum of parking will include the required number of disabled car spaces. Access to the WMI car parking area will be controlled through a security pass and boom gate. Existing at grade parking surrounding the proposed building to the south will be re-configured (the subject of a separate application) and retained for the exclusive use of existing Hospital staff.

3.9.5 Bicycle facilities

The proposed development will have weather-protected, secure parking for a number of bicycles for staff/visitors. Bicycle facilities (including staff change rooms with toilets, shower facilities and lockers) will also be provided.

On street bicycle parking along Hawkesbury Road is also proposed for visitors.

3.10 Water Cycle Management

Arup have prepared a Stormwater Drainage Concept Plan for the proposed development (refer to **Appendix H**). The key parts of the stormwater management system are explained below.

Roof drainage

All roof drainage to be designed to:

- suit 20 year ARI or 1 in 100 year ARI;
- have protection against leaves or debris blockage; and
- connect to the combined rainwater detention storage tanks.

Surface water drainage

Surface water runoff from the ground or near ground level impervious areas is to be collected and conveyed to the proposed underground detention tank located along the western boundary of the site. The detention tank will be connected to the nearby trunk stormwater system within the Hospital grounds where stormwater collected will eventually drain towards Toongabbie Creek to the north.

Rainwater collection

Rainwater capture and re-use is proposed to be incorporated into the design of the development. One option is to incorporate a dual purpose underground detention/rainwater tank. Rainwater collected is able to be used for external landscape watering and within the building as a non-potable water reuse (e.g. toilet flushing). Rainwater reuse will require the use of mechanical pumps, which will be designed as part of the detailed design stage.

3.11 Utilities and Services

Water

The development is to be connected to one of the existing water mains along Hawkesbury Road.

Fire Protection

The fire sprinkler system, fire hydrant and hose reel system, fire detection and alarm system, and sound system and intercom system to be installed and located throughout the building will be designed and constructed in accordance with relevant Australian standards and BCA requirements.

Sewer Drainage

The development is to be connected to one of the existing gravity sewer mains in the vicinity of the site. Design development will dictate whether a small transfer pump station will be required to lift flows to a level where a gravity line can transfer the wastewater.

Electricity

Negotiations with Integral Energy are still ongoing in relation to the final energy supply arrangement for the proposed development. It is proposed that a new private basement chamber substation is located within the building.

A standby diesel generator will be installed to ensure that a reliable alternative electrical supply is available in the event of interruption of the main power supply. The sizing is to be confirmed during the ongoing design development.

Gas

The proposed development will connect to one of the existing gas mains that serve the site from Hawkesbury Road. All gas fitting and natural gas installation will be carried out in accordance with Australian Standards, Gas Supply Authority Recommendations and AGA approvals.

3.12 Construction and Site Management

Construction Management

A detailed Construction Management Plan will be prepared by the appointed contractor prior to commencement of works and will address (amongst other things):

- traffic and pedestrian construction routes;
- storage and handling of construction materials;
- waste handling procedures; and
- proposed hours of construction.

Hoardings, erosion and sediment control measures, site fencing and tree and root protection zones will be installed as part of the construction process to ensure the site remains safe at all times.

Construction of the basement (lower ground floor) will require part of the site to be excavated. This will necessitate the installation of temporary shoring, batters and permanent retaining walls across the site. Excavated materials may be able to be reused on site (subject to confirmation), whilst some material will require disposal at appropriate landfills.

3.13 Operational Details

The proposed development involves the consolidation of existing WMI functions and activities spread across the Westmead Health Campus into one building. There will accordingly be no net change in the number of people currently employed at WMI, with staff essentially being re-located to a new building. At present there are approximately 400 full-time equivalent students and staff employed at WMI.

The new WMI/WRH building is proposed to operate 24 hours a day, 7 days a week. Visitor access will be available via the main reception between 0700 to 1800 hours, Monday to Friday. Afterhours access will be available to authorised staff and their guests only.

Further details in relation to the operation of the proposed development are included within the Operations Policy at **Appendix I**.

Waste Management

Handling and storage of waste during the operation of the WMI/WRH building will be managed internally. Opportunities in the future may become available for the sharing of waste management between CMRI/KRI.

Clinical and medical wastes will be stored in secured areas before being disposed of by specialist contractors and transported for treatment or incineration.

General waste will be stored on the Lower Ground Level. Provision will be made throughout the building for the sorting of waste recyclables, organics, commingles and general waste.

3.14 Developer Contributions

Parramatta City Council's Section 94A Development Contributions Plan (dated 9 April 2008) sets out the contribution rates for development. The Contributions Plan does not specifically identify hospitals or medical uses as development that would attract Section 94 Contributions.

Schedule 2 of the Plan does include an 'other forms of development' category where the proposed WMI/WRH building may fall within. If applicable, the levy that would apply to the proposed development would be 1% of the cost of carrying out the development.

This levy amount is the same as if the proposed development was for 'commercial and retail development'. Clearly, there is a substantial difference between a medical research facility and that of a commercial/retail development.

In the Director General's Environmental Assessment Report for the adjoining Children's Medical Research Institute development proposal (MP No. 08_0159), it was concluded that *"a 1% levy for a medical research use is considered* ***excessive when the proposed use will provide significant benefits to the locality*** *and in many instances, development for hospitals and associated medical facilities do not incur a contribution fee as recommended by Circular D6"* (emphasis added).

The same logic used by the Director General in considering Developer Contributions for the CMRI development is applicable to the proposed development, namely:

- The principles of Circular D6 are relevant to the application.
- Only contributions should be sought for drainage and specific local road upgrades (only where a nexus can be established).
- The function and use of WMI/WRH is directly associated with adjoining Crown activities (i.e. Westmead Health Campus).
- Essential community services are unlikely to require the provision of public services and facilities in the same way as commercial development.
- It is not appropriate for a medical research facility to be levied at the same rate as 'commercial and retail development'.
- Commercial and retail developments have a specific commercial objective and lead to an increase in the need for additional public facilities, whilst medical research facilities provide a beneficial service to the public in terms of health, educational and employment opportunities.
- The project would generate a limited need for additional infrastructure facilities.
- There is no justification or need for the project to provide additional public facilities for the entire Parramatta LGA.

Further, the proposal involves the provision of a new building to house existing students and staff spread across the Westmead Health Campus. Therefore, there is unlikely to be any direct increased demand on local infrastructure and services as a result of the proposed development.

Accordingly, it is requested based on pre-existing precedent and existing policy that the proposal be exempt from s94 contributions.

3.15 Construction Staging

It is proposed to stage the construction process in order to provide flexibility for the proponent and coincide with funding arrangements. To facilitate the staging of the construction process, it is proposed to stage the issuing of construction certificates.

4.0 Director General's Requirements

On 7 May 2010, in accordance with Section 75F of the EP&A Act, the Director-General of the Department of Planning issued the requirements for the preparation of an Environmental Assessment to accompany a Project Application for the project. A copy of the DGRs is included in **Appendix C**.

Table 4 provides a detailed summary of the individual matters listed in the DGRs and identifies where each of these requirements has been addressed in this report and the accompanying technical studies.

Table 4 – Director General's Requirements

Requirement	Location in Environmental Assessment	
General		
Statement of Validity		
Executive Summary	Page ii	
Quantity Surveyor's Certificate	Appendix B	
Site Analysis	Section 2.0	
Description of the Proposed Development	Section 3.0	
Assessment of the Key Issues	Section 5.0	
Draft Statement of Commitments	Section 6.0	
Conclusion and Justification	Section 7.0 and Section 5.26	
Key Issues	Report	Technical Study
Relevant EPI's policies and Guidelines to be Addressed	Section 5.1	-
Built Form and Urban Scale	Section 5.2 Section 5.3	Appendix A
Environmental and Residential Amenity	Section 5.4 Section 5.5 Section 5.12 Section 5.14 Section 5.15 Section 5.16	Appendix A Appendix O Appendix P Appendix Q
Transport and Accessibility Impacts	Section 5.7	Appendix K
Staging	Section 3.15	-
Ecologically Sustainable Development	Section 5.22	Appendix G
Drainage	Section 5.6	Appendix H
Flooding	Section 5.6	Appendix Q
Contamination	Section 5.10	Appendix J
Noise and Vibration	Section 5.16	Appendix Q
Utilities	Section 5.24	Appendix Q
Heritage	Section 5.9	-
Hazards	Section 5.19	Appendix T
Waste	Section 5.20	Appendix T
Aboriginal Heritage	Section 5.9	Appendix M
Flora and Fauna	Section 5.21	-
Contributions	Section 3.14	-
Consultation	Section 5.27	Appendix U

5.0 Environmental Assessment

This section of the report assesses and responds to the environmental impacts of the Project Application proposal. It addresses the matters for consideration set out in the DGRs (see Section 4.0).

The draft Statement of Commitments (refer to Section 6.0) complements the findings of this section.

5.1 Consistency with Relevant Strategic and Statutory Plans and Policies

The DGRs require the following legislation, strategies and planning instruments, which are relevant to the proposed development to be addressed:

- Environmental Planning and Assessment Act 1979;
- State Environmental Planning Policy (Major Development) 2005;
- State Environmental Planning Policy No. 55 – Remediation of Land;
- State Environmental Planning Policy (Infrastructure) 2007;
- NSW State Plan;
- Sydney Metropolitan Strategy 'City of Cities';
- Draft West Central Subregional Strategy;
- Parramatta Local Environmental Plan 2001;
- Draft Parramatta Local Environmental Plan 2010; and
- Parramatta Development Control Plan 2005 and any other relevant DCPs.

The proposed development is consistent with the objects of the EP&A Act, particularly so for the following reasons:

- The development sites the proposed new WMI/WRH in an existing health precinct and provides for the orderly and co-ordinated use of land by replacing dated and underutilised buildings.
- It provides social and economic benefits through the investment by Health Infrastructure in providing consolidated and expanded medical research facilities to serve the local and wider community and through generating substantial and real employment benefits.
- The development is being provided with minimal environmental impact arising from the construction and operation of the development.
- Ecologically sustainable development initiatives are to be incorporated into the design, construction, and operation of the development.

The Project Application's consistency with the relevant strategic and statutory plans and policies is located in **Table 5** below.

Table 5 – Summary of consistency with key strategic and statutory plans and policies

Instrument / Strategy	Comments
State Planning Instruments and Controls	
NSW State Plan	The Part 3A Project Application satisfies key priorities of the State Plan, namely: - *Increase the number of jobs closer to home* – the proposal will generate a number construction jobs. The proposal will also provide an existing workforce with new and improved medical research facilities in a location with good connections to public transport. - *Maintain and invest in infrastructure* – the provision of a new, modern, and consolidated WMI building will assist in equipping NSW with the infrastructure to support growth; - *Improve and maintain access to quality healthcare in the face of increasing demand* – the proposal will provide new and improved medical research facilities, that will further develop NSW's and Australia's medical research capabilities. - *Tackle climate change* – the design of the proposal seeks to reduce reliance on energy consumption for heating/cooling purposes. Investigation into the use of low carbon technology (e.g. cogeneration plant), solar hot water, and PV cells is also proposed. - *Secure sustainable supplies of water and use our water more wisely* – the proposal incorporates the collection of rainwater for use in non-potable applications such as landscape irrigation and for flushing toilets and urinals.
SEPP Major Development	State Environmental Planning Policy (Major Development) 2005 together with EP&A Act provides the planning framework for the assessment of State and Regionally Significant projects. Clause 19 of Schedule 1 of the Major Development SEPP provides for development with a Capital Investment Value (CIV) greater than $15 million or development employing more than 100 people to be considered as a Major Project under Part 3A of the Act. The proposed development has an estimated CIV of $124.2 million and will employ approximately 400 people. All development on the site has been declared a Major Project by the Minister. This EAR has been prepared in response to the Director General's Environmental Assessment Requirements in accordance with Part 3A of the EP&A Act. A copy of the quantity surveyors calculation is provided at Appendix B.
SEPP 55	The Environmental Site Assessment Report prepared for the site (see Appendix J) demonstrates the site is suitable for ongoing commercial development. Refer to Section 5.10 for further assessment of contamination.
SEPP 33	A review of the proposed development against SEPP 33 has been undertaken by Safety Engineering & Technical Services PTY Ltd (refer to Appendix T). The review undertaken demonstrates that SEPP does not apply to the proposed development. Refer to Section 5.20 for further details.
SEPP (Infrastructure)	This SEPP requires developments, which exceed specific development thresholds, to be referred to the Roads and Traffic Authority for consideration prior to determination. The proposal does not qualify as 'Traffic Generating Development' as the site does not have access to classified roads or access to a road that connects to a classified road. Further, the proposal does not involve more than 200 beds or more than 200 vehicles, and accordingly referral of the Project Application to the Roads and Traffic Authority (RTA) is therefore not required under the Infrastructure SEPP. Notwithstanding, we note that the Department of Planning is likely to refer a copy of the application to the RTA during the statutory exhibition period given broader traffic related issues.

Instrument / Strategy	Comments
Strategic Planning Instruments/Plans	
SREP 28	This Project Application is consistent with the planning aims for the Westmead Precinct in that it will: - Support the achievement of a vibrant precinct through the addition of a new, well designed and integrated building; - Establish a new iconic medical building further enhancing the distinct health and teaching identify of the locality; and - Incorporate a range of best practice environmental management measures that will minimise energy and resource use, noise, odour, dust, water, soil, air quality and contamination impacts.
Sydney Metropolitan Strategy	The two most pertinent strategies within the NSW Metropolitan Strategy in relation to the proposed development relate to 'Economy and Employment' and 'Centres and Corridors'. The proposal supports a number of key economic and employment objectives for the region, including: - Supporting innovation, learning, and skills development; - Providing new state of the art medical research facilities that will attract new residents from overseas and other parts of Australia; - Strengthening the role of Westmead as a Specialised Centre (medical industry cluster); - Supporting the concentration of jobs within existing centres; and - Improving Sydney's knowledge infrastructure. The proposal also collectively satisfies the Metropolitan Strategy's vision for Centres as summarised below: - It reinforces Westmead as an attractive place to live, work and invest; - It facilitates the provision and creation of high skilled, high quality jobs, strong education and health facilities, attractive streets, good urban design and high quality public places; - It provides a place and location for economic activity and employment within the Sydney Region; - It optimises the opportunities available to cluster health business and knowledge based activities in strategic centres; and - It concentrates activity near public transport connections.
Draft West Central Subregional Strategy	This Project Application is consistent with the Strategy in that it will: - Strengthen the medical industry cluster forming around the Westmead Hospital and Westmead Children's Hospital; - Support the achievement of employment capacity targets on appropriately zoned land; - Support innovation in greater Sydney, NSW, and Australia; - Support and reinforce the role of the Specialised Centre as the focus of economic development in the sub-region; - Focus employment in one of Sydney's most specialised and highly accessible employment nodes; - Foster and consolidate quality jobs for people living in Western Sydney; and - Support magnet infrastructure.

Instrument / Strategy	Comments	
Local Planning Instruments and Controls		
Parramatta Local Environmental Plan 1996	The site is not included within any heritage listings or conservation areas.	
Parramatta Local Environmental Plan 2001	Clause 16 – Zoning Table	The site is zoned 'Special Uses'. Aside from other uses, hospitals are permissible development with the Special Uses zone. The proposed medical research facility development is considered to be an ancillary function of the main use of the Westmead Health Campus, being for hospitals and is therefore permissible development. This is further supported by one of the three objectives for the Special Uses zone which states that the zone is: *"(b) to allow other ancillary land uses that are incidental to that primary use of land* *within the zone;"* The proposed cafe and meeting/conference rooms are ancillary to the main use of the building as a medical research facility.
	Height of Buildings	No control for Special Uses zone.
	Clause 40 – Floor Space Ratio	No control for Special Uses zone.
Parramatta Development Control Plan 2005	The proposal generally accords with the general principles for development. The site is not located within any Special Precinct Area.	
Draft Parramatta Local Environmental Plan 2010	Land Use Table	The site is zoned SP2 Infrastructure. Development for the purposes of and ancillary to the site's Health Services Facility designation is permissible. The proposed medical research use for the development is considered to be an incidental and ancillary function of the main hospital uses for the Westmead Health Campus, and is therefore permissible development.
	Clause 4.3 Height of buildings	No control for SP2 Infrastructure zone.
	Clause 4.4 Floor space ratio	No control for SP2 Infrastructure zone.
	Clause 6.6 Acid Sulphate Soils	The site is located on land classified as Class 5. Suitable measures are to be adopted as part of construction works and in the design of the building to appropriately manage ASS.

5.2 Built Form

Height, bulk and scale of the proposal

The existing structures on the site comprise an outdated and inefficient cluster of buildings of various ages and styles, and predominately of a single storey nature. Disparate and seemingly unorganised car parking areas for existing buildings and broader hospital uses are provided with multiple entry points.

The Project Application proposes a built form that considers the:

- context of the site;
- opportunities presented through the large site area;
- future redeveloped CMRI building;
- strategic location of the site within the future medical research hub;
- special design requirements of a medical research facility;
- linkages to existing and future medical research facilities;
- co-location benefits with other medical related buildings; and
- close proximity to public transport.

There are no local height or density planning controls that apply to the subject site or proposed development. In this regard, the following key criteria have influenced and dictated the design, height and scale of the development:

- achieving a built form that is proportional to the approved CMRI development, other hospital buildings within the WHC, and other notable high rise development in the areas (e.g. 181 – 183 Hawkesbury Road);
- protecting flight paths to the adjoining helipad (see Section 5.13 for more detail);
- ensuring no adverse overshadowing impacts on surrounding residents (see Section 5.4 for more detail);
- responding to the special medical research requirements of WMI;
- responding to the accommodation needs of existing WMI staff in one consolidated location;
- supporting the achievement of the Medical Research Hub; and
- achieving a streetscape which is readable and not overwhelming.

The achievement of the above criteria is expressed within the architectural plans prepared by BVN Architects, included at **Appendix A**.

The new medical research facility reflects a further modern and contemporary addition to the Westmead Health Campus. The proposed building setbacks, articulated façades, and materials will also deliver a built form that is consistent with existing and future medical research and hospital buildings to the north-east, north-west, and south-west.

The built form of the proposed building is considered acceptable for the following reasons:

- Buildings (existing and future) in the locality are a mixture of medium and high density, for which the proposed development will be comparable.
- The site is located within a medical research hub, within the grounds of the Westmead Health Campus. A built form is proposed that reflects this relationship and connection.

- The proposed building makes efficient use of the land, capitalising on a large and strategic site within the Westmead Heath Campus that is underutilised and removed from nearby residential dwellings.
- The proposed massing and positioning of the building enables helicopter services to continue without adversely affecting operations.
- The proposed building height and density of development is appropriate given the site's accessibility to public transport.
- The building provides modern medical research facilities in one consolidated location, providing accommodation for existing medical research that occurs in a number of locations spread across the Westmead Health Campus.
- The proposal supports the goals and objectives of WMI to be a world leader in medical research.
- The viability of the new medical research facility relies on a critical mass of functions and design requirements, which cannot be accommodated in a smaller building.
- The height of the building is influenced by the demand for increased floor to ceiling heights in order to accommodate the special laboratory equipment and services associated with the operation of a medical research facility.
- The arrangement of mass and height across the site, together with the highly articulated facade, ensure minimal impact on adjacent residential dwellings in terms of views, solar access and overshadowing.
- The resulting built form provides a positive urban design outcome and will further stimulate the quality of medical research facilities in the locality.
- The bulk and scale of the proposed development is comparable to existing and future (planned and approved) buildings within the Westmead Health Campus and supports government and strategic planning objectives.

Overall, the development is of a scale appropriate to its relationship and function as part of a cluster of very important, world class medical research facilities, anchored by the Westmead Hospital and Westmead Children's Hospital.

Building Facade Design and Visual Impact

Appendix A shows preliminary elevations and materials for the development as well as photomontages, one of which is reproduced at **Figure 21** below. These images show how the palette of materials selected creates a distinct and identifiable presence for WMI, while complementing surrounding existing and future medical research and hospital buildings.

The composition of the façade of the building has been developed to respond to the internal arrangements whilst also responding to existing and planned/ approved medical buildings within the Westmead Health Campus. Façade elements such as the proposed external louvres for example share a similar language to the facades of the approved development of CMRI (as illustrated in **Figure 21** below).

The site's location fronting a public road means the prominence of any redevelopment scheme on the site is going to be high. This does not, however, need to form a constraint to redevelopment, as the site's medical research context provides an opportunity for a new, modern and iconic building to be established that further strengthens the community's and the medical worlds appreciation for the important contribution research facilities such as WMI make.

Figure 21 – Photomontage Hawkesbury Road west

The compatibility of a new modern research facility in the locality will also increase as the approved CMRI redevelopment is constructed and other research hub projects come to fruition.

The shift from older to new and improved medical facilities and modern residential buildings has already started in the area and will continue in the future as the market, health service providers, and research institutes capitalise on the area's growing importance as one of the region's key medical, research and knowledge based centres.

The physical separation between the site and adjacent dwellings to the east is significant in reducing the visual impact of the proposed development from these properties. The vegetation planting along Hawkesbury Road also assists with minimising the visual impact of the development, specifically retained planting and replacement planting along the site's street frontage will assist with softening the bulk and scale of the development and ensuring the green streetscape continues along and through the site.

The scale of the proposed building envelope is proportionate to the existing and planned scale and massing of development within the Westmead Health Campus, and is also generally reflective of larger residential buildings in the locality.

The proposed development does not materially affect the views from directly adjoining properties, particularly given their respective medical research/hospital functions. Views along the site boundaries of the site are improved through the activated street fronts and the architectural design.

Existing views experienced from adjacent residential buildings are not considered to be adversely affected by the proposed development, especially when considering the existing outlook from dwellings facing north (across the site) is of parking areas, a multi-storey car park and a helipad. The new building and surrounding works will revitalise this part of the WHC such that it will improve the streetscape appeal of this portion of Hawkesbury Road.

5.3 Streetscape and Landscaping

The proposed development will necessitate the removal of a number of trees from the site. In the main these trees are not significant, as confirmed by the Ents Tree Consultancy within their Tree Report (refer to **Appendix F**). Importantly, the significant row of trees to the south of the proposed WMI building along Hawkesbury Road is to be retained. The retention of these trees will ensure that the 'green' streetscape character featured along Hawkesbury Road is preserved.

Further, the provision of a replacement street tree along the front of the new WMI building together with the incorporation of landscape planting will also assist with carrying through the 'green' streetscape character north along Hawkesbury Road complementing new planting proposed within the redeveloped CMRI. The proposed landscape planting and street tree along Hawkesbury Road will also assist with softening the bulk of the building, provide visual interest at street level and assist with defining the entry to the new WMI building.

The proposed redevelopment will deliver a functional, interactive, and spacious outdoor environment for staff, students and visitors to the new WMI building. The key component is the proposed outdoor courtyard located in the western corner at upper ground level (refer to **Figure 22** below). The courtyard is to be paved and will incorporate a feature tree. This open space area provides both a pleasant outlook for users of the café and staff and students working within the upper levels of WMI, while providing valuable open space for quiet reflection and relaxation. Users of the adjoining CMRI and KRI may also in the future be able to access this courtyard area through the provision of a future bridge over Hospital Road linking the communal/social areas of the buildings and accordingly supporting the collective research hub.

Details of the proposed landscape scheme are outlined within the Landscape plans prepared by Scape, included at **Appendix E**. In relation to trees to be retained, the Tree Report recommends that appropriate protection measures are adopted. The recommendation from the Tree Report has been included in the Statement of Commitments at Section 6.0. On this basis, the proposed landscaping elements are appropriate for the development.

Figure 22 – Indicative view of proposed upper ground courtyard

5.4 Solar Access & Overshadowing

The subject site does not directly adjoin any residential dwellings. The nearest residential dwellings are to the south and east across Hawkesbury Road. The separation distance between the site and adjacent residential dwellings is over 20m.

The shadow diagrams included with the Architectural Plans at **Appendix A** (which also include shadowing caused by the approved CMRI building), illustrate that during the winter solstice (21 June) the proposed development will cast shadows to varying degrees to three residential apartment blocks (31 Helen Street, 195 Hawkesbury Road, and 32 Jessie Street).

The shadow diagrams demonstrate that all habitable levels within the three adjacent apartment blocks will continue to receive a minimum of 3 hours of sunlight throughout the day. This is in accordance with SEPP 65, where a 'rule of thumb' is established for apartments in a development to receive a minimum of three hours of direct sunlight between 9am and 3pm in mid winter. It is noted that two hours of sunlight may also be acceptable in dense urban areas, which could be used to describe the adjacent pocket of 3-4 storey apartment buildings along Hawkesbury Road.

Table 6 below provides a synopsis of the resulting overshadowing impacts.

Table 6 – Summary of additional overshadowing impacts during winter solstice

Apartment Block	Level of overshadowing		
	9:00am	12:00pm	3:00pm
31 Helen Street	No additional overshadowing impacts	Some overshadowing impacts	No additional overshadowing impacts
195 Hawkesbury Road	No additional overshadowing impacts	No additional overshadowing impacts on habitable **floor levels**	Some overshadowing impacts
32 Jessie Street	No additional overshadowing impacts	No additional overshadowing impacts	Some overshadowing impacts

In light of the above, the proposal and its resulting built form is considered to be acceptable and will not cause undue overshadowing or solar access impacts on any nearby sensitive land uses.

5.5 Internal Amenity

The general layout of the development has been configured to accommodate the particular research needs undertaken by WMI.

The upper ground level courtyard and deck area at the side and rear will provide an area that will allow staff, and visitors' opportunities to enjoy the outdoors, particularly during lunch breaks. Future links to adjoining research hub buildings will also provide further opportunities to access outdoor amenity space. Also at upper ground level within the building will be a cafe area and waiting areas.

Amenities are spread throughout the development to adequately serve the needs of staff, students and visitors.

The provision of shower and change room facilities for bicyclists will not only serve to encourage staff and visitors to cycle to the development, but will also serve the needs of those staff wishing to exercise during work hours.

Vertical external screening devices are incorporated on the south-western and south-eastern facades protecting the workspaces from low morning and afternoon sun.

The incorporation of an atrium into the design of the building also allows natural daylight to further penetrate into the work areas of the building, whilst providing greater vertical interaction (both physical and visual) between the different floors of the building.

5.6 Stormwater and Drainage

A Drainage Concept Plan has been prepared by Arup which illustrates the proposed works (**Appendix H**).

The site will be provided with a stormwater drainage connection to existing trunk infrastructure that traverses around the development site and eventually drains to Toongabbie Creek. Stormwater drainage from roof outlets and downpipes is expected to consist of a downpipe and drainage system to convey stormwater which will gravitate to the underground on-site detention tank.

The stormwater drainage system and overland flow systems will be sized accordingly as part of the detailed design phase.

The design will minimise negative impacts on surrounding hospital buildings. The final design of the stormwater infrastructure will be developed and integrated into the ground plane design as part of construction works.

Discussions undertaken between Arup and Council suggest that the 20 year ARI flood event does not extend to the building footprint. Arup indicate that there was no noted inundation or historical data to indicate that a higher level of flood immunity was required.

5.7 Transport and Accessibility

A Transport and Access Report has been prepared by Scape (**Appendix K**) in support of the Project Application. The report describes the current transport context, the future anticipated transport impacts of WMI and measures to reduce the proportion of staff driving to and from work in the future thereby mitigating any negative impact on the local transport situation.

The report, which has been prepared in consultation with Parramatta City Council, differs from a traditional traffic impact assessment. The approach adopted focuses on minimising any future increase in car use resulting from the development, and maximising the accessibility of WMI by all modes and establishing a transport management program which will see a mode shift towards sustainable transport and a reduced level of single occupancy car use by staff.

5.7.1 Transport and Traffic Context

Westmead is relatively well served by public transport with rail, T-way and bus services. The road network tends to be congested, particularly at peak periods during the week. Road access to WHC is via Redbank Road to the north, Darcy Road from the west and Hawkesbury Road from the south. Direct access from the north and east is limited by Cumberland Hospital and Parramatta Park respectively.

Pedestrians

All the streets around Westmead Hospital Campus have footpaths and there are pedestrian crossings at Hawkesbury Road / Darcy Road and Hawkesbury Road / Railway Parade. Generally the street network provides good levels of pedestrian accessibility. Traffic islands along Hawkesbury Road facilitate informal pedestrian crossing. Walking paths through Parramatta Park provide access to Parramatta. Residential areas close to WMI are easy to walk through with adequate footpaths and traffic management measures that limit through traffic.

Cyclists

There are relatively few dedicated cycle route facilities in and around the Westmead Health Campus with existing facilities focused on Parramatta Park.

There is a nearby cycleway through Parramatta Regional Park which runs on-road along the periphery of the park effectively connecting Westmead with Parramatta CBD. This path links to Hawkesbury Road in the vicinity of the proposed WMI site via Caroline Street, although Jessie Street provides an easy and more direct link to the new WMI building.

Four bike lockers are located at Westmead Station.

Car Parking Supply

WHC currently has 9 car parks for Westmead Hospital and 3 car parks for the Children's Hospital. The total amount of car spaces within the Campus is around 5,800. It is noted that a reorganisation of the off-street parking arrangements serving WHC is planned, including the demolition and rebuilding of some car parks.

WMI staff currently have access to 22 off street parking spaces adjacent and nearby to existing facilities. The subject site also provides at grade parking for Hospital staff.

5.7.2 Existing Travel Demand

As the proposal involves the relocation of existing WMI staff and students to one consolidated new location, there is benefit in understanding current travel habits. This has been informed by a staff survey that was undertaken in June 2010, which had over a 50% completion rate by existing staff. A breakdown of staff travel characteristics is provided in details within the Scape Report.

In summary:

- WMI staff have a higher propensity to use public transport, walk and cycle to work that the broader Westmead Health Campus workforce;
- There is considerable opportunity to further reduce car driver mode share;
- Staff tend to work regular hours, Monday to Friday; and
- Most staff work hours that are compatible with typical public transport service provision.

5.7.3 Transport Impact

The basis for considering potential transport impacts is related to the net increase in staff within WHC as a result of the proposed development. The proposed WMI building will provide new and more spacious accommodation for existing staff of around 400. Scape estimate that the vacated WMI premises would provide comfortable and acceptable accommodation for around 200 full time equivalent employees (the basis being that the existing WMI accommodation is overcrowded, cramped and inadequate).

Parking Provision

Scape has calculated the following parking provisions (based on survey and census data):

- WMI staff currently utilise 243 parking spaces in the Westmead area.
- Future hospital staff within the vacated WMI premises will utilise 146 of the 243 parking spaces.
- Of the car parking spaces currently available, 97 parking spaces will remain available to WMI staff within the WHC (243 – 146 = 97).

- WMI staff will once relocated to the new WMI building have a total of 147 parking spaces available, with 50 spaces to be provided and dedicated on site to WMI (97 + 50 = 147).
- There will be a shortfall of 96 car parking spaces for existing WMI staff as a result of the relocation and consolidation of facilities to one building (243 – 147 = 96).

Parking availability for WMI staff in the future therefore has an upper limit of 147 spaces. Staff parking demand will therefore need to be managed so that it does not exceed 147 spaces on any one day.

Modal Targets

The 'driver mode share' has been calculated by Scape for WMI staff (excluding students who will not be provided any parking within WMI controlled parking or on WHC and will be actively discouraged from parking within the local area) at 48%.

In other words, of the available parking spaces (147), only 48% of staff will be able to utilise them. This therefore means that the other 52% of staff ('non car driver mode share') will be required to travel to work by other means. This target mode share is considered feasible by Scape based on an analysis of existing staff travel patterns, home locations and potential for change.

A comparison of the mode share targets for non student WMI staff and those adopted for CMRI are provided within **Table 7** below.

Table 7 – Modal share comparison between WMI and CMRI

Research Facility	Driver mode share	Non car driver mode share
New WMI building	48%	52%
Redeveloped CMRI	42%	58%

Traffic Generation

It is estimated that the WMI development will generate an additional 32 vehicles in peak hour (based on 50 parking spaces and survey data indicating 63.5% of staff arriving during the peak hour).

Traffic Impacts on the Network

No traffic modelling has been undertaken in relation to the proposed development. Scape consider that 32 vehicles spread across an hour will have minimal impact on what is already a congested network.

Parramatta City Council has recently undertaken a significant traffic modelling exercise, the results of which reveal that there will be significant deterioration in network performance in the future.

Scape conclude:

> *'Clearly planned growth for Westmead, supported through the Metropolitan Strategy, with the expected increase in general traffic levels across the wider network will have a far greater impact than that of WMI (32 peak hour trips). It has already been recognised these greater development impacts will need to be addressed. WMI is at the forefront of bringing about a reduced reliance on private vehicles within the Westmead precinct.'*

5.7.4 Transport Demand Management

In order to achieve the mode share targets established for WMI, initiatives and programs will need to be put in place in order to support a reduced use of private car use and promote more sustainable non car travel methods (e.g. public transport, walking and cycling).

A reduced use of private cars for staff travel to and from work is consistent with WMI's desire to reduce its environmental impact through the development of a new purpose built facility. It also recognises the increasingly constrained road and parking capacity within the Westmead precinct and a desire not to contribute unnecessarily to local problems.

A travel demand management strategy has accordingly been prepared by Scape (included within **Appendix K**) setting out the initiatives to be implemented in order to achieve the mode share targets established for WMI. The recommended initiatives include:

- Walking and cycling – providing new dedicated and covered cycle parking spaces, changing rooms, lockers, and showers.
- Public transport – encouraging staff to use public transport through offering one-off free weekly travel tickets, interest free loans for purchasing tickets
- Transport information – improving the dissemination of information about service routes, frequency, direct services etc.
- Ride sharing – encouraging staff to consider ride sharing through provision of a dedicated notice board.
- New Employees – providing new staff with an induction pack which will include travel information, useful staff contacts and a one week free ticket.
- Home/work travel assistance – developing a scheme to assist staff with additional safe travel options, including taxi use, share car availability at the persons own cost.
- Students – developing a specialised travel program that provides students with specific resources and assistance to facilitate travel between their home and Westmead.

5.7.5 Vehicle Access and Parking

Access

The proposed access arrangements have been described in Section 3.9. An assessment of these arrangements for cars and service/delivery vehicles has been undertaken by Arup (refer to **Appendix L**). The assessment, using Autotrack modelling, confirms that vehicle access and egress points proposed are generally appropriate.

Minor adjustments have been made to the plans (garden bed reduced and loading bay setback) as a result of the modelling undertaken by Arup in relation to the outdoor service bay, ensuring that there is sufficient room to enable service vehicles to enter/exit.

Service/delivery vehicles will require the full width of Hospital Road in order to manoeuvre. This scenario is considered acceptable, with Hospital Road being a private road that serves low traffic flows. Further refinements of manoeuvring arrangements to address any safety and congestion issues can be undertaken as part of the detailed design process.

Parking

In terms of the car park, Arup have confirmed that the layout conforms to AS2890.1:2004 for a user class '3' (short term city and town centre parking, parking stations, hospital and medical centres).

5.7.6 Traffic and Transport Conclusions

Overall it is concluded that:

- The proposed development supports the achievement of reducing reliance on private vehicle use.
- The proposed development is forecast not to have any adverse effect on the operation of the local road network (in particular to the Hawkesbury Road / Darcy Road intersection.
- Staff and students of WMI have several modes of transport available for accessing the site. Each mode provides access to a wider area given the extent of modes of public transport offered, such as rail and bus.
- The proposed development in no way hinders the existing use of public transport and may increase demand for public transport in the area in future years.
- The WMI mode share target (48% drive and 52% non-driver) is comparable to the target adopted for the redeveloped CMRI.
- Implementation of a travel demand management plan will ensure that the mode share target established for WMI is achieved, which will minimise reliance on private vehicle use and therefore assist in improving overall network efficiency in the future.
- A vehicle crossover on Hawkesbury Road will be removed, improving local pedestrian amenity.
- Vehicle access arrangements and parking have been designed to ensure general compliance with relevant standards.

5.8 Heritage

European Heritage

The nearest heritage items relate to the Cumberland Hospital to the north-east (over 400m away) and University of Western Sydney to the south-west (over 500m away), both of which are listed as State heritage items.

Given the large separation distance between the site and these State heritage items, it is not expected that the proposed development would adversely affect its State heritage significance or setting. There are no local heritage items in the vicinity of the site, nor is the site located within or adjoins a conservation area.

Aboriginal Heritage

The S149 certificate obtained from Council reveals that the site and broader Westmead Health Campus (i.e. Lot 100 DP 1119583) has the potential to contain items of Aboriginal heritage and is located within proximity of a recorded site.

The potential presence of aboriginal items is considered to be linked to the fact that the boundaries of the lot in which the site and broader WHC are located extend up towards the banks of Toongabbie Creek. Generally landscapes such as creeks, estuarine foreshore areas and ridgetops have a higher propensity for aboriginal items to be found.

Historical searches of the site undertaken by Aecom as part of their Environmental Site Assessment (**Appendix J**) reveal that the site was cleared as early as the 1930s, with buildings being present since at least the 1970s. Given the site is highly disturbed and does not generally match the description of landscape where aboriginal sites would typically occur (e.g. the subject site is located over 400m from Toongabbie Creek) the potential for the subject site to actually contain aboriginal archaeology is limited.

A search of the DECCW Aboriginal Heritage Information System (AHIMS) confirms that there are two Aboriginal objects and Aboriginal places recorded in or near Lot 100 DP 1119583 (Site ID 45-5-1109 and 45-5-1110). A copy of the AHIMS search is included within **Appendix M**. These sites are situated, as presumed above, within or near Toongabbie Creek. The nearest of the two sites is located some 400m to the north, under the Redbank Road bridge. The other site is located over 7km to the north, near Delaney Drive in Baulkham Hills. Accordingly, the proposed development will not adversely affect any known Aboriginal objects or Aboriginal Places.

Nonetheless, should as part of the proposed works disturbance occur to an aboriginal heritage item, works will stop immediately and contact made the Department of Environment, Climate change, and Water in accordance with the *National Parks and Wildlife Act 1974*. This has been reflected in the draft Statement of commitments at Section 6.0.

5.9 Geotechnical

The proposed development involves a building of considerable size, which includes basement levels. A Geotechnical Interpretive Report has accordingly been prepared by AECOM Australia Pty Ltd (**Appendix N**), which presents the results of a geotechnical investigation into the subsurface conditions at 5 nominated locations across the site.

The results reveal the following subsurface conditions:

- The site is underlain with Bringelly Shale of the Wianamatta Group.
- The borehole information shows a thin layer of fill generally consisting of sandy silt and gravels overlying shale that generally increased in strength with depth from high.
- There were several zones of core loss evident in the cored bores.
- Groundwater was generally not encountered in the augered sections of the boreholes.
- Results of point load tests correspond to very low strength to high strength rock.

AECOM suggest that suitable foundation systems may include pad on ground and bored pile foundations and excavation retention systems. A number of recommendations are outlined within the Report on aspects of the design and construction activities. AECOM expect that this information will assist as part of the detailed design stage.

The relevant recommendations are included as commitments within the draft Statement of Commitments at Section 6.0.

5.10 Contamination

AECOM Australia Pty Ltd have undertaken an Environmental Site Assessment of the subject site, included within **Appendix J**. The Assessment confirms:

- The site was undeveloped up until at least 1951, with previous uses including sports grounds and earliest known records revealing the site was possibly used for grazing/fruit growing.
- Development on the site occurred after 1951, with buildings present on the 1970 aerial photograph.
- The site has been utilised as Westmead hospital since 1978.
- The site is not listed on the NSW WorkCover dangerous goods database.
- Previous activities may have occurred on the site which included raising ground levels and stabilising land with asbestos material filling.

- The soil profile at the site included a layer of fill material comprising sand / sandy clay and was encountered to a maximum depth of 0.9m bgs, underlain by natural clay, soil and shale bedrock encountered to a maximum depth of 12.0m bgs.
- A fragment of fibro cement containing chrysotile asbestos was found in one of the bore holes on the site. Asbestos fibres were not detected in the soil samples.
- Concentrations of metals, BTEX, TPH, OCP, OPP and PCBs were either below laboratory Limit of Recording or below the Soil Assessment Criteria.
- Groundwater was encountered within the shale bedrock, and Standing Water Levels of grownd water ranged from 1.155m AHD to 1.435 AHD.
- Concentrations of metals, BTEX, TPH, PAH, OCP, OPP and PCBs were either below laboratory Limit of Recording or below the Groundwater Assessment Criteria.

The assessment recommends the following actions be undertaken during development:

- All fill and soil excavated during the development should be assessed and classified in accordance with the NSW DECC3 Waste Classification Guideline (DECC, 2008) prior to/for off-site disposal purposes at an appropriately licensed landfill; and
- Implementation of an Unexpected Finds protocol provide protocols and appropriate mechanisms for the identification and management of asbestos containing materials should they be encountered during the during excavation works for the development.

The assessment concludes that the subject site is suitable for the proposed ongoing commercial land use. Compliance with the recommendations of the Environmental Site Assessment Report has been included in the Statement of Commitments at Section 6.0.

5.11 Acid Sulphate Soils

The subject site is located in an area where there is the potential for Acid Sulphate Soils to be present. The S149 Certificate issued by Council for the site together with the draft Parramatta Local Environmental Plan identifies the site as being covered by 'Class 5' Acid Sulphate Soils.

The probability of Acid Sulphate Soils being present is therefore the least likely (with Class 1 having the highest risk for Acid Sulphate Soils).

Nonetheless, as the proposal involves the excavation of material in order to construct basement levels of the research facility, and given groundwater is present at levels where excavation works are likely to take place, suitable measures are required to be implemented in order to appropriately minimise potential environmental damage caused by the disturbance to any Acid Sulphate Soils found.

Accordingly, an Acid Sulphate Soils Management Plan will be prepared prior to works commencing and implemented throughout the construction period. This requirement has been reflected in the Statement of Commitments at Section 6.0. Subject to the appropriate identification and management of Acid Sulphate Soils in accordance with this Management Plan, it is considered that risks to the environment will be minimised to acceptable levels.

5.12 Wind Impact

An assessment of the proposed development against existing wind conditions has been undertaken by Windtech, included at **Appendix O**. The relevant winds affecting the site are typical in the Sydney "regional context". These winds prevail from the north-east, south and west.

The critical outdoor areas associated with the development are:

- The pedestrian footpath from the car park on the north-western frontage of the site.
- The pedestrian footpath along Hawkesbury Road, on the southern frontage of the site.
- The Level 1 courtyard and garden at the western corner of the development, including the café seating area.
- Helipad located on the multi-storey car park north-western of the site.

North-easterly winds

Results of Windtech's analysis reveal the following:

- Wind conditions for the pedestrian accessible areas within and around the ground level areas of the site are expected to be similar to the existing wind conditions, and it is expected that they will be generally suitable for their intended uses as pedestrian thoroughfares.
- Retaining trees or shrubs along Hawkesbury Road will further enhance wind conditions in these areas.
- The courtyard, garden and café seating area on Level 1 are well-shielded from the north-easterly winds by the proposed development itself. Hence wind conditions at these areas are expected to be suitable for their intended uses.
- Flue exhausts at roof level may result in wind being entrapped between hospital buildings or re-entered through the air in-takes. A wind tunnel study is recommended to be conducted during detailed design to determine the dispersion characteristics of the exhaust.

Southerly winds

Results of Windtech's analysis reveal the following:

- The entry to the proposed development along Hawkesbury Road is potentially exposed to adverse winds from the south. It is recommended that an impermeable screen or signage of the same height as the door be used to prevent direct southerly winds from funneling through the entrance.
- The courtyard, garden and café seating area on Level 1 is potentially exposed to adverse winds from the south. This is caused by the lack of shielding from the neighbouring buildings to the south and side streaming of the south-westerly winds by the subject building. The proposed large tree in this area is expected to provide some protection from this wind effect. In addition, it is recommended that either 2m high impermeable screen or blade wall and/or densely foliating evergreen trees be provided along the northern edge of this area.
- The proposed development could potentially generate turbulence on the helipad in the event of a south-easterly or south-westerly wind. Wind tunnel testing will identify specific areas of the building which cause turbulence that may impact on the helipad operations. Engineering solutions can be developed to resolves these issues and wind tunnel testing allows these ameliorative measures to be tested and positively influence these conditions if required. Wind tunnel testing can be undertaken in the detailed design development stage of the project.

Westerly winds

Results of Windtech's analysis reveal the following:

- Wind conditions for the ground level pedestrian access areas within and around the site are expected to be similar to the existing wind conditions, and it is expected that they will be generally suitable for their intended uses as pedestrian thoroughfares.
- Retaining these shrubs or trees in the final landscaping plan will further enhance wind conditions in these areas.
- The courtyard, garden and café seating area on Level 1 are exposed to adverse winds from the west. This is caused by the lack of shielding from the neighbouring buildings to the west. It is recommended that either 2m high impermeable blade walls and/or densely foliating evergreen trees to be included in the final design to prevent direct exposure to the westerly winds.
- Retaining these trees in the final landscaping plan will further enhance wind conditions in these areas.

Summary

Windtech recommend that the following treatments and further studies are incorporated into the design and to mitigate adverse wind effects:

- Impermeable screens or signage of the same height as the door for the entrance along Hawkesbury Road at Level 1.
- A strategic layout of 2m high impermeable screens or blade walls and/or densely foliating trees or shrubs for the Level 1 courtyard, garden and café seating area.
- It is recommended that a wind tunnel study be conducted to evaluate the impact of the proposed development on the helipad. Ameliorative measures can be tested in the wind tunnel to positively influence conditions on the helipad if required.
- It is also recommended that a wind tunnel study be conducted to determine the dispersion characteristics of the exhausts from the proposed stack.

The above recommendations, which will be further refined as part of the detailed design process and wind tunnel testing, have been included within the Draft Statement of Commitments at Section 6.0.

5.13 Air Transport Services

NETS

The subject site adjoins the base of the Newborn & paediatric Emergency Transport Service (NETS). NETS is the state-wide service for neonatal and paediatric retrieval. It is responsible for inter-hospital critical care networking and patient transport. Road and helicopter transport is used to take teams from the NETS base at Westmead to hospitals across the State. The two main destination hospitals for patients moved by NETS are the Children's Hospital Westmead and Westmead Hospital. The heliport is also used for the arrival of children being transport from the scene of an accident by an ambulance rescue helicopter to CHW.

Given the proximity of the subject site to the NETS base, due consideration is required to ensure future development does not adversely affect the helicopter transport services provided by NETS.

Figure 23 below provides a birds-eye view of the NETS base, with the subject site located to the rear.

Figure 23 – NETS base Westmead
Source: NETS Website

Consultation

Extensive investigations and consultation has been undertaken during the design of the proposed development with respect to the adjoining NETS helipad. The location of the helipad, together with its associated flights paths has been a critical and determining factor that has influenced and shaped the proposed development.

Numerous discussions and meetings have occurred with representativeness of NETS as part of design development. Heli-consultants Pty Ltd have also been engaged by Health Infrastructure to provide key input into the design of the proposed development to ensure the design of the proposed development responds to the operational requirements of NETS and is generally compliant with the NSW Health Policy Directive Guidelines for Medical Helipads. Relevant consultation documentation is included at **Appendix U**.

Considerations

The outcomes from consultation with NETS and the expert input from Heli-consultants Pty Ltd have enabled parameters to be defined in which a building is able to be designed around on the subject site which aims to ensure air transport services provided by NETS are not adversely affected.

As evident within the Site Analysis Plan included at **Appendix A**, reproduced within **Figure 24** below, the nominal flight paths of the NETS helicopter has been a determining factor in the proposed design of the WMI building, with the main tower of the proposed building being positioned outside of the critical flight path 'pinch points'.

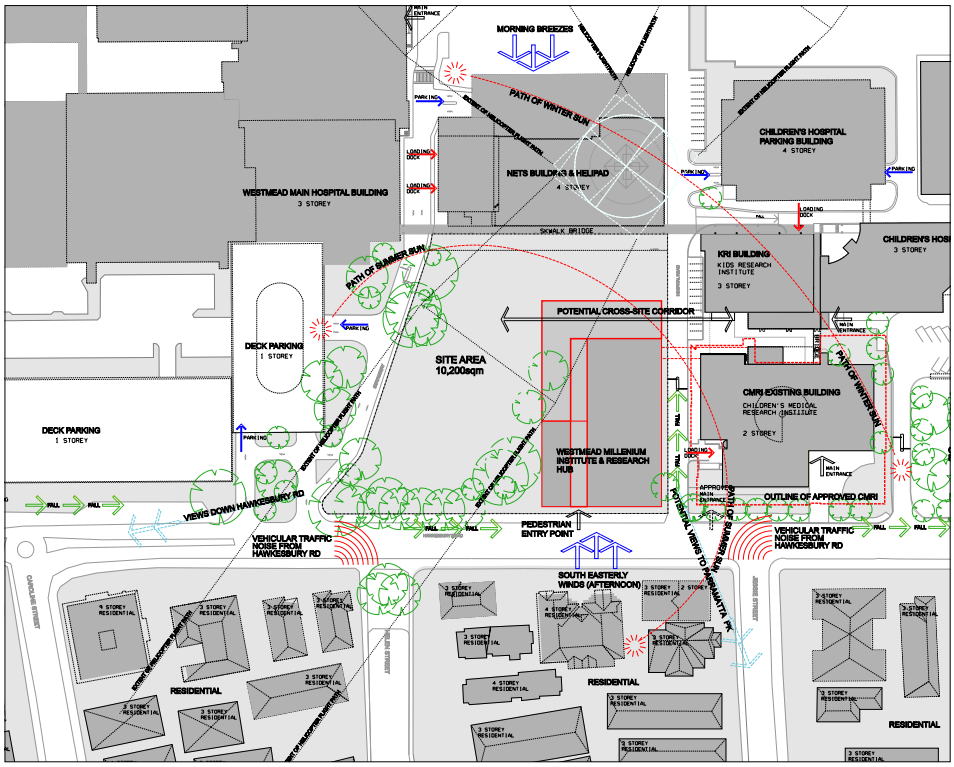

Figure 24 – Site analysis plan

Further consideration and testing of potential impacts from the proposed development will continue as part of the detailed design process in consultation with NETS, including in relation to:

- turbulence introduced by the new building and impacts on the safety of operations;
- radio waves generated by medical machines and impacts on helicopter navigation equipment; and
- construction related impacts (e.g. crane operations and dust).

Conclusion

The NETS base and associated transport services provide a vital medical service for NSW. It is therefore imperative that future development does not adversely impact upon the NETS functions and operations.

The proposed development aims to provide a building which responds to the operational and safety requirements of NETS air transport services.

Further studies and investigations are required to be undertaken as part of the detailed design process in order to fully understand potential impacts on the operations and safety of helicopter flights. Mitigation measures stemming from these studies and investigations will be incorporated into the construction and design process. Health Infrastructure has also engaged a specialist aerospace risk management consultant to undertake a risk assessment of the proposed development in light of its relationship and potential impacts on the adjoining NETS helipad. These above actions have been included within the Draft Statement of Commitments at Section 6.0.

The current location of the NETS base does constrain development opportunities within the immediate grounds of the Westmead Health Campus, and accordingly undermines government objectivities to further develop the Westmead Health Campus. The longer term viability of the NETS base will most likely therefore require it to be located elsewhere within the Westmead Health Campus.

5.14 Reflectivity

A Solar Light Reflectivity Analysis has been prepared by Windtech to investigate the potential for traffic disability glare and pedestrian discomfort from the building glazing elements (refer **Appendix P**).

The analysis recommends that all areas of the facade of the proposed development should have a maximum reflectivity of 20%. The analysis concludes that provided this recommendation is followed, the proposed development will not cause adverse solar glare to drivers or pedestrians in any of the surrounding streets and other outdoor areas. Furthermore, there will be no adverse glare impacts on the occupants of neighbouring buildings. The recommendation made by Windtech has been reflected in the Statement of Commitments at Section 6.0.

5.15 Privacy

Visibility into the proposed building is a key feature of the design. This obviously means that views from the building to surrounding development will also be available. The proposal, through appropriate building separation with adjoining development, attains appropriate levels of aural and visual privacy. Properties directly adjoining the site are medical related, and as such do not have the same requirements as more sensitive land uses (e.g. residential dwellings).

The nearest residential dwellings are located over 20m to the south and east across Hawkesbury Road. This large separation distance, together with vegetation screening provided along Hawkesbury Road ensures appropriate privacy is afforded to existing nearby residents.

5.16 Noise & Vibration

An Acoustic Assessment has been prepared for the proposed development by Arup (included within **Appendix Q**). The assessment has been commissioned to address the potential impact of operational, plant, traffic noise, and construction noise on surrounding sensitive noise receivers as well as reverse amenity impacts from noise generated offsite.

Representative Ambient Noise and Background Noise

An unattended noise survey was carried out as part of the acoustic assessment for the redevelopment of the adjoining CMRI building. Two noise loggers were placed at two (2) locations, one in front of the CMRI building along Hawkesbury Road, the other within the Hospital grounds. **Figure 25** below identifies the locations of where the two loggers were placed, together with identifying nearby noise sensitive receivers.

To supplement and verify the data collected as part of the CMRI acoustic assessment, Arup also undertook attended noise measurements in the vicinity of the subject site.

The area surrounding the proposed WMI site is characterised by a mixture of traffic noise from Hawkesbury Road, mechanical plant noise from Westmead Hospital buildings and natural sounds. The helipad adjoining the subject site is a further noise source which has the greatest potential to impact on the WMI building. Noise levels generally decrease in the evening, with near-constant industrial noise levels from surrounding buildings at Westmead Hospital forming the background noise level during the night time period. These characteristics are consistent with an 'Urban' area as defined in the NSW Industrial Noise Policy (INP).

The most-sensitive noise-sensitive receivers are anticipated to be the receivers on Hawkesbury Road (represented by 195 Hawkesbury Road, which is a multi-level residential block and is the closest residential property to the WMI site), and noise-sensitive areas within the Westmead Hospital precinct, such as the Kids Research Institute, located to the north-east of the WMI site.

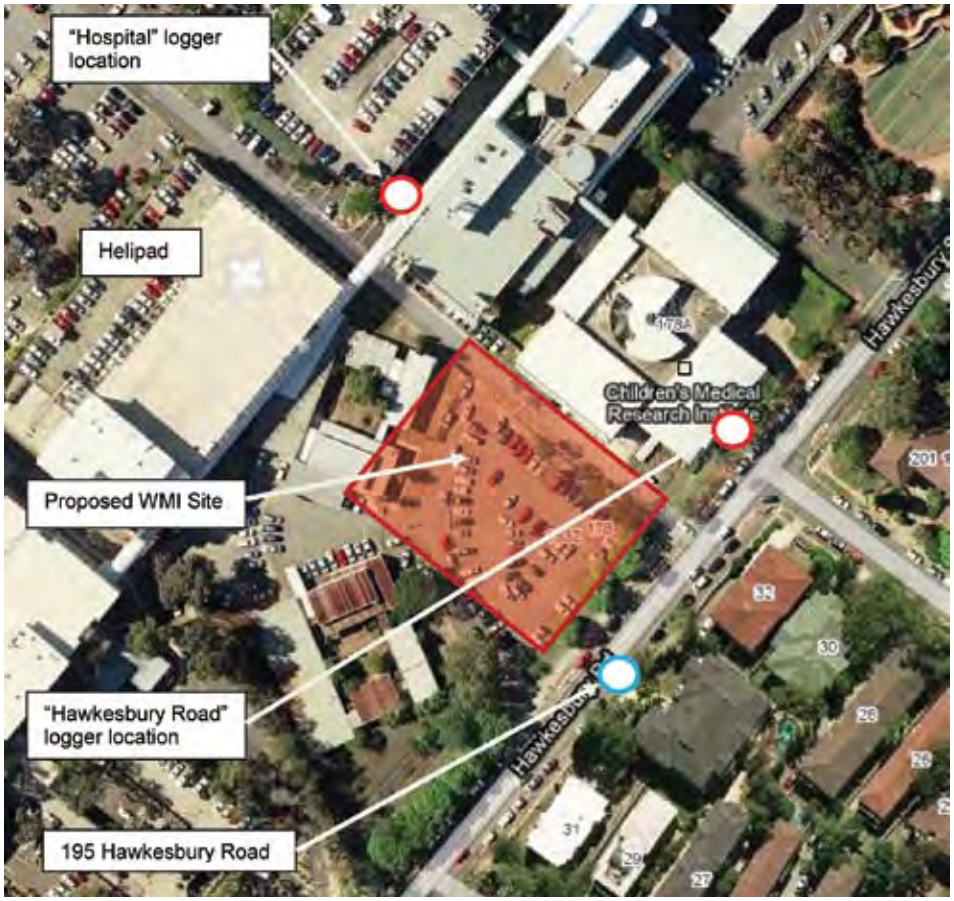

Figure 25 – Noise logger locations and location of most sensitive receivers

Operational Noise

The project specific noise criteria identified by Arup, which is based on the more stringent of the intrusiveness or amenity criteria, is outlined within **Table 8** below.

Table 8 – Project specific environmental noise criteria

Receiver	Time Period	Project Specific Noise Criteria
Internal Hospital Receivers	Day	57 dB(A)
	Evening	42 dB(A)
	Night	40 dB(A)
Hawkesbury Road Receivers	Day	54 dB(A)
	Evening	48 dB(A)
	Night	37 dB(A)

Whilst criteria are able to be set, details of the mechanical plant and equipment to be installed at WMI are not available. Given the proximity of residential receivers, Arup indicate that noise control measures are highly likely to be required for the majority of items of plant. Expected noise control requirements are provided within **Table 9** below (source: Arup).

A statement of commitment has been included within Section 6.0 requiring compliance with the project noise criteria.

Table 9 – Expected noise control requirements for plant

Plant/Equipment	Expected Noise Control Requirements
Air-handling units/large fans	Medium/High-Performance Attenuators
Small fans	None/Low-Performance Attenuators
Cooling towers	Intake: Low-Medium Performance Attenuators Exhaust: Low-Medium Performance Attenuators
Boilers	None (if enclosed in plantroom)
Emergency generators	Intake: Medium-High Performance Attenuators Exhaust Flue: Residential-grade silencers Radiator Fan Exhaust: Low-Medium Performance Attenuators
Air-cooled chillers	Not recommended for use
Water-cooled chillers	None (if enclosed in plantroom)
Pumps	None (if enclosed in plantroom)

Construction Noise

Project specific construction noise targets and limits for hospital buildings and residential receivers are outlined within the Acoustic assessment. Details of the construction methodology are not however known at this stage, and as such a quantitative assessment is not able to be undertaken to assess potential construction noise against the project criteria.

Arup consider that noise levels from construction are considered likely to exceed the 'noise affected' levels from the Interim Construction Noise Guideline, since the nearest residential noise-sensitive receivers are only 30m from the site. Arup accordingly recommend that noise control considerations should be included as part of planning the construction process and in selecting construction equipment and methods to be used on site. A Construction Noise and Vibration Management Plan is also recommended to be prepared for the construction of WMI. This requirement has been reflected within the draft statement of Commitments at Section 6.0.

Traffic Noise

Arup conclude that additional traffic noise impacts on Hawkesbury road resulting from the construction of WMI are expected to be negligible.

Internal Noise

Arup have established recommended internal noise levels for laboratories, meeting/seminar rooms, and office areas. The facade of the proposed building will act as the key measure to ensure that these internal noise levels are achieved. Arup have indicated that a high-performance commercial glazing system or a bespoke facade glazing system will be required. The facade treatment and glazing system will also minimise impacts associated with helicopter noise.

5.17 BCA and Fire Safety

BCA

Blackett Maguire + Goldsmith has undertaken a review of the proposal for compliance with the Building Code of Australia (BCA) and prepared a Preliminary Report (**Appendix R**).

The building classification is Class 6 (retail/cafe), Class 8 (labs and associated areas), Class 9b (conference rooms), and Class 5 (administration).

The report finds that the proposed development is capable of complying with the requirements of the BCA, particularly in relation to the proposal's Structure, Fire Resistance and Compartmentation, Access and Egress, Fire Safety, Health and Amenity, and Energy Efficiency. Detailed achievement of compliance, including preparation of any required fire engineered alternative solutions, is to be addressed and demonstrated at CC stage.

Compliance with the recommendations of the BCA Report has been included in the draft Statement of Commitments at Section 6.0.

Fire Safety

A fire engineering review of the proposed development has been undertaken by Arup (refer to **Appendix Q**). The review confirms that the fire safety design of the building will generally satisfy the performance requirements of the BCA 2010 by complying with the deemed to satisfy provisions. Arup have identified that some aspects of the design will need to be developed using performance based alternative solutions to achieve compliance with the performance requirements.

Key performance based strategies are likely to include:

- Wet labs, including PC2 Physical Containment labs and flexible use areas separated from the atrium with full height fire and smoke rated construction.
- Smoke containment barriers and smoke exhaust from the atrium to dilute smoke and limit smoke spread.
- Fire rated connection of the new building with the existing Children's Medical Research building at lower ground.
- Maintaining integrity of exhaust risers from Labs.

5.18 Access

An Access Review of the proposal has been prepared by Access Australia (**Appendix S**). This review assesses the proposal against the requirements of the Commonwealth Disability Discrimination Act (DDA), Building Code of Australia (BCA) and relevant Australian Standards.

The recommendations within the report pertain to detail associated with the building's detailed design and would be carried out during the detailed design/ construction certificate documentation stage. The recommendations, outlined below, will ensure overall compliance with the standards cited above.

Recommendations

- A minimum of 1 accessible car space to be provided adjacent the building entry.
- Accessible car bays to comply with AS2890.6 (2.4m wide accessible car bay with a 2.4m wide shared zone).
- Ground and vertical ISA signage to each parking space to be installed.
- Accessible entries to be provided complying with AS1428.1-2009
- Doors to entries, laboratories, offices and related public / staff areas to provide a minimum 580 clear opening with AS1428.1 – 2009.
- Passenger lifts to comply with APS and AS1735.12, including minimum 1400 x1600 car size, Braille and tactile signage and audio announcements.
- Unisex accessible toilet and shower with accessible path of travel, FF&E and circulation space to comply with AS1428.1-2009.
- Male and female toilets to provide one cubicle to assist persons with an ambulant disability, complying with AS1428.1 – 2009.

- Ramps to comply with AS1428.1 – 2009 including minimum 1m clear width, handrails both sides and tactile indicators.
- Alternative stair access from street level to Upper Ground level to be provided complying with AS1428.1 – 2009.
- Provide minimum 1m wide 850 ± 20 section of reception, with hearing augmentation, and café counter with wheelchair circulation space under and adjacent, complying with AS1428.2 – 1992.
- Hearing augmentation complying with AS1428.1 – 2009 to be provided to conference rooms.
- An equitable range of seats and tables with backs and arm rests are to be provided to the waiting area and courtyard.
- Stairs between floors to comply with AS1428.1 – 2009 including closed risers, nosings, handrails both sides and tactile indicators.

Commitment to ensure Access Australia's recommendations are included in the ongoing refinement of the development is included within the draft Statement of Commitments included at Section 6.0.

5.19 Hazards and Dangerous Goods

Safety Engineering & Technical Services Pty Ltd has undertaken a review of the Dangerous Goods and Hazardous Substances to be stored and handled on site (refer to **Appendix T**).

Dangerous Goods

The review finds that the following Dangerous Goods (as defined under the provisions of the Australian Dangerous Goods Code) are to be handled and stored on site include:

- Class 2 Division 2.2 & 2.2/5.1 compressed non-flammable and oxidizing gases in cylinders
- Class 2, Division 2.2 cryogenic liquefied nitrogen
- C1 combustible liquid (diesel for the emergency generator set)
- Class 3 flammable liquids (in very small quantities only)
- Class 5.1 (oxidizing substances) and Class 5.2 (organic peroxides) – both in small quantities only
- Class 6.1 toxic substances including cytotoxic drugs (with small quantities of active ingredients) and cytotoxic contaminated waste, and
- Class 6.2 infectious substances
- Class 8 corrosive substances
- Class 9 miscellaneous dangerous goods

The review notes that Class 7 (radioactive substances) will also be present in the building for diagnostic imaging (x-ray) and for irradiating specimens for research specimens. The Project Application commits to engaging a specialist radiation consultant to provide advice on the nature of any radiation hazard and the control measures to be employed (including the storage and disposal of any nuclear wastes).

Safety Engineering & Technical Services Pty Ltd conclude that the provisions of SEPP 33 do not apply to the proposed development, with the Dangerous Goods to be stored and handled on site either not being captured by SEPP 33 or the quantities being below the threshold limit.

Hazardous Materials

In terms of the proposed storage, use and management of hazardous materials within the new WMI building, the Project Application commits to complying with:

- The Building Code of Australia.
- The NSW Occupational Health and Safety Act 2000 and the Occupational Health and Safety Regulation 2001 (particularly Part 6 – Hazardous substances and Part 6A Dangerous goods).
- The various standards relating to the storage and handling of specific classes of dangerous goods, including:
  - AS 1894-1997 The storage and handling of non-flammable cryogenic and refrigerated liquids;
  - AS/NZS 4332-2004 The storage and handling of gases in cylinders;
  - AS 1940-2004 The storage and handling of flammable and combustible liquids;
  - AS/NZS 4452-1997 The storage and handling of toxic substances;
  - AS 3780-2008 The storage and handling of corrosive substances; and
  - AS/NZS 4681-2000 The storage and handling of Class 9 (miscellaneous) dangerous goods and articles.
- Standards covering the design and operation of laboratories and equipment for use in laboratories, particularly:
  - AS/NZS 2982.1-2010 Laboratory design and construction – Part 1: General requirements (especially Section 7 - Storage of hazardous substances);
  - The AS/NZS 2243 series of standards Safety in Laboratories (now superseded); and
  - AS 4775-2007 Emergency eyewash and shower equipment.
- Standards covering the classification of hazardous areas that describe the spaces from which ignition sources must be excluded, particularly AS/NZS 60079.10.1- 2009 Explosive Atmospheres – Part 10.1 : Classification of areas – Explosive gas atmospheres (IEC 60079-10-1, Ed. 1.0(2008) MOD).
- The Code of Practice – Storage and Handling of Dangerous Goods (2005) – WorkCover NSW.
- The Department of Health and Aging, Office of Gene Technology Regulator, Guidelines for Certification of a Physical Containment Level 2 Laboratory, Version 3.1– Effective 1 July 2007.

In relation to radiation hazards, the shielding requirements for imaging equipment is make/model dependent and is identified and specified by the equipment suppliers. Once the selection of diagnostic imaging equipment has been finalised as part of detailed design, Health Infrastructure in consultation with WMI will develop detailed design options that will support protocols for the safe management of any radiation hazard. The Project Application commits to fully complying with relevant Australian Standards as outlined within the report prepared by Safety Engineering & Technical Services Pty Ltd.

Safety Engineering & Technical Services Pty Ltd concludes that adherence to relevant standards and legislation ensures that the facilities and activities of WMI will be in accordance with best-practice achievable for a bio-medical clinical facility, and will secure an acceptable level of safety.

The above commitments have been reflected in the Statement of Commitments at Section 6.0.

5.20 Waste

Construction

A Waste Management Plan will be prepared as part of the Construction Environment Management Plan. This plan will in addition to describing the objectives of the plan, detail the involvement of the waste contractor and any other specific requirements as identified during the pre-planning of demolition and construction works.

The plan, which will be developed in full consultation with the successful contractor prior to construction or demolition works commencing, will address the waste streams likely to be generated, including those that may contain dangerous goods and hazardous substances expected to be created during demolition and construction.

Wherever practicable measures will be implemented to minimise, re-use, and recycle any construction and demolition wastes. Where this is cannot be reasonably achieved, wastes will be disposed of responsibly and in full compliance with all statutory requirements, using licensed waste transport and waste disposal contractors.

The preparation and implementation of a Waste Management Plan is included as a commitment within the Draft Statement of Commitments at Section 6.0.

Operation

A Preliminary Operational Waste Management Plan has been prepared by Safety Engineering & Technical Services Pty Ltd, included within **Appendix T**. The plan has been developed based upon WMI's current operations (where Westmead Hospital provides all back end waste services).

Waste streams from future operations include:

- general waste (including putrescible garbage and recyclable waste);
- confidential waste;
- contaminated waste including clinical waste and sharps (including a small quantity of Class 6, Division 6.2 infectious waste);
- cytotoxic waste (Class 6, Division 6.1);
- chemical waste (of dangerous goods classes 3, 5.1, 5.2, 6.1 , 8 & 9); and
- trade waste and sewage.

Further details in relation to the nature and quantity of each of these waste streams, along with the measures to be implemented to minimise, reuse, recycle and safely dispose of these waste streams are outlined within the Preliminary Operational Waste Management Plan **Appendix T**. The adoption and implementation of this Plan has been included within the draft Statement of Commitments at Section 6.0.

5.21 Flora and Fauna

Historic land title records and aerial photographs confirm that the site is unlikely to support any remnant vegetation, having been cleared during the early 20 century and subsequently been developed for hospital related purposes and car parking. The s149 Certificate issued by Council confirms that the Director General with responsibility for the *Threatened Species Conservation Act 1995* has not advised Council that the land includes or comprises a critical habitat.

The trees and associated vegetation that are found on the site would therefore appear to have been subsequently planted, reflecting generally common landscape vegetation found throughout urban areas.

A desktop audit of the NSW National Parks and Wildlife Service's, Atlas of NSW Wildlife, indicates that there are threatened species found within the Parramatta LGA. Nonetheless, it is highly improbable that any of these threatened species would be found on the subject site, nor is it likely that there is suitable habitat on the site that supports any threatened species.

Ultimately, the subject site has been heavily modified from its natural state, it is located within an area that has been urbanised and built up considerably, and is identified as being suitable for urban development.

A large proportion of existing trees on the site are in any event proposed to be retained on the site.

5.22 Environmentally Sustainable Development

ARUP have prepared an Ecologically Sustainable Development (ESD) Report outlining the initiatives under consideration by the design team to reduce environmental impacts caused by the design, construction and operation of the proposed development (refer to **Appendix G**).

The ESD Report recommends that the most appropriate voluntary green building rating tool is the 'Green Star Design Education v1' rating provided by Green Building Council of Australia. The reason being that whilst the *Engineering Services and Sustainable Development Guidelines TS11 Version 2.0* recommends all NSW Health projects costing over $10 million achieve a minimum 4 star Green Health Care rating, the Health Care rating tool is not applicable to research laboratories. The Green Building Council of Australia, which administers Green Star, has recommended adopting the Education rating tool instead. A Green Star Strategy, prepared by Arup, is included within **Appendix G**.

ESD measures and initiatives either under investigation or proposed for inclusion in the proposed design of the development includes:

Water

- Bio-retention pits and treatment systems.
- Subterranean collection tank for detaining stormwater for reuse in the building's cooling towers.
- Using vegetation with minimal or no irrigation requirements for landscaped areas.
- Using non-potable water for irrigation purposes.
- Using rain water for toilet flushing, cooling tower make-up and irrigation purposes.
- Water efficient tapware.
- Incorporating systems where water can be salvaged and reused following fire system water testing.
- Installing water meters.

Energy Efficiency

- Incorporating energy efficient equipment.
- On-site generation of electricity using alternative fuels, including solar photovoltaics, bio-fuels, wind and gas.
- Designing for adaptive comfort.
- Installing real-time, digital electricity usage meters.
- Incorporating occupancy sensors and high-efficiency lighting.

- Maximising penetration of daylight.
- Incorporating high-performance facade materials with external shading devices.
- Integrated building management system for systems controls.
- Solar thermal hot water system.

Materials and Waste

- A minimum of 2% of all material represents reused products.
- No CFC or HCFC will be used in refrigerant systems, nor CFC/HCFC and Halons used in fire suppression devices.
- No asbestos is to be used in the project.
- Materials with ozone-depleting substances in their manufacture will not be used.
- A construction management plan will be incorporated into the project to waste reduction targets.
- Dedicated spaces will be provided within the development to facilitate recycling.

Transport

- Education and environmental awareness, such as media screens and dissemination of resources monitoring.
- Sustainable transport, including electric car charging stations, car share, small car parks, and cyclist facilities.

Summary

The initiatives and measures identified above and further outlined within the Arup ESD Report are to be investigated as part of the detailed design stage. Due regard will be given to the *Engineering Services and Sustainable Development Guidelines TS11 Version 2.0* in choosing ESD measures to be incorporated in the design of the building. The ESD measures to be incorporated within the final design will achieve a minimum 4 star Green Star Design Education v1 rating. These recommendations have been reflected in the Statement of Commitments at Section 6.0.

5.23 Crime and Public Safety

The proposal has been assessed against the core principles of Crime Prevention Through Environmental Design (CPTED):

Principle 1 - Natural Surveillance

The primary public pedestrian access point to the proposed building is from Hawkesbury Road. This entry will be via a ramp accessed from an alcove within the front façade of the building. Street planting will be limited to allow good visual connection to the street and lighting will be maintained for pedestrian access and safety. The provision of a reception area at the main entrance will also ensure that people entering the building can be clearly monitored.

The use of glazing as the main façade treatment for the building will also support casual surveillance of the street during working hours (i.e. 24 hours, 7 days a week).

The rear of the building is accessed from the open car park which will be well lit and open to allow good visual connection to the surrounding areas. The stair at the rear of the building will be available for access to the upper level courtyard during normal working hours only.

The courtyard will be part of the public space of the building affording access to the reception and café and courtyard areas. The courtyard, which is expected to be well used by staff, will also encourage casual surveillance of the surrounds.

Principle 2 - Access Control

The facility operates 24 hours a day, 7 days a week. The building can be accessed via Hawkesbury Rd, or Hospital Rd, which runs between CMRI and the new building and from the rear car park. Staff and visitors will be able to access the facility via the front entrance from Hawkesbury Road.

From the main pedestrian access point, staff and visitors will be by the receptionist during working hours or by security after hours.

Other entrances to the building are via the loading dock, which will only be opened as required and a pedestrian entrance at the rear of the building. This entrance will give access to the bike storage facility which will be enclosed by a lockable gate and to a rear entrance to the lower ground floor. All doors will be controlled by an access card reader system.

Active security systems, such as CCTV and electronic security access, will be installed throughout the building and managed by the facility security personnel.

Principle 3 - Territorial Reinforcement

The site is located within the clearly defined grounds of Westmead Hospital and Westmead Children's Hospital, and therefore will benefit from the security arrangements of the other facilities.

In addition, the small setback at all street frontages will enhance the presence of the building in its setting. The provision of security-controlled entrances will also emphasise the separation of the public and private domain.

Active security systems, such as CCTV and electronic security access, will be installed throughout the building and managed by the facility security personnel.

Principle 4 - Maintenance

Durable and high-quality materials are proposed which will ensure that minimal maintenance is required for the proposed development. The use of varied facade treatments and provision of landscaping at the boundaries of the site will also discourage graffiti or vandalism of the building facades.

The hospital grounds will be well-maintained by a landscaping contractor and the maintenance of the building will be controlled by a dedicated facilities manager. The maintenance of the building and its grounds will ensure that it does not become degraded and will ensure that vandalism of the property is strongly discouraged.

5.24 Utilities

Arup have undertaken a review of all existing utilities servicing the site, details of which are outlined within the Building Services and Structure Report at **Appendix Q**. Below is a summary from these investigations.

Sewer and Water

As discussed in Section 3.11, the site is to connect with existing Sydney Water water mains located in Hawkesbury Road. In terms of sewer mains, the development is to be connected to one of the existing gravity sewer mains to the west of the site within the grounds of Westmead Health Campus. Confirmation of the sewer and water connection points to supply the proposed development is to be agreed with relevant authorities once development consent has been approved. The requirement to obtain approval is outlined in the draft Statement of Commitments at Section 6.0.

Telecommunications

The site is to connect into the existing Telstra telecommunications infrastructure running along Hawkesbury Road. Arup have confirmed that interconnection of the new WMI building to the Westmead Hospital communication network is not required. The potential requirement to upgrade the existing infrastructure to accommodate the future development will be agreed with Telstra once development consent has been approved.

Electrical Services

The proposed development is to connect to the existing Westmead Hospital Campus high voltage (HV) network supplied by Integral Energy. This is proposed to be achieved through the provision of a new and separate HV feeder that would serve a new standalone substation in the vicinity of the site. Integral Energy are currently reviewing their infrastructure design to serve the new development. Preliminary discussions between Arup and Integral Energy reveal that it may be possible for Integral Energy to provide a separate HV feed.

A private chamber substation is also proposed at lower ground level of the WMI building to supply LV. The design will be based on current Integral Energy standards and guidelines.

A standby diesel generator is proposed to be installed to ensure that a reliable alternative electrical supply is available in the event of interruption of the mains power supply.

The requirement to obtain the necessary approvals from Integral Energy is outlined in the draft Statement of Commitments at Section 6.0.

Natural Gas

The proposed development will connect with the existing gas main located in

Hawkesbury Road. All gas fitting and natural gas installation will be carried out to AS5601, Gas Supply Authority Recommendations and AGA approvals. Consultation with the relevant provider will be undertaken to ascertain the existing capacity and potential need for upgrade. The requirement to obtain approval is outlined in the draft Statement of Commitments at Section 6.0.

Medical Gas

Investigations have been undertaken by Arup in relation to the potential to source medical gasses from the existing Westmead Hospital. Due to the physical distance from existing gas stores and the expected requirement for specialised gases within the development, a standalone medical gases strategy is proposed. The details of which are still being finalised, however it is aimed to locate medical gas stores in reasonable proximity to CMRI for ease of future integration or sharing of plant.

5.25 Economic and Social Benefits

Westmead is one of three 'specialised centres' identified within the West Central Subregion. Specialised centres (which cover hospitals, universities, and research activities) are acknowledged as performing a vital economic and employment role which generate metropolitan-wide benefits. In 2001 over 13,000 people were employed in Westmead, and this number is set to increase substantially, with an employment capacity target of 20,000 jobs by 2031 (refer Metropolitan Strategy).

The establishment of a new, standalone, and state of the art medical research facility within Westmead will deliver a number of economic and social benefits for the region, including:

- Providing a modern, high quality, and attractive medical research building within a cluster of existing medical and research uses, further strengthening the medical, research and knowledge role of the centre;
- Supplying a total 12,921m^2 GFA of high quality, clinical research, laboratory and teaching facilities, including for associated facilities such as conference rooms and café for up to 400 staff and students;
- The investment of approximately $124.2 million, which will also have flow on effects to other parts of the economy, i.e. the construction of the WMI building will provide temporary employment opportunities within that sector;
- Ensuring development does not adversely affect the functioning and operations of the adjoining Newborn & paediatric Emergency Transport Service (NETS);
- Providing a development which focuses on reducing the reliance of private vehicle use and promotes more sustainable means of transport;
- New landscaped areas will be provided on site for the benefit of staff, students and visitors of WMI as well as the broader research hub community through the provision of links/connections between buildings;
- Supporting the vision of Westmead to be a world leader in health and medical research;
- Strengthening the role of Westmead as one of western Sydney's main employment hubs;
- Improving the quality of medical research facilities available at Westmead;
- The development of the site provides an opportunity to establish a clearly identifiable and distinctive medical research facility, and will be a catalyst for further investment and medical research growth at Westmead; and
- Providing significant capital investment to an area which includes an ageing stock of medical buildings, thereby encouraging further revitalisation of magnet infrastructure.

5.26 Site Suitability and Project justification

The suitability of the site has been considered from a medical research perspective as well as from a site, development and environmental capacity perspective. The site is considered suitable for the Project for the following reasons:

- The site forms part of a medical, research and knowledge cluster that provides important economic and social benefits to the community;
- The provision of a new and modern dedicated medical research facility will further support and strengthen the medical and research cluster of uses;
- The proposal will provide a new identity for WMI, so as to improve the profile of the medical research hub and its association with world class biomedical and clinical research;
- The proposal complements future redevelopment plans for the Westmead Health Campus, which aims to consolidate and enhance Westmead's role as a vibrant health and health related education/research precinct;
- The site is well connected to public transport and located in an area where residential densities are high;
- The proposal has given due consideration to the adjoining NETS helipad, with the aim of ensuring the operations of air transport services are not adversely affected;

- The area and shape of the site allows for the provision of a new and large medical research building that meets the special design requirements of a medical research facility, whilst not resulting in any adverse impacts on surrounding residential dwellings in terms of overshadowing or views;
- The site does not share any common boundaries with any residential properties;
- There is a community understanding that the site and broader surrounds form part of a major medical and research cluster of uses;
- Buildings of similar height and site coverage to the proposed development are approved (e.g. CMRI) or planned to be established within the Westmead Health Campus in accordance government and strategic planning objectives;
- The site is suitably zoned to enable the establishment of medical research facilities, subject to consent;
- The proposal aims to achieve a significant reduction in private vehicle use, with a driver mode share of 48%, thereby assisting with broader traffic network issues in the area;
- The environmental investigations of the site and soil conditions demonstrate that the proposed use and design of the building is suitable for the site; and
- The proposal further supports the use and viability of local public transport infrastructure through the target non driver mode share of 52%.

5.27 Consultation

In accordance with Part 3A of the EP&A Act, consultation is required to occur at the following stages:

- the Director General of the Department of Planning is required to consult with relevant public authorities in preparing the environmental assessment requirements for the Project Application; and
- the Director-General is required to advertise and exhibit the Environmental Assessment and appended reports and documentation.

In preparing the DGRs for the Environmental Assessment, the Department of Planning consulted with the relevant authorities. The following authorities responded to the Preliminary Environmental Assessment prepared on Health Infrastructure's behalf, raising their key issues for considerations to be included in the Environmental Assessment:

- Parramatta City Council;
- Roads and Traffic Authority (RTA);
- Sydney Water; and
- NSW Transport and Infrastructure (now Transport NSW)

To our knowledge, no other agencies provided comments in response to the Department of Planning's request for DGRs. Notwithstanding this, the Department of Planning will advertise and exhibit the Environmental Assessment and appended reports and documentation, thereby providing relevant State Government agencies with an opportunity to review the proposal and prepare a submission(s).

Furthermore in preparing the Project Application for the new WMI building, extensive consultation was undertaken with:

- NSW Health;
- NSW Office of Science and Medical Research (OSMR);
- Parramatta City Council;
- Sydney West Area Health Service (SWAHS);
- Children's Medical Research Institute (CMRI);
- Kids Research Institute (KRI);
- Sydney Children's Hospitals Network Westmead (SCHNW);
- University of Sydney;
- Newborn & paediatric Emergency Transport Service (NETS);
- Occupants of facilities on the existing site;
- Neighbours of the development
- Sydney Water; and
- Integral Energy.

Appendix U includes documentation demonstrating consultation undertaken with a number of the above agencies and bodies.

During the exhibition period, community members will also be able to make submissions on the Project Application.

Following Project Application approval, consultation will continue throughout the duration of the project with relevant service providers, SWAHS, NSW Health, CMRI, KRI, NETS, SCHNW and surrounding neighbours.

Council

Two meetings between the project team and Parramatta City Council have been held to date. The first meeting occurred on 6th May 2010 and involved preliminary discussions on the design and merits of the proposal. The Council officers identified that the only key issue associated with the project related to traffic and parking, particularly given that the locality currently experiences high levels of traffic and the high utilisation of streets in the vicinity of the WHC for staff and visitor parking.

A second meeting, held on 26 August 2010, dealt specifically with transport related matters, a copy of the minutes is included at **Appendix U**. These matters are outlined in more detail in the Transport and Access Report at **Appendix K**.

Community Consultation

Health Infrastructure recognises the importance of positive relationships with all stakeholders and seeks to proactively engage with them over the duration of the project. A Stakeholder Consultation Strategy will be prepared to outline how stakeholders will be engaged throughout the development process. This requirement has been included as a Statement of Commitment within Section 6.0.

6.0 Draft Statement of Commitments

In accordance with the Director-General's Environmental Assessment Requirements, the proponent is required to include a Draft Statement of Commitments in respect of environmental management and mitigation measures on the site. The following are the commitments to manage and minimise potential impacts arising from the project.

6.1 General Works

Notwithstanding any other commitment (condition of consent), the consent for the Project Application permits separate construction certificates and occupation certificates to be issued for the development approved by the consent in stages, provided that all commitments (conditions of consent) relevant to the development incorporated within each stage have been complied with prior to the release of the construction certificate or occupation certificate for that stage.

6.2 Construction Management

The following plans will be implemented during the construction phase. The following documents will be prepared prior to the commencement of works:

- Construction traffic management plan
- Construction waste management plan
- Construction noise and vibration management control plan
- Erosion and sedimentation control plan

6.3 Ecologically Sustainable Development

- The measures and initiatives outlined within the ESD Report prepared by Arup (July 2010) will be investigated.
- The development will comply with the Engineering Services and Sustainable Development Guidelines Technical Series TS11 (Version 2.0 December 2007).
- The development will achieve a minimum 4 Star Green Star Design Education v1 rating.

6.4 Transport Demand Management

A travel demand management plan, as outlined within the Transport and Access Report prepared by Scape (August 2010), will be prepared and implemented prior to the commencement of works.

6.5 Contamination

- All fill and soil excavated during the development will be assessed and classified in accordance with the NSW DECC3 Waste Classification Guideline (DECC, 2008) prior to/for off-site disposal purposes at an appropriately licensed landfill.
- An Unexpected Finds protocol will be implemented to provide protocols and appropriate mechanisms for the identification and management of asbestos containing materials should they be encountered during the excavation works for the development.

6.6 Acid Sulphate Soils

An Acid Sulphate Soils Management Plan will be prepared and implemented during the construction phase.

6.7 Tree Protection

The recommendations of the Tree Report prepared by The Ents Tree Consultancy (August 2010) will be implemented, including:

- The incorporation of appropriate measures during construction to protect those trees to be retained as part of the development.
- Regular site inspections by a qualified Arborist during the construction phase to ensure the appropriate tree protection measures and recognised horticultural practices are being utilised.

6.8 Wind Amelioration

Appropriate treatments will be implemented and wind tunnel studies undertaken as outlined in the Pedestrian Wind Environment Statement prepared by Windtech (August 2010).

6.9 Air Services Transport

- Continued consultation and dialogue with NETS will be undertaken as part of the detailed design stage of the development.
- Wind tunnel and turbulence tests will be undertaken, with any recommendations from these studies to be incorporated into the detailed design of the development.
- A risk assessment of the proposed development will be undertaken.
- Potential impacts from medical equipment on helicopter navigation equipment will be investigated, with any recommended mitigation measures to be incorporated within the detailed design.
- Appropriate measures in accordance with best practice will be adopted during the construction stage to minimise and mitigate impacts caused during construction of the proposed development on the operation of helicopters.

6.10 Geotechnical

The recommendations outlined within the Geotechnical Interpretive Report prepared by AECOM (February 2010), will be implemented, including:

- Carrying out a dilapidation survey prior to commencement of excavation or any other construction activities which could be a source of unacceptable levels of vibration.
- Preparing a vibration management plan.
- Installing vibration monitor systems (where required).
- Managing seepage during excavation through a collection system, in the base of the excavation.
- Adopting suitable retention systems during construction, including either bored soldier pile walls or a dowell and shotcrete system.
- Positioning pad and strip footings on class V shale or better.
- Dewatering and cleaning the base of foundations and placing a binding layer as a matter of urgency, where appropriate/required by a Structural Engineer.
- Having an experienced geotechnical engineer inspect the base of foundations prior to the binding layer being placed to confirm the founding material meets or exceeds the design assumptions.

6.11 Reflectivity

All glazing on the facade will have a maximum normal specular reflectivity of visible light of 20 percent.

6.12 Operational Noise

The operation of the development will comply with the project noise criteria identified within the Acoustic Report prepared by Arup (July 2010).

6.13 BCA and Accessibility

BCA

Development will be compliant with the BCA 2010 and in accordance with the recommendations outlined within the BCA Report prepared by Blackett Maguire + Goldsmith (August 2010).

Accessibility

Development will comply with the recommendations of the Access Review, prepared by Access Australia (September 2010).

Fire Safety

Constructing of the building will be in accordance with the BCA, and where required to developing alternative solutions which comply with the relevant performance requirements of the BCA 2010.

Energy Efficiency

Development will at a minimum comply with Part J of the BCA 2010.

6.14 Aboriginal Heritage

In the event that any historical or Aboriginal relics are uncovered during excavations, all excavation and disturbance to the area will stop immediately and the Department of Environment and Climate Change will be informed in accordance with the *National Parks and Wildlife Act 1974*.

6.15 Hazards and Dangerous Goods

- Facilities for the storage, handling and use of dangerous goods and hazardous substances will be designed and constructed in accordance with all relevant legislative requirements.
- A qualified radiation specialist will be engaged as part of the detailed design stage to provide input into the shielding requirements for diagnostic and irradiation equipment to be present and used.
- The development will comply with the recommendations of the Dangerous Goods and Hazardous Substances Review, prepared by Safety Engineering & Technical Services Pty Ltd (September 2010).

6.16 Waste

- The Operational Waste Management Plan, as outlined within the Dangerous Goods and Hazardous Substances Review, prepared by Safety Engineering & Technical Services Pty Ltd (September 2010), will be adopted and implemented.
- A qualified radiation specialist will be engaged as part of the detailed design stage to provide input into the safe storage, handling, and design requirements for any radioactive waste to be generated as part of operations of the medical research facility.

6.17 Utilities

Liaison will continue and necessary approvals obtained from all relevant service providers in regard to the provision of utility services to the site.

6.18 Consultation

This Project Application commits to ongoing public consultation throughout the process as considered relevant and that builds upon the findings and recommendations of the Project Application and supporting appendices.

A Stakeholder Consultation Strategy will be prepared and implemented throughout the detailed design and construction stage.

7.0 Conclusion

Health Infrastructure seeks approval for the following works to provide a new, modern and dedicated research facility for WMI at Hawkesbury Road, Westmead:

- Construction of a new 12,921m^2 medical research building, including ancillary support services;
- Provision of landscaping and construction of associated physical infrastructure; and
- Provision of at-grade parking for 50 car spaces.

The new building to be occupied by WMI presents a significant improvement to existing conditions experienced by WMI staff and students. The internal design will provide WMI with the space and flexibility it requires to cater for its operations.

The development is permissible within the underlying Special Uses zone and complies with the zone objectives, as well as State Government strategic planning documents for the site. There are no height or density controls that apply to the subject site. The proposal is of significant merit and will provide a modern medical research facility that supports WMI in continuing to undertake world class biomedical, population health and translation research. The design demonstrates design excellence, responds to broader plans for the redevelopment of the Westmead Health Campus, and has minimal visual and overshadowing impacts.

The environmental impacts of the proposal including traffic generation and car parking; acoustic, wind and reflectivity impacts; contamination and geotechnical matters; stormwater, drainage, heritage; and construction are negligible or can be appropriately managed through the adoption of the sub-consultants recommendations and/or preparation of relevant plans of management.

The project results in significant economic and social impacts including:

- the creation of construction and operational jobs;
- injection of $124.2 million into the local economy;
- strengthening the role of Westmead as a specialised centre and employment hub of the region;
- providing new, state of the art medical research facilities;
- supporting continued employment opportunities in an area well connected to public transport; and
- supporting the vision of the Westmead Research Hub to be a world leader in health and medical research.

The Draft Statement of Commitments has been prepared to inform the detailed design of the development and manage construction and on-going environmental impacts.

Having regard to the above, it is considered that the project will provide environmental, social and economic benefits and accordingly we recommend the Minister for Planning approve the application.