ETHOS URBAN

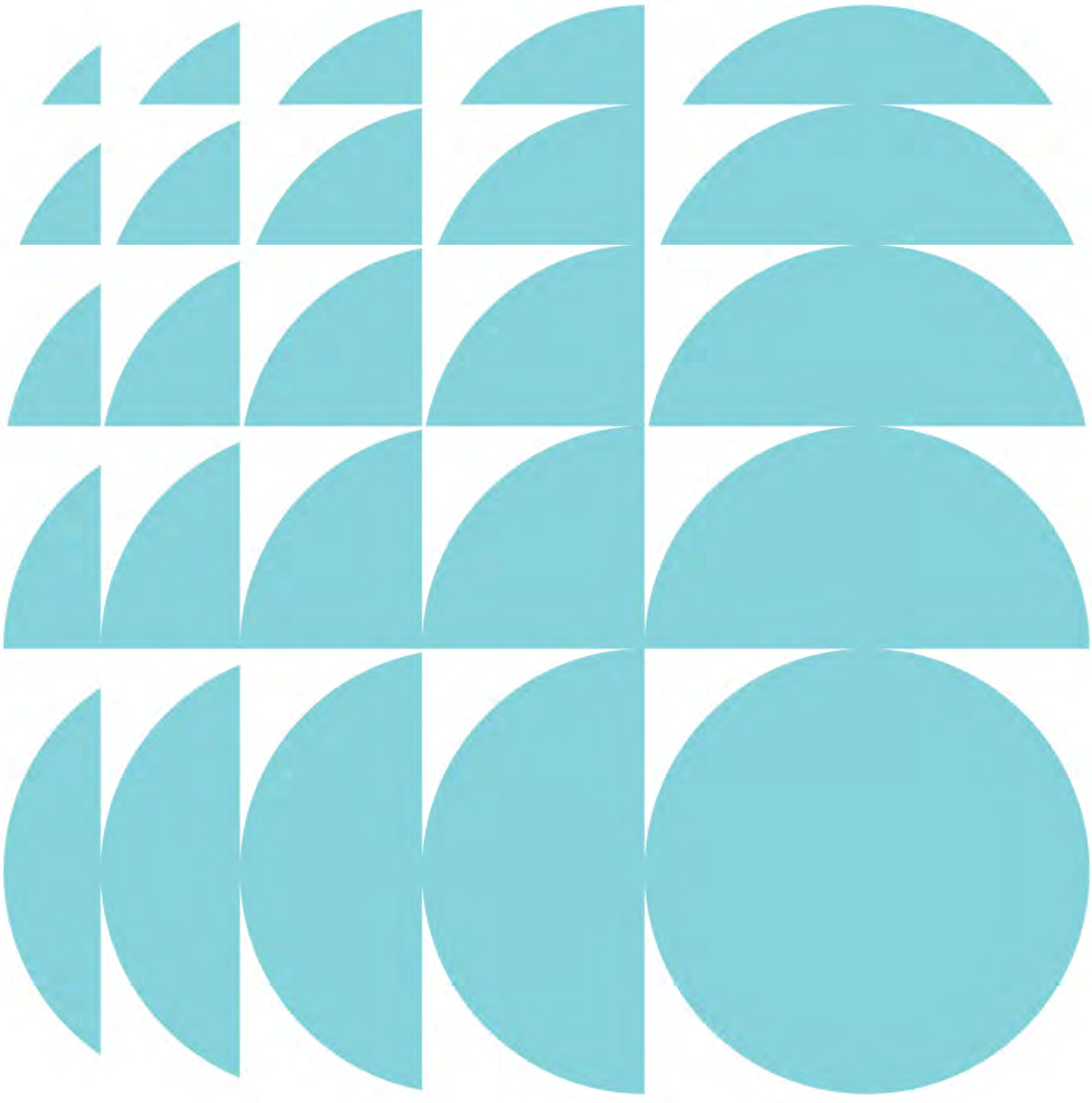
Loreto Kirribilli State Significant Development Application

Environmental Impact Statement

85 Carabella Street, Kirribilli
Concept Proposal and Stage 1 Development Application

Submitted to Department of Planning and Environment
On behalf of Loreto Kirribilli

September 2017 | 16205



CONTACT

Kate Tudehope	Principal, Planning	ktudehope@ethosurban.com	9409 4932

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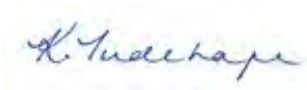			
Kate Tudehope	29 September 2017	Jennie Buchanan	29 September 2017

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Ethos Urban
ABN 13 615 087 931 Pty Ltd..
www.ethosurban.com
173 Sussex Street, Sydney
NSW 2000 t 61 2 9956 6952

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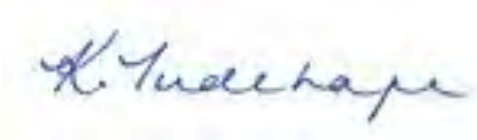
Statement of Validity

Development Application Details	
Applicant name	Loreto Kirribilli
Applicant address	85 Carabella Street, Kirribilli
Land to be developed	Lot 200 in DP1166282
Proposed development	Loreto Kirribilli Concept Proposal and Stage 1 works as described in Sections 3.0 and 4.0 of this Environmental Impact Statement
Prepared by	
Name	Kate Tudehope
Qualifications	BPlan (Hons) MPIA
Address	173 Sussex Street, Sydney
In respect of	State Significant Development - Development Application
Certification	
	I certify that I have prepared the content of this EIS and to the best of my knowledge: it is in accordance with Schedule 2 of the Environmental Planning and Assessment Regulation 2000; all available information that is relevant to the environmental assessment of the development to which the statement relates; and the information contained in the statement is neither false nor misleading.
Signature	
Name	Kate Tudehope
Date	29/09/2017

1.0 Executive Summary

1.1 Purpose of this Report

This submission to the Department of Planning and Environment (the Department) comprises an Environmental Impact Statement (EIS) for a Staged Development Application under Section 83B of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for the staged redevelopment of Loreto Kirribilli (the Concept Proposal). In accordance with Section 83B(3)(b) of the EP&A Act, consent is also sought for the first stage of the school's redevelopment (the Stage 1 works).

It is envisaged that development will be staged over a period of 50 years. The intent of the Concept Proposal is to update the current campus towards a more future focussed learning environment and to resolve a number of accessibility and amenity issues across the campus.

The Concept Proposal has a Capital Investment Value (CIV) of $97,697,500 and is therefore classified as State Significant Development (SSD) pursuant to Schedule 1 of the *State Environmental Planning Policy (State and Regional Development) 2011* (SEPP SRD).

A request for Secretary's Environmental Assessment Requirements (SEARs) was made on 25 August 2016. Accordingly, the SEARs were issued on 22 September 2016. This submission is in accordance with the Department's guidelines for SSD applications lodged under Part 4 of the EP&A Act, and addresses the issues raised in the SEARs.

1.2 Overview of the Project

1.2.1 Concept Proposal

A Concept Proposal has been prepared to guide the future redevelopment of the campus. The Concept Proposal divides the site into five separate precincts (Campus Core, Northern Precinct, Eastern Precinct, Southern Precinct, Western Precinct) and will provide a statutory framework for the long term development of the site. The proposal seeks consent for building envelopes and open space. Future buildings will be subject to subsequent detailed development applications or other approval pathways, and will be generally consistent with the Staged SSD consent.

The Concept Proposal will be delivered over at least three stages. This includes the Stage 1 works for which detailed approval is sought as part of this application. Future stages will be subject to subsequent detailed development applications. The proposed scope of the Concept Proposal is summarised below:

Eastern Precinct

- Partial demolition of external stairs, landings, walkways and planters in between the existing Science building, Elamang, Performing Arts and Mary Ward buildings;
- Demolition of the existing Performing Arts and Mary Ward buildings;
- Construction of a new six storey learning facility (height generally consistent with the existing building) including an integrated connector pod; and
- Removal of 1 tree.

Southern Precinct

- Demolition of existing buildings, site excavation and construction of a new six storey learning facility (two storeys above existing ground - Carabella Street).

1.2.2 Stage 1 Proposal – New Leaning Hub in the Western Precinct and Campus Connectors in the Northern, Southern and Eastern Precincts

The following works are proposed within Stage 1:

Western Precinct

- Demolition of the existing B-Block, the northern facade of the Gymnasium and partial demolition of external stairs, landings, walkways and planters between the Gymnasium, Centenary Hall and the Junior School;
- Site excavation to the existing Gymnasium level;
- Construction of a seven storey Learning Hub (two storeys above ground - Carabella Street) including external roof terrace, and a vertical connector providing accessible access between the Marian Centre, Junior School, Gymnasium and the Centenary Hall;
- Construction of a two storey extension to the north of the existing Gymnasium;
- New landscaping and external play areas over the existing tennis court;
- Construction of external covered landscape walkways for improved accessible connectivity, and an extension to the Junior School play terrace;
- Utilities and services connections;
- Removal of 10 trees; and
- Category 1 remediation works.

Northern Precinct

- Partial demolition of external stairs, landings, walkways and planters in between the Science building and Centenary Hall;
- Construction of a new five-storey (including basement) vertical connector pod consisting of a lift, stair and lockers;
- Construction of new external walkways providing an accessible path of travel between the driveway, the Science building, Centenary Hall, basement carpark and Elamang Avenue; and
- Category 1 remediation works.

Eastern Precinct

- Partial demolition of external stairs, landings, walkways and planters in between the Science and Performing Arts buildings;
- Construction of an interim connector pod in the Eastern Precinct consisting of accessible ramps, providing an accessible path of travel between the Science and Performing Arts buildings; and
- Category 1 remediation works.

Southern Precinct

- Partial demolition of the eastern Chapel wing;
- Demolition of external stairs and landings within the courtyard;
- Construction of a four storey vertical connector pod involving the restoration of the east Chapel wing to its original profile on Carabella Street. The connector pod will consist of a lift, learning studios and an external learning terrace;
- Internal refurbishment to the ground floor level of the Chapel building;
- Construction of an accessible path of travel between the driveway, Chapel, St Joseph's Block and the courtyard; and
- Category 1 remediation works.

It is noted that the Campus Core remains largely unchanged, with the exception of the interface with the new circulation paths from the adjacent precincts and some minor landscaping works. The driveway will maintain its existing function as a formal (or ceremonial) visitor drop off and a temporary parking area for the campus mini bus.

1.3 The Site

Loreto School is located within the suburb of Kirribilli on Sydney's North Shore.

The school is located between Elamang Avenue and Carabella Street, and is surrounded by a mix of low, medium and high density residential development. The site is located approximately 500m east of the Milsons Point shops and train station.

1.4 Planning Context

Section 7.0 of the EIS considers all applicable legislation in detail. The proposal is consistent with the requirements of all relevant SEPPs.

The site is zoned part SP2 Infrastructure (Educational Establishment) and part R4 High Density Residential. Educational establishments are either permissible in their own right under *North Sydney Local Environmental Plan 2013* (LEP 2013), or by virtue of Clause 35(1) of *State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017.*

1.5 Environmental Impacts and Mitigation Measures

This EIS provides an assessment of the environmental impacts of the project in accordance with the SEARs and sets out the undertakings made by Loreto Kirribilli to manage and minimise potential impacts arising from the development.

1.6 Conclusion and Justification

The EIS addresses the SEARs, and the proposal provides for the significant upgrade of the school's teaching and learning facilities. The potential impacts of the development are acceptable and are able to be managed. Given the planning merits of the proposal, the proposed development warrants approval by the Minister for Planning and Environment or his Delegate

2.0 Introduction

This submission to the Department of Planning and Environment (the Department) comprises an Environmental Impact Statement (EIS) for a Staged Development Application under Section 83B of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for the staged redevelopment of Loreto Kirribilli (the Concept Proposal). In accordance with Section 83B(3)(b) of the EP&A Act, consent is also sought for the first stage of the school's redevelopment (the Stage 1 works).

Development for the purpose of alterations and additions to an existing school with a CIV of more than $20 million is identified as SSD under Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011.* The Staged DA has a CIV of $97,697,500 and is therefore declared to be SSD for the purposes of the EP&A Act.

Concept approval is sought for development in the Southern and Eastern Precincts, with detailed consent sought for works in the Western Precinct, as well as the vertical connectors across the campus. It is noted that the only development proposed in the North Precinct is a new vertical connector, which forms part of the detailed development application. Similarly, development in the Campus Core is limited to landscaping works associated with the accessible link to the northern connector, detailed consent is also sought for these works.

The report has been prepared by Ethos Urban (formerly JBA) on behalf of Loreto Kirribilli, and is based on the Architectural Drawings provided by FJMT (see **Appendix A**) and other supporting technical information appended to the report (see Table of Contents).

This EIS has been prepared in accordance with the requirements of Part 4 of the EP&A Act, Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation), and the Requirements of the Secretary of the Department of Planning and Environment for the preparation of the EIS, which are included at **Appendix B**. This EIS should be read in conjunction with the supporting information and plans appended to and accompanying this report.

2.1 Background to the Development

Established in Sydney in 1907, Loreto Kirribilli is an independent Roman Catholic day school for girls from Kindergarten to Year 12. Loreto has a selective enrolment policy and is one of many schools around the world established by the Institute of the Blessed Virgin Mary (Loreto Sisters). Its Sydney sister school is Loreto Normanhurst, and there are five other Loreto schools across Australia, in Melbourne, Ballarat, Victoria, Adelaide, Brisbane and Perth, as well as other international schools such as St Mary's Shaftesbury and Saint Mary's Ascot in the UK. The Kirribilli site contains both the junior and senior school campuses.

Loreto Kirribilli is in need of redevelopment to remove out-dated teaching facilities, and replace them with modern learning spaces to reflect the current models of teaching. The proposal also seeks to improve the campus connectivity in order to bring the school's access arrangements in line with current accessibility standards.

2.2 Overview of Proposed Development

This SSD DA seeks approval for the following development.

2.2.1 Concept Proposal

Eastern Precinct

- Partial demolition of external stairs, landings, walkways and planters in between the existing Science building, Elamang, Performing Arts and Mary Ward buildings;
- Demolition of the existing Performing Arts and Mary Ward buildings;
- Construction of a new six storey learning facility (height generally consistent with the existing building) including an integrated connector pod; and
- Removal of 1 tree.

Southern Precinct

- Demolition of existing buildings, site excavation and construction of a new six storey learning facility (two storeys above existing ground - Carabella Street).

2.2.2 Stage 1 Proposal – New Leaning Hub in the Western Precinct and Campus Connectors in the Northern, Southern and Eastern Precincts

The following works are proposed within Stage 1:

Western Precinct

- Demolition of the existing B-Block, the northern facade of the Gymnasium and partial demolition of external stairs, landings, walkways and planters between the Gymnasium, Centenary Hall and the Junior School;
- Site excavation to the existing Gymnasium level;
- Construction of a seven storey Learning Hub (two storeys above ground - Carabella Street) including external roof terrace, and a vertical connector providing accessible access between the Marian Centre, Junior School, Gymnasium and the Centenary Hall;
- Construction of a two storey extension to the north of the existing Gymnasium;
- New landscaping and external play areas over the existing tennis court;
- Construction of external covered landscape walkways for improved accessible connectivity, and an extension to the Junior School play terrace;
- Removal of 10 trees; and
- Category 1 remediation works.

Northern Precinct

- Partial demolition of external stairs, landings, walkways and planters in between the Science building and Centenary Hall;
- Construction of a new five-storey (including basement) vertical connector pod consisting of a lift, stair and lockers;

- Construction of new external walkways providing an accessible path of travel between the driveway, the Science building, Centenary Hall, basement carpark and Elamang Avenue; and
- Category 1 remediation works.

Eastern Precinct

- Partial demolition of external stairs, landings, walkways and planters in between the Science and Performing Arts buildings;
- Construction of an interim connector pod in the Eastern Precinct consisting of accessible ramps, providing an accessible path of travel between the Science and Performing Arts buildings; and
- Category 1 remediation works.

Southern Precinct

- Partial demolition of the eastern Chapel wing;
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- Internal refurbishment to the ground floor level of the Chapel building;
- Construction of an accessible path of travel between the driveway, Chapel, St Joseph's Block and the courtyard; and
- Category 1 remediation works.

It is noted that the Campus Core remains largely unchanged, with the exception of the interface with the new circulation paths from the adjacent precincts and some minor landscaping works. The driveway will maintain its existing function as a formal (or ceremonial) visitor drop off and a temporary parking area for the campus mini bus.

2.3 Objectives of the Development

Loreto Kirribilli has identified the need to redevelop their existing school facilities in order to improve inefficient old teaching spaces, and replace them with modern learning spaces that complement new models of teaching and improve campus connectivity and accessibility.

The masterplan seeks to achieve the following objectives:

- To rationalise access arrangements across the campus;
- To develop a connected and clear wayfinding strategy;
- To provide more flexible and varied teaching and learning environments in line with Loreto's Future Focussed learning pedagogy;
- To replace cellular classrooms with collaborative learning spaces, and build the capacity to deliver Loreto's Future Focussed learning pedagogy which requires an additional 1 – 1.5m^2 of learning space per student;
- Enhance Loreto's garden setting through maximising access and identifying opportunities for additional potential landscaped open spaces and outdoor learning environments; and

- Utilise the topography of the site to maximise below-ground development, and preserve views as much as possible within and across the campus from the neighbouring properties.

It should be noted that the focus of the school's masterplan is not to increase student capacity, but rather to update the current facilities to meet modern teaching and learning requirements. However, the school's enrolments are already at capacity, and it is widely acknowledged that there is growing pressure on existing schools to meet the demands of population growth, particularly in areas such as Sydney's North Shore. As a result, the school proposes to increase the student population by 9.3% (100 students) and staff population by 1.1% (two staff) over the life of the masterplan. This is discussed further at **Section 4.5**.

2.4 Analysis of Alternatives

2.4.1 Strategic Need for the Proposal

As previously discussed in **Section 2.1**, the school is in need of redevelopment to improve the out-dated and inefficient teaching spaces and replace them with facilities and spaces that will reflect contemporary models of teaching.

The proposed development will enable Loreto Kirribilli to continue to provide high standards of education for young women and provide world class education that complements the Loreto Kirribilli vision.

The proposal will also provide equitable access across the campus for the first time through the introduction of a series of connector pods. The small increase in student numbers over the life of the masterplan will help the school meet the growing demand for quality education on the Sydney's North Shore.

2.4.2 Alternative Options

Three options are available to Loreto Kirribilli in responding to the identified need for the redevelopment of their facilities.

Option 1 – The Proposal

Option 1 involves following through with the proposed redevelopment as discussed in this SSD DA (as described in **Sections 3.0** and **4.0**). The proposal will address the strategic need identified above and will therefore provide a high quality development at each relevant stage.

Option 2 - Do Nothing

Under the 'do nothing' scenario the school would continue to use the existing out-dated school facilities which would result in a undesirable teaching and learning environment. The students and staff would continue to use the poor facilities, which are seen to have reached the end of their useable lifespan.

Option 3 – Alternative Design

Loreto School has undertaken a detailed analysis of the options available in responding to the need for new facilities on the campus, including consideration of the site constraints, impacts on neighbouring properties and the planning requirements.

The proposed development has been the subject of a robust design process aimed at creating a scheme which meets the functional educational needs and recognises and responds to the context of the school campus. The new Learning Hub has also been subject to review following the community consultation process to ensure that the building relates and responds to the amenity of the adjoining landowners.

The detailed design of future buildings within the proposed envelopes in the Eastern and Southern Precincts will be subject to separate development application processes, at which time the design and form of these buildings will be further considered to ensure that each design reflects high quality architecture which responds to the site's opportunities and constraints.

2.5 Secretary's Requirements

In accordance with Section 89G of the EP&A Act, the Secretary of the Department of Planning and Environment issued the requirements for the preparation of the EIS on 22 September 2016. A copy of the SEARs is included at **Appendix B**.

Table 1 provides a detailed summary of the individual matters listed in the SEARs and identifies where each of these requirements has been addressed in this report and the accompanying technical studies.

Table 1 – Secretary's Requirements

Requirement	Location in Environmental Assessment
General	
The Environmental Impact Statement (EIS) must be prepared in accordance with, and meet the minimum requirements of clauses 6 and 7 of Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* (the Regulation). Notwithstanding the key issues specified below, the EIS must include an environmental risk assessment to identify the potential environmental impacts associated with the development. Where relevant, the assessment of key issues below, and any other significant issues identified in the risk assessment, must include: • adequate baseline data • consideration of the potential cumulative impacts due to other developments in the vicinity (completed, underway or proposed); and • measures to avoid, minimise and if necessary, offset predicted impacts, including detailed contingency plans for managing any significant risks to the environment	Environmental Impact Statement
The EIS must also be accompanied by a report from a qualified quantity surveyor providing: • a detailed calculation of the capital investment value (CIV) (a defined in clause 3 of the Regulation) of the proposal, including details of all assumptions and components from which the CIV calculation is derived. The report shall be prepared on company letterhead and indicate applicable GST component of the CIV; • an estimate of jobs that will be created during the construction and operational phases of the proposed development; and • certification that the information provided is accurate at the date of	**Section 2.0**

Requirement	Location in Environmental Assessment	
preparation.		
Key Issues	***Report / EIS***	***Technical Study***
Concept Proposal		
The EIS must address the following specific matters: **1) Statutory Context** – including: Address the statutory provisions applying to the concept proposal contained in all relevant environmental planning instruments, including: • State Environmental Planning Policy (State & Regional Development) 2011; • State Environmental Planning Policy (Infrastructure) 2007; • State Environmental Planning Policy No.55 – Remediation of Land; and • North Sydney Local Environmental Plan 2013. *Permissibility* Detail the nature and extent of any prohibitions that apply to the development. *Development Standards* Identify compliance with the development standards applying to the site. Justify any development standards not being met. *Contamination* Demonstrate that the site is suitable for the proposed use in accordance with SEPP 55. – Relevant Policies and Guidelines: • Managing Land Contamination: Planning Guidelines - SEPP 55 Remediation of Land (DUAP)	**Section 7.1** **Section 7.14** **Section 8.0**	**Appendix C**
2. Policies and Guidelines Address the relevant planning provisions, goals and strategic planning objectives in the following: • NSW State Priorities; • A Plan for Growing Sydney; • NSW Long Term Transport Master Plan; • Sydney's Bus Future 2013; • Sydney's Cycling Future 2013; • Sydney's Walking Future 2013; and • Healthy Urban Development Checklist, NSW Health.	**Section 7.1**	-
3. Built Form and Urban Design • Provide a building envelope study to justify the proposed built form. • Establish appropriate design guidelines and development parameters within the context of the locality, including but not limited to: – site layout; – gross floor area;	**Section 7.2**	**Appendix A**

Requirement	Location in Environmental Assessment	
– building footprints; – height and massing of the building envelopes; and – open spaces, landscaping and tree planting. • Provide a visual impact assessment that identifies any potential impacts on the surrounding built environment and adjoining heritage items.		
4. Amenity Assess amenity impacts on the surrounding locality, including view impacts, overshadowing and acoustic impacts.	**Section 7.5** **Section 7.6** **Section 7.7**	**Appendix A** **Appendix D** **Appendix E** **Appendix F**
5. Staging Provide details regarding the staging of the proposed development.	**Section 4.2**	**Appendix A**
6. Transport and Accessibility Prepare a transport and accessibility impact assessment including, but not limited to the following: • the existing and proposed pedestrian and bicycle movements and facilities within the vicinity of the site and to public transport facilities as well as measures to maintain road and personal safety in line with CPTED principles; • an estimate of the total daily and peak hour trips generated by the proposal, including vehicle, public transport, pedestrian and bicycle trips; • the adequacy of public transport to meet the likely future demand of the proposed development; • impact of the proposed development on existing and future public transport infrastructure within the vicinity of the site; • measures to promote travel choices that support sustainable travel, such as a location-specific sustainable travel plan, provision of end-of-trip facilities, green travel plans and wayfinding strategies; • the daily and peak (AM, PM and events) transport trip movements impact on nearby intersections, with consideration of the cumulative impacts from other approved developments in the vicinity, and the need/associated funding for upgrading or road improvement works (if required); • the proposed active transport access arrangements and connections to public transport services; • the proposed access arrangements, including car and bus pickup/ drop-off facilities, and measures to mitigate any associated traffic impacts and impacts on public transport, pedestrian and bicycle networks; • proposed car and bicycle parking provision, including consideration of the availability of public transport and the requirements of the relevant parking codes and Australian Standards; and • service vehicle access, delivery and loading arrangements and estimated service vehicle movements (including vehicle type and the likely arrival and departure times). – Relevant Policies and Guidelines: • *Guide to Traffic Generating Developments (RMS)* • *EIS Guidelines – Road and Related Facilities (DoPI)*	**Section 7.3**	**Appendix G**

Requirement	Location in Environmental Assessment	
• *Austroads Guide to Traffic Management Part 12: Traffic Impacts of Development* • *Cycling Aspects of Austroads Guides* • *NSW Planning Guidelines for Walking and Cycling* • *NSW Bicycle Guidelines (RMS)* • *Development Near Rail Corridors and Busy Roads – Interim Guideline*		
7. Noise and Vibration Identify and provide a quantitative assessment of the main noise and vibration generating sources during operation. Outline measures to minimise and mitigate the potential noise impacts on surrounding occupiers of land. – Relevant Policies and Guidelines: • *NSW Industrial Noise Policy (EPA)*	**Section 7.7** **Section 7.10.2**	**Appendix E** **Appendix F**
8. Ecologically Sustainable Development (ESD) • Detail how ESD principles (as defined in clause 7(4) of Schedule 2 of the Environmental Planning and Assessment Regulation 2000) will be incorporated in the design, construction and ongoing operation phases of the development. • Include a description of the measures that would be implemented to minimise consumption of resources, water (including water sensitive urban design) and energy.		**Appendix H**
9. Heritage • Provide a statement of significance and an assessment of the impact on the heritage significance of the heritage items on the site in accordance with the guidelines in the NSW Heritage Manual. • Address any archaeological potential and significance on the site and the impacts the development may have on this significance.	**Section 7.4**	**Appendix I**
10. Aboriginal Heritage Where relevant, address Aboriginal Cultural Heritage in accordance with the *Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW* (OEH, 2011) and *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*.	**Section 7.4**	**Appendix J**
11. Contributions Address Council's Section 94A Contribution Plan and/or details of any Voluntary Planning Agreement.	**Section 7.17**	-
12. Flooding Assess any flood risk on site and consideration of any relevant provisions of the NSW Floodplain Development Manual (2005), including the potential effects of climate change, sea level rise and an increase in rainfall intensity.	**Section 7.9**	**Appendix K**
Stage 1		
The EIS for the construction early works must address the following specific matters: **1. Built Form and Urban Design** • Address the height, bulk, scale and setbacks of the proposed development within the context of the locality, surrounding development, topography and	**Section 5.0** **Section 7.2** **Section 7.16**	**Appendix A**

Requirement	Location in Environmental Assessment	
streetscape. • Demonstrate design quality of the proposed development, with specific consideration of site layout, connectivity, open spaces and edges, massing, building separation, building articulation, materials, choice of colours and an assessment against the Crime Prevention through Environmental Design principles. • Detail how services, including but not limited to, waste management, loading zones, mechanical plant are integrated into the design of the development.		
2. Amenity Assess amenity impacts on the surrounding locality, including view impacts, overshadowing and acoustic impacts.	**Section 7.5** **Section 7.6** **Section 7.7**	**Appendix A** **Appendix D** **Appendix E** **Appendix F**
3. Transport and Accessibility Detail access arrangements for construction of Stage 1 and measures to mitigate any associated pedestrian, cyclist or traffic impacts, including the preparation of a preliminary Construction Traffic 5 Management Plan (CTMP) to demonstrate the proposed management of the impact. The CTMP should also consider cumulative impacts associated with other construction activities and assess road safety at any key intersections subject to heavy vehicle movements and high pedestrian activity. – Relevant Policies and Guidelines: • *Guide to traffic generating developments (RMS)*	**Section 7.3**	**Appendix G**
4. Noise and Vibration Identify and provide a quantitative assessment of the main noise and vibration generating sources and activities during the construction of Stage 1. Outline measures to minimise and mitigate the potential noise impacts on surrounding occupiers of land. • *Relevant Policies and Guidelines:* • *Interim Construction Noise Guideline (DECC)* • *Assessing Vibration: A Technical Guideline 2006*	**Section 7.7** **Section 7.10.2**	
5. Ecologically Sustainable Development (ESD) • Include a description of the measures that would be implemented to minimise consumption of resources, water (including water sensitive urban design) and energy. • Demonstrate that the Stage 1 of the development has been assessed against a suitably accredited rating scheme to meet industry best practice.	**Section 7.15**	**Appendix H**
6. Drainage Provide a stormwater concept plan detailing how water quality and quantity impacts on drainage systems would be managed.	**Section 7.9**	**Appendix K**
7. Waste Preparation of a Waste Management Strategy that identifies, quantifies and classifies the likely waste streams to be generated during construction works for Stage 1 and describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste.	**Section 5.11** **Section 7.10.6**	**Appendix L**
Plans and Documents	**Report**	**Technical Study**
The EIS must include all relevant plans, architectural drawings, diagrams and	-	**Appendix A**

Requirement	Location in Environmental Assessment	
relevant documentation required under Schedule 1 of the Environmental Planning and Assessment Regulation 2000. Provide these as part of the EIS rather than as separate documents. In addition, the EIS must include the following: • Architectural drawings, including dimensions and RLs (Concept and Stage 1); • Site Survey Plan, showing existing levels, location and height of existing and adjacent structures / buildings and boundaries; • Site Analysis Plan; • Stormwater Concept Plan (Stage 1); • Sediment and Erosion Control Plan (Stage 1); • Shadow Diagrams (Concept and Stage 1); • View Analysis / Photomontages (Concept and Stage 1); • Landscape Plan, including identifying any trees to be removed and trees to be retained or transplanted (Concept and Stage 1); • Preliminary Construction Management Plan, inclusive of a Preliminary CTMP detailing vehicle routes, number of trucks, hours of operation, access arrangements, parking arrangements and traffic control measures at all stages of construction (Stage 1); • Geotechnical and Structural Report (Stage 1); • Accessibility Report (Stage 1); • Arborist Report; • Acoustic Report; • Acid Sulphate Soils Management Plan (if required); and • Schedule of materials and finishes (Stage 1).		**Appendix D** **Appendix E** **Appendix F** **Appendix M** **Appendix N** **Appendix O** **Appendix P** **Appendix Q** **Appendix R** **Appendix S** **Appendix U**
Consultation		
During the preparation of the EIS, you must consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners. In particular you must consult with: • North Sydney Council; and • Transport for NSW. The EIS must describe the consultation process and the issues raised, and identify where the design of the development has been amended in response to these issues. Where amendments have not been made to address an issue, a short explanation should be provided.	**Section 6.0**	**Appendix T**

3.0 Site Analysis

3.1 Site Location and Context

Loreto Kirribilli is located at 85 Carabella Street, Kirribilli within the suburb of Kirribilli on Sydney's North Shore. The campus is located approximately 500m east of the Milsons Point shops and train station. The site is located within the North Sydney Local Government Area.

The site's locational context is shown at **Figure 1**.

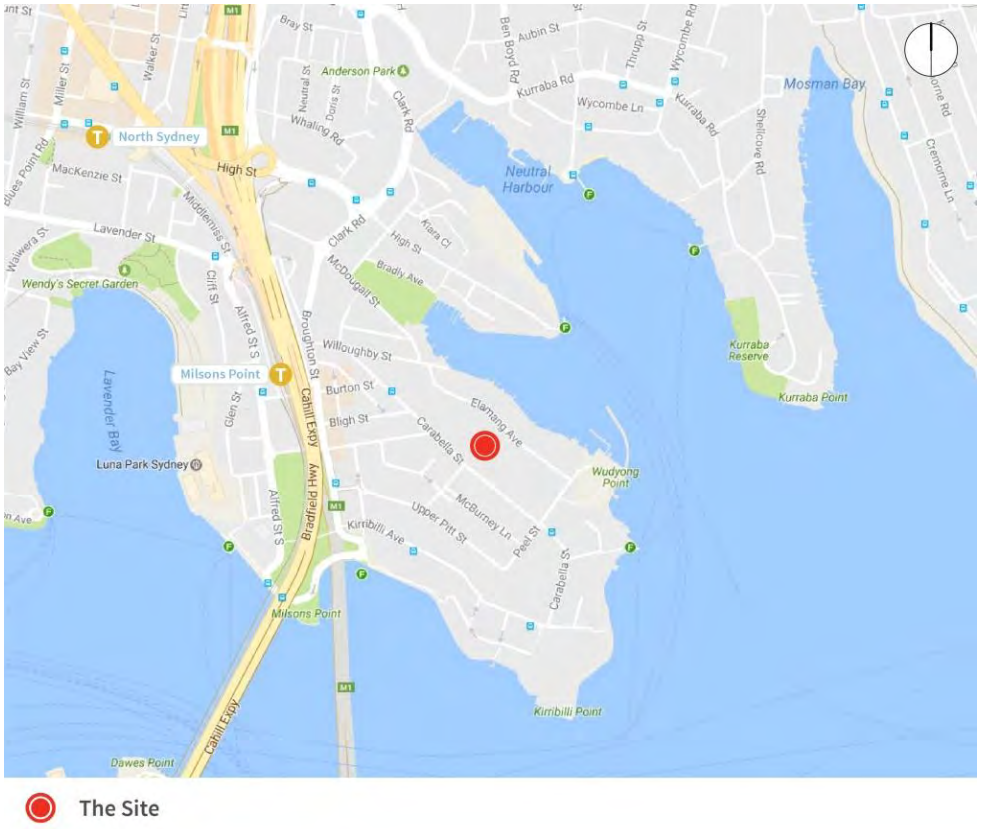

Figure 1 – Context Plan

Source: Google Maps

As shown in **Figure 2**, Loreto Kirribilli is located between Elamang Avenue and Carabella Street, and is surrounded by a mix of low, medium and high density residential development.

Figure 2 – Aerial Photo

Source: Nearmap and Ethos Urban

3.2 Site Description

The site is legally described as Lot 200 in DP 1166282. The land is owned by the Trustees of the Loreto Property Association. The school campus covers an area of approximately 1.82 hectares. It is irregular in shape and has two street frontages with the upper campus fronting Carabella Street (south) and the lower campus fronting Elamang Avenue (north). The campus slopes steeply from south to north and comprises a series of existing buildings which range in height, style and age. A Survey Plan has been prepared by Hammond Smealie and Co and is located at **Appendix U**.

For the purposes of the proposed development, the campus has been divided into five separate precincts (Campus Core, Northern Precinct, Eastern Precinct, Southern Precinct, Western Precinct). The five precincts, and the existing development within them, are shown at **Figure 3**.

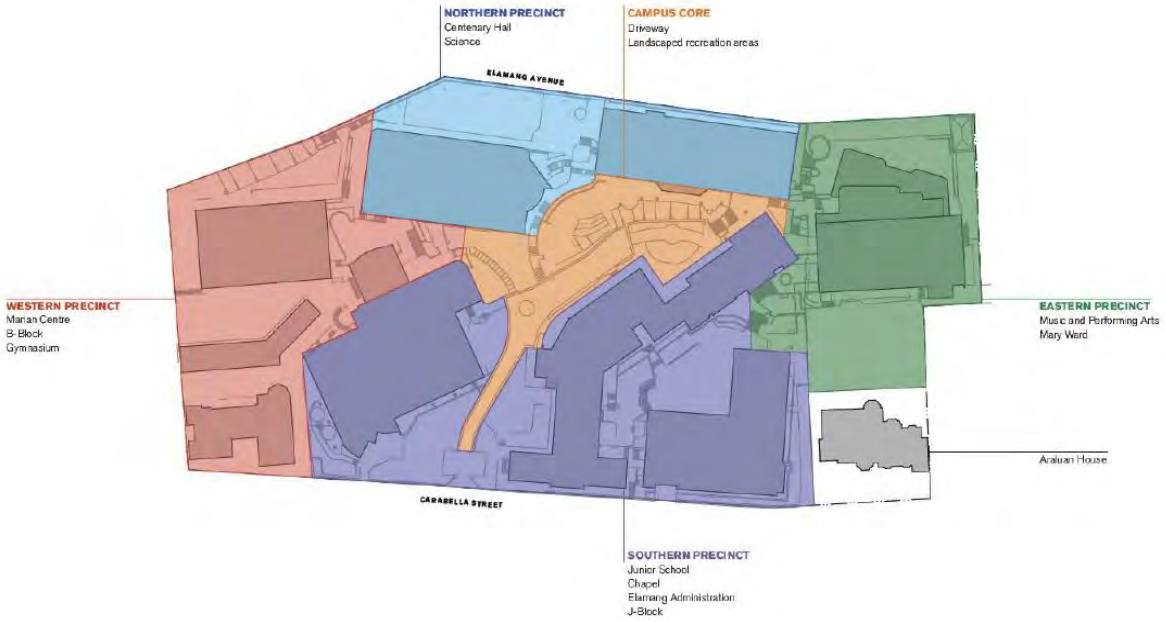

Figure 3 – Existing campus layout incorporating future development precincts

Source: FJMT

3.3 Existing Development

The site is currently occupied by a number of buildings which have been built over various phases of the school's development. Since the establishment of Loreto Kirribilli by members of the institute of the Blessed Virgin Mary in 1907, various buildings have been acquired and erected, which are characterised by distinct names. Elamang was the first building to be acquired, with the school continuing to acquire properties throughout the 20th Century.

Figure 4 identifies each of the buildings on the campus and the various phases of development throughout the school's history. In summary, development in the southern part of the campus generally took place between the 1950s and 1980s, with most development in the northern part of the campus taking place since 1990, with the acquisition of buildings adjacent to Elamang Avenue. In addition to Elamang, key buildings on the campus include the Chapel, J-Block, the Junior School, the Science Block, the Mary Ward and Centenary Hall.

Due to the lack of available open space, most buildings feature rooftop recreation and landscape areas. The site is accessible via three driveways from Carabella Street and two from Elamang Avenue. The main pedestrian entrances are from Carabella Street, with secondary entrances off Elamang Avenue.

It should be noted that Araluen House, located as 71 Carabella Street, does not form part of the masterplan site area. However, it has been used by the school as a Sister's residence since 1980.

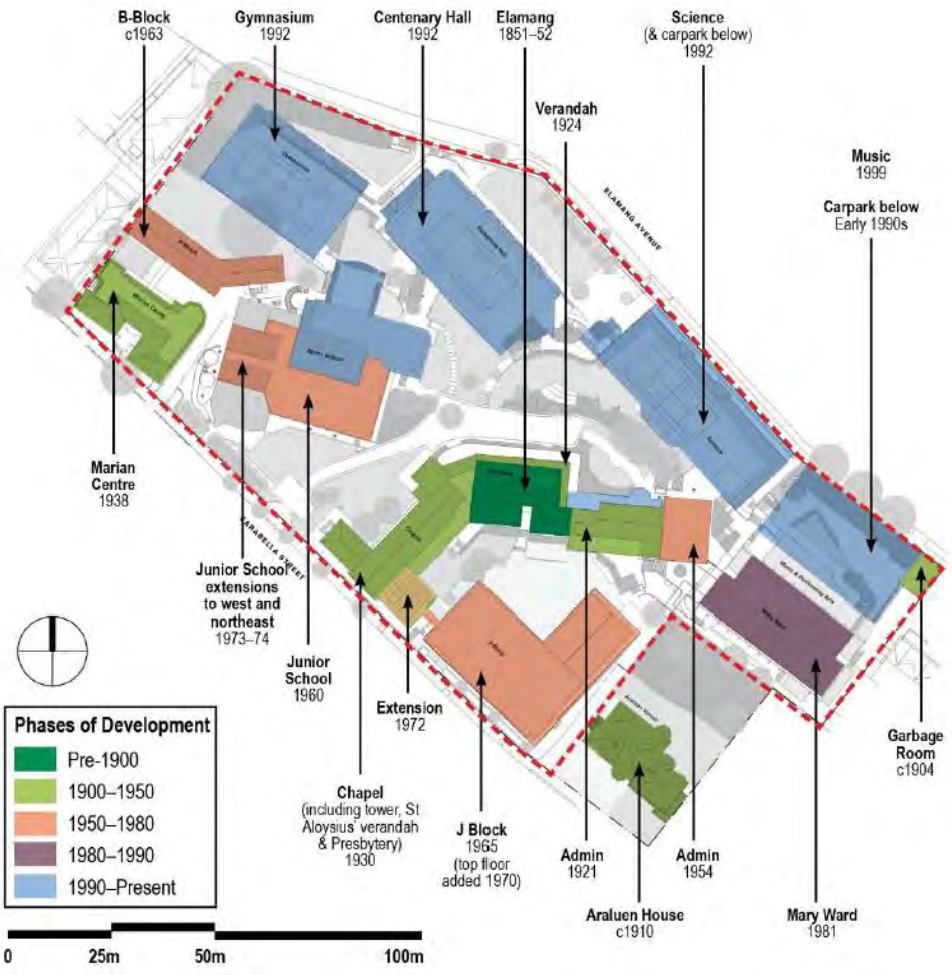

Figure 4 – Phases of development across the study area

Source: GML

The Western Precinct (the site of the proposed Learning Hub) is currently occupied by the Marian Centre, B-Block and Gymnasium, and has interfaces with the Junior School and Centenary Hall.

The Marian Centre fronts Carabella Street and was formerly used as a hostel before being purchased by the school in 2010. The building comprises 3 storeys fronting Carabella Street and steps down to five storeys in the north where it interfaces with B-Block.

B-Block is a 3 storey building which sits directly to the north of the Marian Centre, and was also originally built as a hostel. In 2010 and 2011, the Marian Centre and B-Block were renovated to enable their adaptive re-use as an educational facility with ancillary residential uses. The renovations only involved internal modifications to the buildings. There is an area of open lawn to the immediate north-east of B-Block, between B-Block and the Gymnasium.

The Gymnasium is located in the north-western corner of the campus, fronting Elamang Avenue. The Gymnasium was constructed in 1992 and consists of a double-height gymnasium space, with associated ancillary spaces. The building is partly subgrade, with a rooftop sports court that can be accessed from the adjacent ground level to the south-east side of the building. A small landscaped area is located between the Gymnasium and the school's Elamang Avenue boundary. The land within

this area falls steeply towards the property boundary, and is landscaped with some small trees, lawn and low shrubs.

Photographs of the three buildings within the Western Precinct are provided at **Figures 5** – **7**.

Figure 5 – The Marian Centre as viewed from Carabella Street

Source: Ethos Urban

Figure 6 – View of B-Block looking east, including the lawn area between B-Block and the Gymnasium

Source: Ethos Urban

Figure 7 – View of the gymnasium from the site's Elamang Avenue boundary

Source: Ethos Urban

Photographs of the key buildings on the remainder of the campus are provided at **Figures 8 – 12.**

Figure 8 – View of Centenary Hall looking east

Source: Ethos Urban

Figure 9 – View from Science Block looking south (up) from the bottom of the campus with the Chapel's belltower in the background

Source: Ethos Urban

Figure 10 – View from the central courtyard with J-Block (left), Chapel (centre) and Elamang (right)

Source: Ethos Urban

Figure 11 – View over the central courtyard towards J-Block (centre) and Elamang (left)

Source: Ethos Urban

Figure 12 – View over the Junior School (foreground) towards the rooftop sports courts and top of the Gymnasium (left)

Source: Ethos Urban

3.3.1 Topography

The site slopes steeply from south to north, with a fall of approximately 16 metres over the campus. The site's steep topography results in numerous level changes across the campus, and challenges around access and connectivity.

3.3.2 Heritage

The majority of the school campus is identified as a local heritage item under North Sydney LEP 2013 under the name 'Elamang' (10204). The State Heritage Inventory includes the following Statement of Significance for Loreto Kirribilli:

> *The listing includes the whole site. Of particular note are 'Elamang', a two-storey Colonial Georgian style mansion c 1851–52, Bell tower, Chapel and Presbetery. No. 71 Carabella St also has assocation [sic] with the school as the convent. Elamang is an important early house in Kirribilli associated with prominent local family. Built as one of the North Shore mansions on an elevated site commanding extensive harbour view. It is an intact, though modified, Georgian house on substantial grounds. It has been used throughout the twentieth century by a prominent private girls school. It remains a landmark in the area*

It is noted that there are no items individually listed as heritage items within the school campus.

Further, the western part of the campus (including the site of the proposed Learning Hub) is not included in the listing, and the school is not located within a heritage conservation area.

There are several heritage-listed buildings within the vicinity of the site, and the Careening Cove Conservation Area (CA10) is located to the northwest of the site.

3.3.3 Vegetation

There are 57 trees within or adjacent to the school campus. The trees generally comprise a variety of ornamental and indigenous trees which are scattered throughout the site, and around the site boundaries.

3.3.4 Flooding

The flood study shows that part of the site is flood affected. However, the flooding is limited to areas where there are pits and pipes behind existing buildings (such as behind the Junior School Building) which are considered as blockages for flood modelling. The flooding is not linked to mainstream flooding.

3.3.5 Soils and Geotechnical Conditions

The 1:100,000 Geological Map of Sydney indicates the site is underlain by Hawkesbury Sandstone of the Wianamatta Group comprising medium to coarse grained quartz sandstone, very minor shale and laminite lenses.

The Preliminary Stage 2 Environmental Site Assessment and Remediation Action Plan has confirmed that lead, polycyclic aromatic hydrocarbons (PAHs) and / or total recoverable hydrocarbons (TRH) are present in concentrations that exceed the human health site assessment criterion in 60% of the sample locations tested. In response, a Remediation Action Plan has been prepared to ensure that the site can be made suitable for the proposed use in accordance with *State Environmental Planning Policy 55 – Remediation* (SEPP 55).

With respect to Acid Sulphate Soils, *North Sydney Local Environmental Plan 2013* (North Sydney LEP 2013) does not contain any acid sulphate soils mapping, or provisions relating to acid sulphate

soils. However, the site is not located in an acid sulphate soil risk area according to the risk maps prepared by the Department of Land and Water Conservation.

3.3.6 Access and Parking

The site has frontages to Carabella Street and Elamang Avenue. There are multiple vehicular access points to the school on both road frontages, with the primary area for parent drop-off and pick-up on Carabella Street between the junctions with Fitzroy Street and Parkes Street.

There is an existing off-street car park accessed from Elamang Avenue. The car park is situated beneath the existing Science Block and Music and Performing Arts Centre, and provides a total of 80 car spaces. In addition to the formal parking area, the school has an agreement in place with the Royal Sydney Yacht Squadron for the use of 20 parking spaces for staff during school hours.

Servicing and loading currently takes place on-street on both Elamang Avenue and the loading zone on Carabella Street.

The main pedestrian entry into the school is via Carabella Street, however pedestrian access is also available via Elamang Avenue.

3.4 Surrounding Development

The site is surrounded by predominantly residential development, ranging in scale from low to high density.

To the north of the site along Elamang Avenue are single to two storey detached dwellings with vehicular access from Elamang Avenue. The dwellings are generally oriented to the north-east to enjoy views to Sydney Harbour, Neutral Bay and Kurraba Point. Also on Elamang Avenue is a nine storey residential flat building known Squadron Tower, located opposite the school's existing Science Block. **Figure 13** shows the Squadron Tower in the context of low density residential development on Elamang Avenue.

Figure 13 – View over Elamang Avenue, including the Squadron Tower apartment building opposite the school campus

Source: Ethos Urban

To the east of the site, at 10 Elamang Avenue, lies a locally listed residential property known as Vanduara. To the east of the site fronting Carabella Street lies Araluen House, which is owned by the Trustees of the Loreto Property Association and used as a residence for the Sisters, and Fairhaven. Both properties are Arts and Crafts style houses, and are locally listed heritage items. Further to the east lie high density residential apartment buildings (refer to **Figure 14**).

Figure 14 – View from the top of the Mary Ward towards Fairhaven (left) and Araluen House (right) and high density residential development beyond

Source: Ethos Urban

To the south of the site, on the opposite side of Carabella Street, lie a number of residential properties, ranging in density and style (refer to **Figures 15** and **16**). The dwellings are generally elevated above ground level garages with view corridors to the Harbour.

Figure 15 – Residential development to the south of the site on Carabella Street

Source: Ethos Urban

Figure 16 – Residential development to the south of the site on Carabella Street

Source: Ethos Urban

To the west of the site fronting Elamang Avenue lies a three storey apartment building with basement parking called Waterford. This building is not heritage listed. Immediately to the west of the school at 111 Carabella Street lies a three storey residential flat building called Malvern. The building dates from the early twentieth century, however is not heritage listed (refer to **Figure 17**).

Figure 17 – Residential development at 111 Carabella Street (left) and Marian Centre (right)
Source: Ethos Urban

4.0 Concept Proposal

This SSD DA seeks consent for the staged redevelopment of the Loreto Kirribilli campus. The masterplan has an indicative delivery timeframe of 50 years, however the timeframe for delivery will ultimately be determined by the school's operational requirements, the provision of funding, community consultation and obtaining the necessary building approvals.

The masterplan divides the site into five separate precincts (Campus Core, Northern Precinct, Eastern Precinct, Southern Precinct, Western Precinct). Concept approval is sought for building envelopes in the Eastern and Southern Precincts. The concept approval will provide a statutory framework for the long term development of the site. Works within the remaining precincts forms part of the Stage 1 works (refer to **Section 5.0**).

This Section details the principles which have underpinned the Concept Proposal, and provides a description of the proposed envelopes, the indicative staging of the proposed works, and the likely future uses of the buildings.

In summary, the Concept Proposal seeks approval for:

Eastern Precinct

- Partial demolition of external stairs, landings, walkways and planters in between the existing Science building, Elamang, Performing Arts and Mary Ward buildings;
- Demolition of the existing Performing Arts and Mary Ward buildings;
- Construction of a new six storey learning facility (height generally consistent with the existing building) including an integrated connector pod; and
- Removal of 1 tree.

Southern Precinct

- Demolition of existing buildings, site excavation and construction of a new six storey learning facility (two storeys above existing ground - Carabella Street).

Future buildings will be subject to subsequent detailed development applications or other approval pathways, and will be generally consistent with the Staged SSD DA consent. An overview of the proposal is provided at **Figure 18**.

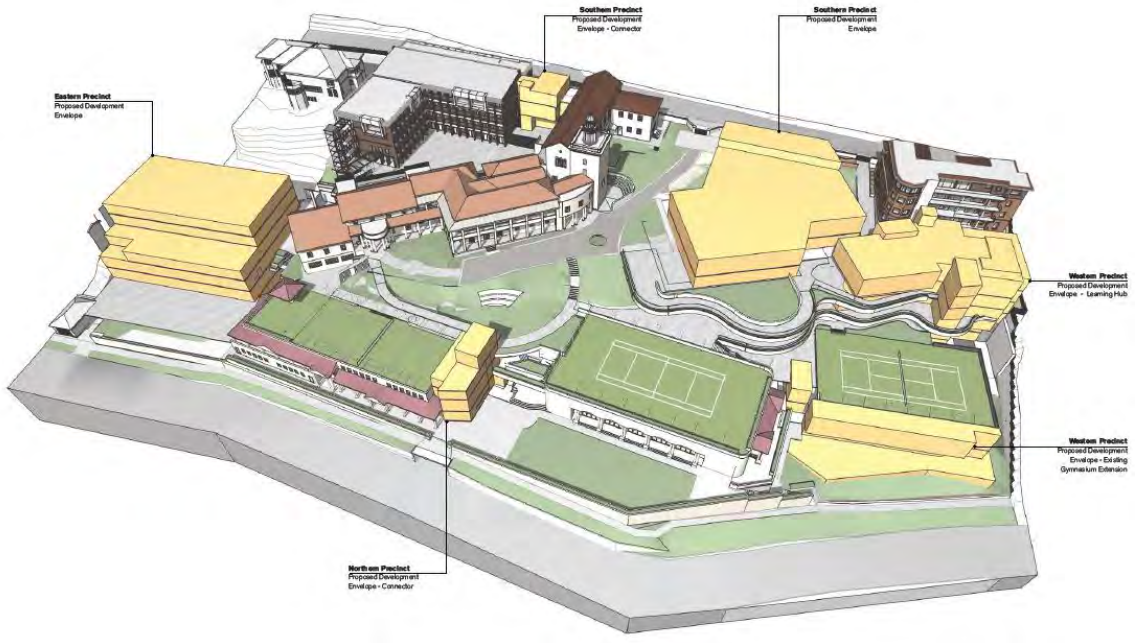

Figure 18 – The Concept Proposal

Source: FJMT

4.1 Urban Design and Architectural Principles

Following a detailed analysis of the site and the outcomes of continued consultation with the school community, a series of urban design principles have been developed for the Concept Proposal which respond to the various constraints and opportunities which have been identified. These are summarised below:

1. **Enhancing and extending the Campus Core** - In order to strengthen the campus core, the masterplan proposes to relate access to each of the buildings back to the main driveway level, either through physical or visual links. Movement around the campus is always directed back to the core of the site, away from the edges of the site, thereby strengthening the sense of community and containment (refer to **Figure 19**).

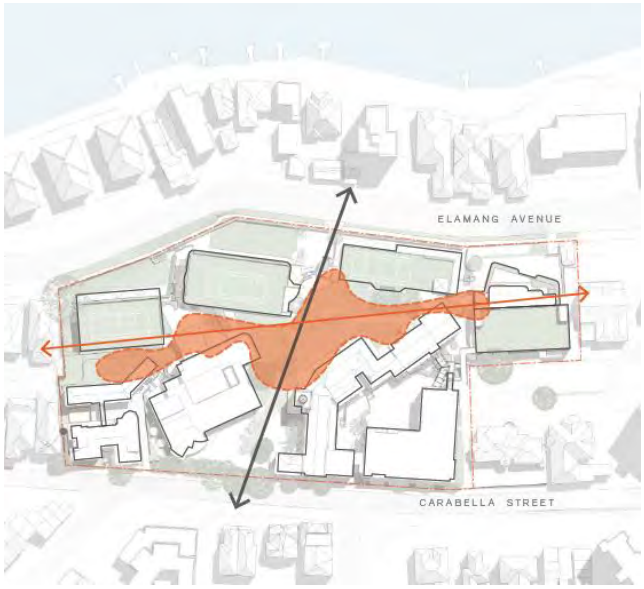

Figure 19 – Enhancing and extending the Campus Core

Source: FJMT

2. **Connected landscapes -** Overlaid onto the new extended campus core are new opportunities for external learning and engagement. Where possible, the current campus utilises the roof tops of the lower level buildings, this concept is further developed under the masterplan (refer to **Figure 20**).

Figure 20 – Connected landscapes

Source: FJMT

3. **Topography and contours -** The development of the site over the past 100 years has generally followed the contours in three defined level changes. This is reinforced in the new development sites proposed under the masterplan. Where possible, the natural topography of the site is maintained (refer to **Figure 21**).

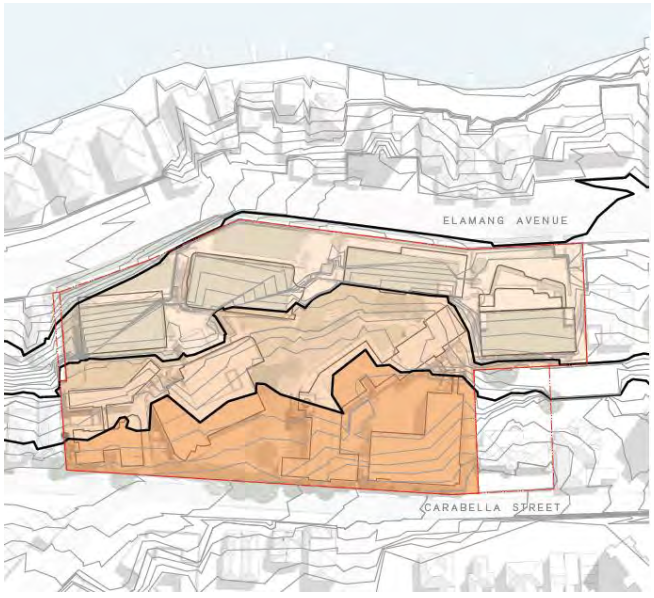

Figure 21 – Topography and contours

Source: FJMT

4. **Contextual grids and alignments** – The existing built forms are orientated to align with the adjacent streetscapes of Carabella Street and Elamang Avenue. The original villa of Elamang is orientated to the north, breaking the two street grids. The alignment of the existing campus structure is reinforced with the placement of the new buildings in the masterplan (refer to **Figure 22**).

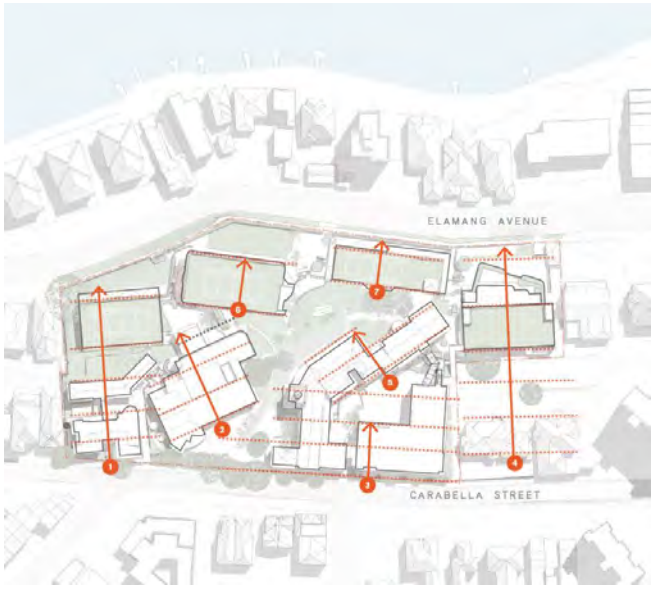

Figure 22 - Contextual grids and alignments

Source: FJMT

5. **Campus bookends** - To provide acoustic and visual privacy, two new development sites are proposed at the eastern and western ends of the site. These provide closure to the campus and a transition to the adjacent residential context (refer to **Figure 23**).

Figure 23 – Campus bookends

Source: FJMT

6. **Campus Connectors: Unlocking wayfinding, accessibility and circulation** - Develop a new language of 'Connectors' which provide new markers for the campus and will provide equitable access across the campus for the first time (refer to **Figure 24**).

Figure 24 – Campus connectors

Source: FJMT

4.2 Development Staging and Job Generation

Loreto Kirribilli has developed a staging plan for the Concept Proposal. It is envisaged that the development will be delivered in three stages, as outlined below and on the Staging Plans at **Appendix A**. Whilst detailed consent is sought for all of the works within Stage 1, these works may be phased depending on funding. Further, whilst the Eastern and Southern Precincts are likely to be delivered in two separate stages, the order of delivery may change depending on the school's needs and receipt of funding.

Stage 1

Stage 1 will comprise the new Leaning Hub in the Western Precinct and campus connectors in the Northern, Southern and Eastern Precincts as identified in **Figure 25**. Stage 1 is likely to be delivered in two sub-phases, as follows:

- Stage 1.1 - New Leaning Hub in the Western Precinct, including Western Precinct connector and Gymnasium extension; and
- Stage 1.2 - Campus connectors in the Northern, Southern and Eastern Precincts, including works to the Chapel.

It is expected that the Stage 1 works will generate 100 FTE jobs during the construction process.

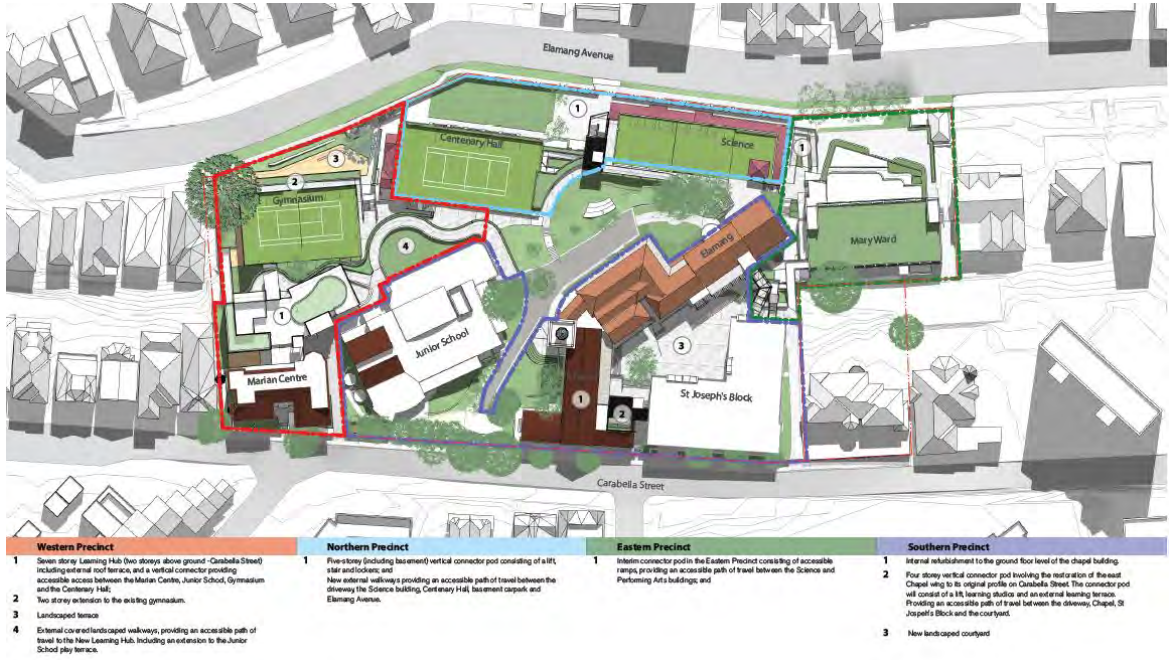

Figure 25 – Stage 1 works

Source: FJMT

Stage 2

Stage 2 is likely to comprise the redevelopment of the Eastern Precinct, as identified in **Figure 26**.

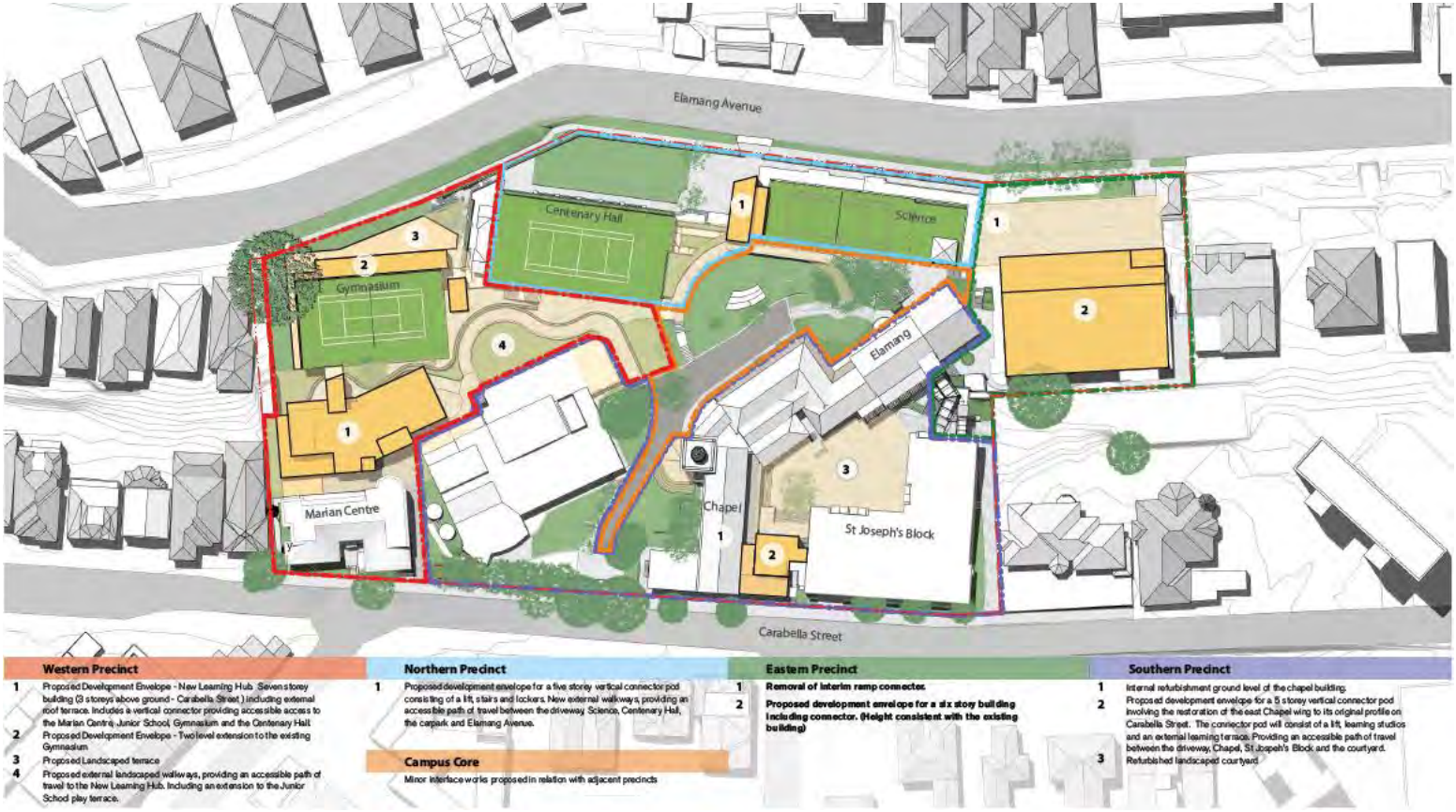

Figure 26 – Stage 2 works

Source: FJMT

Stage 3

Stage 3 is likely to comprise the redevelopment of the Southern Precinct, as identified in **Figure 27**.

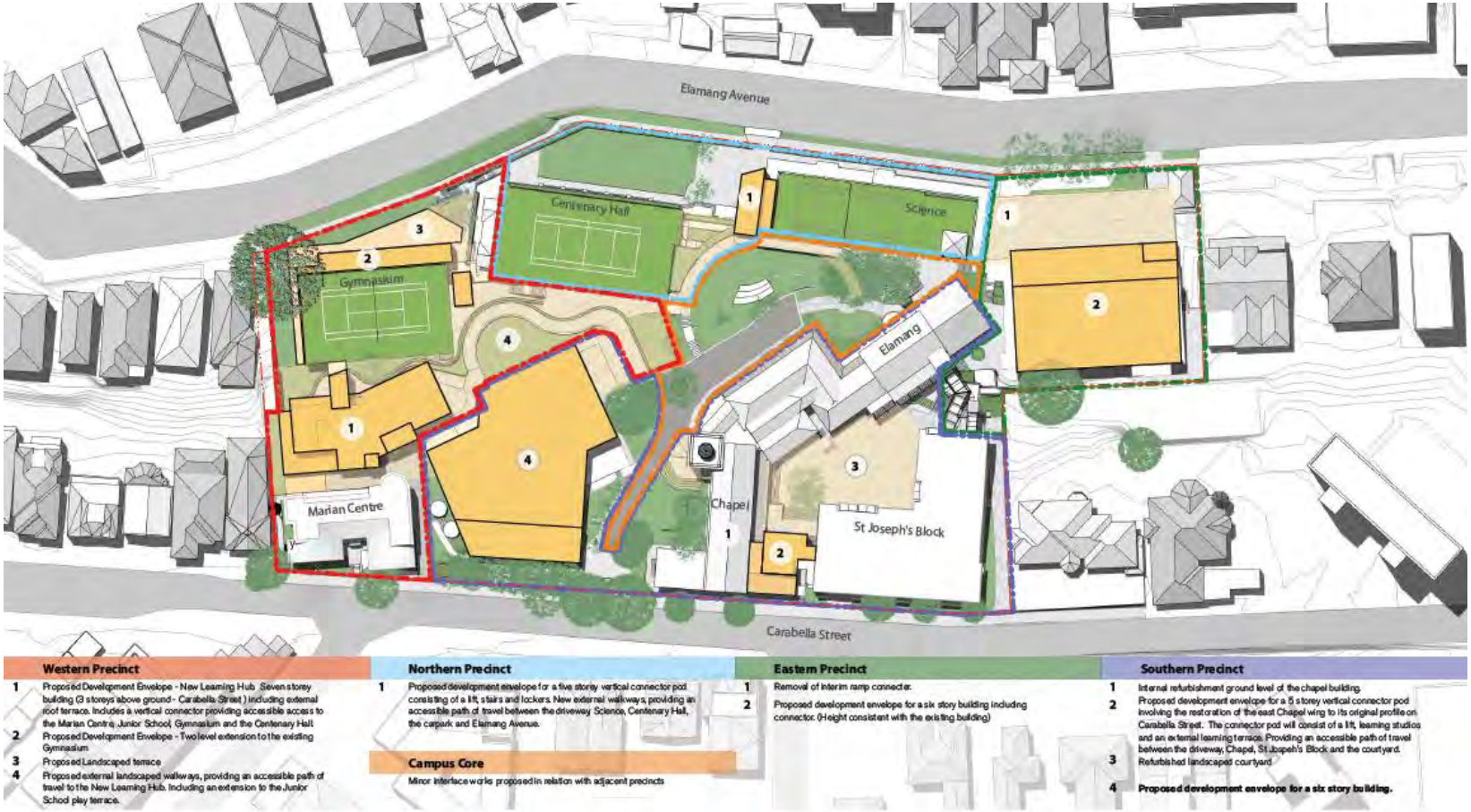

Figure 27 – Stage 3 works

Source: FJMT

4.3 Numerical Overview

The key numeric information for the Concept Proposal is summarised in **Table 2**.

Table 2 – Key numerical information

Component	Proposal
Campus Area	19,980m²
Additional GFA	
• North Precinct	New Vertical Connector - 0m² (part of Stage 1 works)
• East Precinct	Development envelope – 4,615m² (envelope)
• South Precinct	New Vertical Connector - 170m² (part of Stage 1 works) Development envelope – 5,287m² (envelope)
• West Precinct	Learning Hub – 2,446.20m² (part of Stage 1 works) Gymnasium – 332.05m² (part of Stage 1 works)
Total Additional GFA	*12,850.25m²*
Maximum Height	
• North Precinct	New Vertical Connector - RL 31.00 (14.7m)
• East Precinct	New Junior School (Envelope) - RL 32.90 (14.7m)
• South Precinct	New Vertical Connector – RL 43.97 (9.8m) Music and Performing Arts (Envelope) – RL 38.75 (9.5m)
• West Precinct	Learning Hub – RL 37.50 (14.5m) Gymnasium Extension – RL 22.70 (8.7m)
Boundary Setbacks (min)	
• North Precinct	Front (Elamang Avenue) boundary setback - 5m
• East Precinct	Front (Elamang Avenue) boundary setback - 5m
• South Precinct	Front (Carabella Street) boundary setback - 6m
• West Precinct	Side boundary setback (west) 3.14m
Car Parking	No change to existing parking arrangements
Loading and Servicing	• No change to existing arrangements for Concept Proposal • The new Learning Hub will have dedicated on-site loading, accessed off Carabella Street

4.4 Proposed Building Envelopes

Proposed uses and building envelopes for the Concept Proposal are described in the following Section. Indicative uses have been allocated to the envelopes, however because the Concept Proposal will be delivered over an extended period of time, the building uses have not been fully defined. Rather, flexible envelopes have been proposed which can accommodate a number of different functions over the life of the school.

4.4.1 Eastern Precinct

The Eastern Precinct currently accommodates the Music and Performing Arts Building and Mary Ward, with links into the Campus Core to the west. Works are proposed in the Eastern Precinct as part of both Stages 1 and 2. The works proposed under Stage 1 are described in **Section 5.0**.

Under Stage 2 of the Concept Proposal it is proposed to demolish the Music and Performing Arts Building to provide a new bookend development site in the east of the campus. This site will provide up to 4,615m^2 of additional floorspace, using the depth of the site to gain additional area and minimise impacts on neighbours. The site has been identified as a new Junior School, however the final use will be determined when the site is ultimately redeveloped.

Works within the Eastern Precinct as part of Stage 2 comprise:

- Partial demolition of external stairs, landings, walkways and planters in between the existing Science, Elamang, Performing Arts and Mary Ward buildings;
- Demolition of the existing Performing Arts and Mary Ward buildings;
- Excavation and construction of a new six storey learning facility to a maximum height of RL 32.90 (14.7m) (height consistent with the maximum height of the existing Mary Ward building) for a new Junior School (indicative use);
- Construction of an integrated connector pod within the new building;
- The north edge of the envelope has been designed to respect sightlines from the neighbouring property at 10 Elamang Avenue, consistent with the form of the existing building;
- A setback of 5m is proposed to the site's eastern boundary (to 10 Elamang Avenue) consistent with the existing setback; and
- Removal of one (1) tree and provision of new landscaping and outdoor learning spaces.

4.4.2 Southern Precinct

The Southern Precinct currently accommodates the Junior School, the Chapel and the associated Chapel Wing, Elamang and the J-Block. Works are proposed in the Southern Precinct as part of both Stages 1 and 2. The works proposed under Stage 1 are described in **Section 5.0**.

Under Stage 3 of the Concept Proposal it is proposed to demolish the existing Junior School to provide new learning and teaching facilities with associated circulation and external learning areas. The site has been identified as a new Music and Performing Arts Centre, however the final use will be determined when the site is ultimately redeveloped.

Works within the Southern Precinct as part of Stage 3 comprise:

- Demolition of existing buildings and site excavation;
- Excavation and construction of a new six storey learning facility to a maximum height of RL 38.75 (9.5m) for a new Music and Performing Arts Centre (indicative use);
- The new building has been designed to follow the topography of the site and will read as two storeys when viewed from Carabella Street;
- A setback of 6m is proposed to the site's southern boundary (to Carabella Street), consistent with the minimum setback of the existing Junior School; and

- The Stage 3 works will include revitalised landscape areas adjacent to Carabella Street. No tree removal is required to facilitate the Stage 3 works.

4.4.3 Indicative Gross Floor Area

As outlined in **Table 2**, the proposed envelopes in the Eastern and Southern Precincts will indicatively accommodate 9,902m^2 of additional GFA.

These additional GFA figures are indicative only. The proposed building envelopes allow for future building designs to flexibly respond to specific site conditions and context, and realise a high quality building design to accommodate future uses.

4.5 Student and Staff Numbers

Loreto Kirribilli currently caters for years K – 12, with a total of 1,080 students enrolled and 180 staff. There is an existing approval in place for up to 1,100 students.

Whilst the focus of the school's masterplan is not to increase student or staff numbers, the school's enrolments are currently at capacity, and it is widely acknowledged that there is growing pressure on existing schools to meet the demands of population growth, particularly in areas like Sydney's North Shore.

The school proposes to introduce an additional 100 students (10% addition on existing approval) and two staff to the site over the life of the masterplan (50 years), resulting in a total of 1,200 students and 182 staff.

4.6 Tree Removal, Open Space and Landscaping

4.6.1 Tree Removal

A total of 11 trees are proposed to be removed to accommodate the Concept Proposal and Stage 1 works, comprising:

- 10 trees associated with the Stage 1 works; and
- One (1) tree associated with the Stage 2 works.

In addition to the above the project arborist, Naturally Trees, has identified that there are a further 31 high category trees and 15 low category trees that will require implementation of tree protection measures to ensure their ongoing health and survival during construction works.

4.6.2 Open Space and Landscaping

A Landscape Masterplan has been prepared by Site Image Landscape Architects and is included at **Appendix M**. The landscape masterplan seeks to achieve the following objectives:

- Respect and enhance the setting and existing natural features of the site;
- Incorporate the accessible and weatherproof paths of travel with existing and proposed buildings;
- Propose an ongoing strategy for the retention, removal and replacement of existing trees;
- Provide gardens areas to assist with learning e.g. food technology and science;

- Provide landscape amenity to new buildings; and
- Propose a consistent palette of materials and planting for ongoing use in future stages.

The landscape masterplan for the Concept Proposal includes the following principles for landscaping in the Eastern Precinct:

- Complimentary landscaping to the future building may include boundary planting, breakout spaces and feature planting to circulation and peripheral areas; and
- Planting concepts and materiality to be consistent with the Stage 1 works.

The landscape masterplan for the Concept Proposal includes the following principles for landscaping in the Southern Precinct:

- Maintain existing trees and provide peripheral landscaping to outdoor learning spaces, circulation and presentational areas; and
- Planting concepts and materiality to be consistent with the Stage 1 works.

4.7 Vehicle Access, Parking and Servicing

As noted in **Section 3.3**, there are currently 80 parking spaces located in a basement car park beneath the Music and Performing Arts and Science building, which is accessed via Elamang Avenue. In addition to these 80 spaces, the school has an agreement in place with the Royal Sydney Yacht Squadron which permits a further 20 parking spaces to be used by staff during school hours.

Servicing is currently conducted on-street on both Elamang Avenue and Carabella Street.

No changes are proposed to existing vehicular access, parking or servicing arrangements as part of the Concept Proposal or Stage 1 works. However, as part of the Stage 1 works, a new loading space will be provided to service the Learning Hub, with access provided via an existing driveway on Carabella Street.

The implications of the proposal on the existing access, parking and servicing arrangements are discussed further at **Section 7.3** of this report.

4.8 Pedestrian Access

No changes are proposed to existing pedestrian access arrangements as part of the Concept Proposal or Stage 1 works. The primary pedestrian access into the campus will continue to be via the main entry gates on Carabella Street.

Student pick-up and drop-off will continue to be via Carabella Street.

4.9 Ecologically Sustainable Development

A Sustainability Master Plan has been prepared by Norman Disney and Young, and is included in **Appendix H**. ESD principles will be incorporated into the design, construction and ongoing operation phases of the development. Loreto School is taking a 'best-for-school approach' to the redevelopment of the campus, and as such, a number of site-wide sustainability opportunities are currently proposed for the project, including:

- Improved campus connectivity;
- Improved energy efficiency through achieving code-compliance for upgrade works; and
- Improved health and wellness outcomes for students and staff.

Future buildings will be designed and assessed individually to meet sustainability best practice, in line with the principles set out above.

5.0 Detailed Stage 1 Works

This Section of the report provides a detailed description of the proposed Stage 1 works. Architectural Drawings are included at **Appendix A**.

The application seeks approval for the following works:

Western Precinct

- Demolition of the existing B-Block, the northern facade of the Gymnasium and partial demolition of external stairs, landings, walkways and planters between the Gymnasium, Centenary Hall and the Junior School;
- Site excavation to the existing Gymnasium level;
- Construction of a seven storey Learning Hub (two storeys above ground - Carabella Street) including external roof terrace, and a vertical connector providing accessible access between the Marian Centre, Junior School, Gymnasium and the Centenary Hall;
- Construction of a two storey extension to the north of the existing Gymnasium;
- New landscaping and external play areas over the existing tennis court;
- Construction of external covered landscape walkways for improved accessible connectivity, and an extension to the Junior School play terrace;
- Utilities and services connections;
- Removal of 10 trees; and
- Category 1 remediation works.

Northern Precinct

- Partial demolition of external stairs, landings, walkways and planters in between the Science building and Centenary Hall;
- Construction of a new five-storey (including basement) vertical connector pod consisting of a lift, stair and lockers;
- Construction of new external walkways providing an accessible path of travel between the driveway, the Science building, Centenary Hall, basement carpark and Elamang Avenue; and
- Category 1 remediation works.

Eastern Precinct

- Partial demolition of external stairs, landings, walkways and planters in between the Science and Performing Arts buildings;
- Construction of an interim connector pod in the Eastern Precinct consisting of accessible ramps, providing an accessible path of travel between the Science and Performing Arts buildings; and
- Category 1 remediation works.

Southern Precinct

- Partial demolition of the eastern Chapel wing;
- Demolition of external stairs and landings within the courtyard;

- Construction of a four storey vertical connector pod involving the restoration of the east Chapel wing to its original profile on Carabella Street. The connector pod will consist of a lift, learning studios and an external learning terrace;
- Internal refurbishment to the ground floor level of the Chapel building;
- Construction of an accessible path of travel between the driveway, Chapel, St Joseph's Block and the courtyard; and
- Category 1 remediation works.

The development described above will provide 2,948.25m^2 of additional GFA.

A photomontage of the proposed Learning Hub is shown at **Figure 28** and **29**.

Figure 28 – The proposed Learning Hub

Source: FJMT

Figure 29 – The proposed Learning Hub and tennis court extension in the context of the broader campus

Source: FJMT

5.1 Numerical Overview

The key numeric development information for the Stage 1 works is summarised in **Table 3**.

Table 3 – Key development information

Component	Proposal
Campus Area	19,980m²
Additional GFA	
• North Precinct	New Vertical Connector - 0m² (part of Stage 1 works)
• East Precinct	N/A
• South Precinct	New Vertical Connector - 170m² (part of Stage 1 works)
• West Precinct	Learning Hub – 2,446.20m² (part of Stage 1 works) Gymnasium – 332.05m² (part of Stage 1 works)
Total Additional GFA	*2,948.25m²*
Maximum Height	
• North Precinct	RL 31.00 (14.7m)
• East Precinct	N/A
• South Precinct	RL 43.97 (9.8m)
• West Precinct	Learning Hub - RL 37.50 (14.5m)
	Gymnasium Extension - RL 22.70 (8.7m)
Boundary Setbacks (min)	
• North Precinct	Front (Elamang Avenue) boundary setback – 5m
• East Precinct	N/A
• South Precinct	Front (Carabella Street) boundary setback – 1.7m (same alignment as existing Chapel)
• West Precinct	Side boundary setback (west) 3.14m
Car Parking	No change to existing parking arrangements
Loading and Servicing	• The new Learning Hub will have dedicated loading off Carabella Street

5.2 Urban Design Principles

The proposed concept plan and Stage 1 works are based on the following design principles:

- **Heritage and landscape** – to respect the existing heritage fabric within the campus, to provide a complimentary palette of materials to the heritage materials of brickwork, sandstone and terracotta tiles and preserve, where possible, existing landscaped areas.
- **Views and beauty** – to preserve the important views to, from and within the site with any new additions, to frame and reveal views with new works, and to minimise view loss from neighbouring properties.
- **Accessibility and wayfinding** – to fully integrate accessible pathways into the existing and new fabric and to develop the new 'campus connectors' to provide new orientation points, much like the existing Chapel belltower.

- **Innovation and technology** – to provide infrastructure to meet contemporary standards and anticipated future standards, and to provide flexible learning spaces which can be adapted over time.
- **Differentiation** – to develop circulation areas as learning spaces and 'blur' the separation between corridor and classroom, internal and external.
- **Flexibility** – to provide a series of general areas that can be easily adapted to changing group sizes and modern teaching.
- **Learning that is visible** – to open up learning spaces with the use of glass to provide visibility, and an inclusive, collaborative and stimulating learning environment.
- **Sustainability and wellbeing –** to foster sustainability and wellbeing with all new works, and infrastructure to meet contemporary standards and anticipated future standards.

5.3 Tree Removal, Demolition and Excavation

5.3.1 Tree Removal

In order to accommodate the Learning Hub and new vertical connectors it will be necessary to remove six (6) high category trees and four (4) low category trees. The high category trees to be removed are identified as tree numbers 7, 38, 52, 53, 54 and 55 in the Arboricultural Impact Appraisal and Method Statement at **Appendix S**.

The unimportant trees to be removed are identified as tree numbers 39, 40, 41 and 50.

5.3.2 Demolition and Excavation

To facilitate the proposed development in the Western Precinct, the existing B-Block will be demolished. The new Learning Hub also requires partial demolition of the external stairs, landings, walkways and planters between the Gymnasium, Centenary Hall and the Junior School. The Gymnasium's northern façade will also be demolished to accommodate the new Gymnasium extension.

Excavation will be carried out to align with the existing Gymnasium Floor level to a depth of RL 14.00m. As outlined in the Geotechnical Investigation, it is expected that sandstone will be encountered during the excavation period. It is anticipated that some of the quarried sandstone will be stored offsite for storage and prepared for later installation on site.

5.4 Category 1 Remediation Works

This application seeks consent for Category 1 remediation works as detailed in the Remediation Action Plan prepared by Environmental Investigation Services (**Appendix C**) and discussed further at **Section 7.14**. Environmental Investigation Services has recommended that contaminated material be removed from site and reinstated with clean material. This approach offers the following benefits:

- In most areas of the site, the depth of fill material appears to be relatively shallow. Therefore the total volume of fill material to be disposed is not expected to be excessive;
- The remedial works would generally be able to be conducted in conjunction with the construction works; and

- Removing the contaminated soil from the site would avoid the need to prepare an EMP for the site and the need to provide ongoing management of the contamination.

5.5 Proposed Learning Hub and Gymnasium Extension

5.5.1 Building Layout, GFA and Use

Building Layout

The proposed Learning Hub comprises a seven storey building (two storeys above Carabella Street) including an outdoor learning roof terrace. The proposed Learning Hub provides a Future Focussed Learning model for Science Technology English and Mathematics (STEaM).

The new building will act as a 'bookend' for the Western Precinct, and will link the Marian Centre and the Gymnasium to the Campus Core, providing access to the Gymnasium via a new lift and stairs as well as additional teaching space comprising of a new Learning Studio, Weights Area, relocated Change Rooms, new Storage and Outdoor Learning Area (refer to **Figure 30**).

In order to maintain a consistent scale with the surrounding building fabric of the campus, the Learning Hub is broken down into a series of smaller volumes. The proportions of each element have been carefully considered in relation to the fabric of the existing school campus and also the surrounding residential context.

Further, and consistent with the Design Principles established for the site under the masterplan, the building has been aligned with both the Carabella Street (and Marian Centre) grid and the Elamang Avenue (and Junior School) grid. The main bulk of the building has been pushed deep into the site, and uses the topography of the land to minimise the scale of the building above ground level, thereby minimising any impacts on views and residential amenity. Areas not requiring access to daylight have been located to the rear of the building.

The building comprises a simple concrete frame with a number of connecting concrete terraces. All major learning spaces are orientated to the north to maximise access to views and natural light, and are protected by large balconies. To ensure thermal comfort, the east and west facades are either shaded or have minimal openings.

As outlined above, the integration of landscape and outdoor learning is an important aspect of the Loreto Kirribilli campus and the teaching and learning methodology of the school. Consistent with the masterplan, new landscaping is proposed for both recreation and outdoor learning opportunities.

Figure 30 – Section through the proposed Learning Hub demonstrating the linkages with the existing Gymnasium and Marian Centre

Source: FJMT

Building Use by Level

The use and GFA of each level is outlined in **Table 4**. It is noted that there is no Floor Space Ratio control applying to the Loreto Kirribilli campus.

Table 4 – Building use by level

Level	Use
Learning Hub	
Lower Ground 4	Circulation / open collaboration
Lower Ground 3	Circulation / open collaboration
Lower Ground 2	• Store / wet area • Meeting rooms • Food preparation area • Food technology kitchen • Cool room • Laundry / store room • Circulation / open collaboration • Studio food technology / design • Amenities
Lower Ground 1	• Studio workshop • Store • Meeting rooms • Learning studio • Circulation / open collaboration • 3D printer • Laser cutter
Ground	• Store / wet area • Store • Staff area • Presentation space • Learning studio • Circulation / open collaboration
Level 1	• Support space • Studio workshop • Store / wet area

Level	Use
	• Learning studio • Circulation / open collaboration • Amenities
Level 2	Roof terrace
Gymnasium Extension	
Lower Ground 4	• Change room / amenities • PDHPS – Equipment store • PDHPS – Movement studio or weights
Lower Ground 3	• Change room / amenities • PDHPE staff • Store

Hours of Operation

As is currently the case, the school (including the new Learning Hub) will primarily operate between 8:30am and 3:30pm, Monday to Friday. However, consistent with existing operations, the school will continue to operate outside of hours and on the weekend for a range of extra-curricular activities including sport, parent evenings and school performances.

5.5.2 Building Height

The Learning Hub has been designed to follow the topography of the site towards the north. As shown in **Figure 31**, the building is predominantly within the 12m height limit which applies to this part of the school campus, however there are point exceedances to accommodate the lift, stairs and plant. The highest point of the Learning Hub is the stair connection on the building's northern elevation, which has a height of RL 37.50 (14.5m). **Figure 31** also shows that the Learning Hub sits well below the height of the existing Marian Centre fronting Carabella Street, thereby reducing any streetscape impacts.

The extension to the Gymnasium has a maximum height of 8.7m and is therefore within the 12m height control.

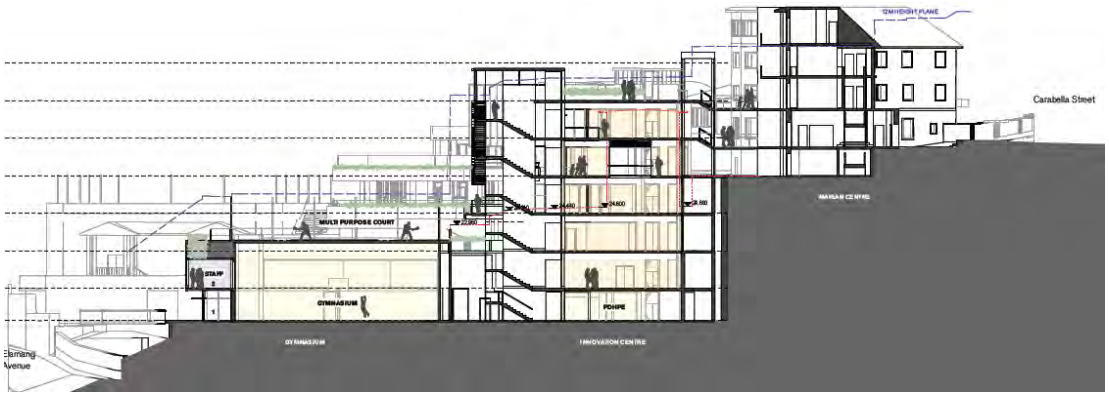

Figure 31 – Section of the Learning Hub and Gymnasium Extension

Source: FJMT

5.5.3 Building Setbacks and Relationship to Neighbouring Buildings

The Learning Hub is setback a minimum of 3.14m to the site's west boundary, consistent with North Sydney Council DCP which requires a minimum setback of 3m where non-residential uses are proposed adjacent to residential development.

Whilst there is a minor encroachment into the 45 degree setback plane, the encroachment has been ameliorated by setting the overall built form back from the boundary by over 3m. As detailed throughout this report, the impact of the minor non-compliance on the neighbouring properties is consistent with the impact of a fully compliant envelope with respect to solar access and views.

The proposed design has carefully considered views from the surrounding properties at 111 Carabella Street and 22 Elamang Avenue. The main property affected by the new Learning Hub is the residential unit at 9/111 Carabella Street, located to the west of the campus. In order to ameliorate any impacts, specific attention has been paid to the roof scape of the Learning Hub to provide an acceptable outlook (refer to **Figure 32**).

Views to and from all windows in close proximity to the boundary will either be screened or will use opaque glazing. All outdoor learning areas are located to the north of the proposed Learning Hub, overlooking the existing campus. The western walls of these spaces are screened from the adjacent developments.

Impacts on adjoining residents are considered throughout **Section 7.0** of this EIS.

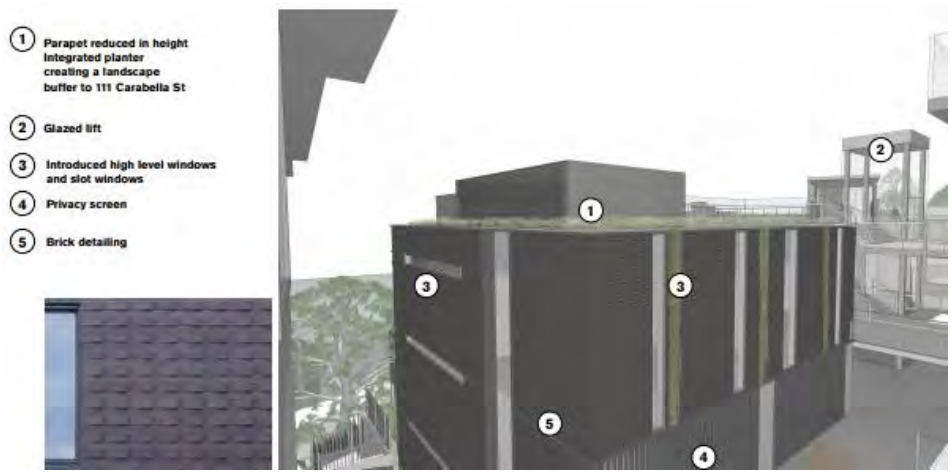

Figure 32 – Learning Hub design amendments to improve amenity to 111 Carabella Street

Source: FJMT

5.5.4 External Materials and Finishes

The materials and finishes for the new building have been chosen to complement the existing materiality of the Loreto campus and also the surrounding context with reference to the Kirribilli Planning Area Character Statement.

As shown on the Finishes Schedule (**Appendix A**) the proposed Learning Hub will have an exposed structure of off form concrete with dark face brick infill. All glazing with be aluminium framed with either a dark bronze toned powder coat or anodised finish and the north facing balconies will be protected by a fine grained stainless steel mesh or similar to provide both fall protection and also

solar shading. The facade to the northern stair will be protected by dark bronze toned powder coat or anodised aluminium louvres which will provide the appropriate solar performance.

In order to improve the amenity of views from 111 Carabella Street, the lift enclosure at roof level is glazed. The accessible roof scape is either paved or planted and the plant areas will be screened with aluminium louvres and screening elements.

The connecting walkways will be rendered and painted concrete, with a similar coloration to the existing fabric. It is intended that landscaped edges will be located at intervals along the walkways as well as on the roof terraces of both the Learning Hub and the Gymnasium extension.

The facade of the extension to the Gymnasium will be have a similar palette to the Learning Hub, dark coloured face brick with aluminium framed glazing and louvres.

5.6 Vertical Connectors and Refurbishment Works

This Section of the report describes the vertical connectors in the Northern, Southern and Eastern Precincts and the internal refurbishment works associated with the installation of these connector pods.

5.6.1 North Precinct Connector

The Northern Precinct includes Centenary Hall and the recently refurbished Science Block. Both existing buildings have sports courts located on their roofs.
There is no equitable access between the Campus Core and Centenary Hall – it is only accessible from within the car park located off Elamang Avenue. Similarly, the Science Block is not accessible from the Campus Core.

The proposed vertical connector in the North Precinct seeks to resolve these issues. The connector will be five-storey (including basement) and will include a lift, stair and lockers. The connector has a maximum height of RL31 (14.7m). The connector will provide an accessible path of travel between the driveway, the Science building, Centenary Hall, basement carpark and Elamang Avenue (refer to **Figure 33**).

Figure 33 – Section of the Northern Precinct vertical connector

Source: FJMT

The new Northern Connector will have an exposed structure of off form concrete with dark face brick infill. All glazing with be aluminium framed with either a dark bronze toned powder coat or

anodised finish. The facade to the northern stair (fronting Elamang Avenue) will be protected by dark bronze toned powder coat or anodised aluminium louvres which will provide the appropriate solar performance. In order to improve the amenity of the views to the new Northern Connector from the adjacent buildings the lift enclosure at roof level is glazed. A perspective of the Northern Connector, as viewed from Elamang Avenue, is provided at **Figure 34**.

Figure 34 – Northern Connector, as viewed from Elamang Avenue

Source: FJMT

5.6.2 Southern Precinct Connector

The Southern Precinct includes the Junior School, the Chapel and the associated Chapel Wing, Elamang and the J-Block.

The proposed vertical connector in the Southern Precinct will provide an accessible path of travel between the driveway, all levels of the Chapel and J-Block and the central courtyard. The connector will be four-storeys and will include a lift, stairs, learning studios and an external learning terrace. The connector has a maximum height of RL43.97 (9.8m) and has been setback to align with existing adjacent buildings along Carabella Street. A section of the new Southern Precinct connector is provided at **Figure 35**.

Consistent with the Northern Precinct connector, the new Southern Precinct connector will have an exposed structure of off form concrete with glazed infill. All glazing with be aluminium framed with either a dark bronze toned powder coat or anodised finish.

Figure 35 – Section of the Southern Precinct connector, including the interface with the Chapel
Source: FJMT

The creation of the southern connector requires modifications to the Chapel and J-Block, including internal alterations to Levels E and F of the Chapel to create new learning spaces, and the conversion of existing windows to doorways to provide access to the St Aloysius verandah. The works to the Chapel also involve the removal of an intrusive addition to the J-Block and the reconstruction of the east Chapel wing to its original profile along Carabella Street.

Alterations are also proposed to the Chapel's southern wing including removal of the internal stair, an external wall and windows on the ground floor (Level F). It is also proposed to removal internal walks and two windows at Level H to facilitate connections to the new vertical connector.

An assessment of the proposed works to the Chapel on the site's heritage significance is discussed at **Section 7.4**.

5.6.3 Eastern Precinct Connector

As part of the first stage of works, an interim ramp system is proposed as a means of providing an accessible path of travel to the Performing Arts building. A permanent vertical connector will form part of the redevelopment of this site.

5.7 Open Space and Landscaping

Site Image Landscape Architects have prepared Landscape Plans for the Stage 1 works (refer to **Appendix M**). The Stage 1 works include the following landscape elements.

- **Gymnasium Breakout Space** – An open deck area is proposed adjacent to the refurbished gymnasium. This space will serve as a break out space with seating providing greater usability to the sloped embankment to the site's Elamang Avenue boundary.
- **Food Technology Garden** – A garden area for use for food technology. Raised planter beds and circulation spaces are proposed for easy access.
- **Junior School Terrace** - Outdoor learning and garden space for the Junior School.
- **Chapel Seating** - Gathering space adjacent Chapel for small groups.
- **Northern Connector** - Proposed planting and hardscape zones for the Centenary Hall forecourt.

- **Southern Connector** - Access to the J-Block courtyard, additional seating and planting to the edges of this space.
- **Eastern Connector** - Landscaping is proposed to be incorporated into the ramps to allow for ramp access to the auditorium.

The Stage 1 landscape works are summarised in **Figure 36**.

Figure 36 – Stage 1 landscape proposal

Source: Site Image Landscape Architects

5.8 Vehicular Access, Parking and Servicing

5.8.1 Vehicular Access and Parking

There will be no changes to existing access or parking arrangements as part of the Stage 1 works, and there will be no dedicated parking for the new Learning Hub. Staff will continue to utilise existing access and parking arrangements.

5.8.2 Servicing

A new loading area will be provided for the Leaning Hub, with access provided via an existing driveway on Carabella Street to the east of the Marian Centre. The loading area will be capable of being accessed by vehicles of up to 5.2m length. The traffic impacts associated with the proposed development are discussed at **Section 7.3**.

5.9 Pedestrian Access

The primary pedestrian access into the site will continue to be via the main entry gates on Carabella Street. The driveway will connect to a new circulation path to the north of the existing Junior School building.

Student pick-up and drop-off will continue to be via Carabella Street.

5.10 Utilities and Infrastructure

Norman Disney Young has prepared a Building Services Concept Report for the Stage 1 works (see **Appendix V**). The report identifies the servicing requirements of the new Learning Hub including mechanical, electrical, hydraulic, fire protection and vertical transportation services.

In respect of existing infrastructure, Norman Disney Young note that:

- Due to the inaccuracy and lack of as-built services documentation, a detailed survey of the proposed development area will be required to locate any existing inground electrical services; and
- Further survey works of the domestic cold water, sanitary and stormwater infrastructure will be required to confirm the details and capacities of the systems.

Notwithstanding the above, Norman Disney Young are of the opinion that the existing site services and connections are likely to be sufficient to accommodate the proposed Learning Hub development.

5.11 Water Cycle Management

A Stormwater Management Plan has been prepared by Henry and Hymas (**Appendix K**). The Plan outlines the stormwater concept design for the proposed development. The proposed stormwater system will be designed in accordance with North Sydney Council's requirements, and will comply with the relevant Australian Standards and accepted engineering practice.

Due to the very small increase of flow and the close proximity of the development to the Harbour, an On-Site Detention tank is not required. In order for the post-development flows to not exceed the pre-developed flows, it is proposed to use rainwater tanks in appropriate locations and strategic placement of orifice plates in some pits. This will ensure that the small increase in flow can be compensated for, and can be reduced to the pre developed flows.

An assessment of the proposed stormwater system is provided at **Section 7.9**.

5.12 Operational Waste Management

A Waste Management Plan (WMP) has been prepared by MRA Consulting Group which outlines the proposed operational waste management measures to be implemented on site (refer to **Appendix L**).

It is noted that the school is an existing operating facility, and as such it proposed that the operation of the new Learning Hub will be integrated with the existing waste management systems operating on site.

Under the existing management plan for ongoing waste management, operational waste is separated on site into three separate categories: general waste, commingled recyclables, paper and cardboard. To facilitate waste disposal and separation, bins are stationed across the site, and their contents are collected daily by cleaners. Additionally, paper and cardboard recycling bins are

available in each room. The cleaners deposit the collected waste into a bin area where the waste is collected from site by a waste management contractor.

Maintenance and grounds staff use the primary waste bins directly. The bin area is located next to the carpark, although space dictates that the paper and cardboard recycling bin be kept adjacent, in the carpark. Due to the location of the bin area, waste is collected from Elamang Avenue.

Additionally, the site also has two battery recycling stations, and three printer cartridge recycling bins, located at reception, IT and the Junior School. These are managed by the school's administration and collected on an as-needs basis. Battery buckets are supplied and collected by Suez, and recycling bins for printer cartridges are supplied and collected by Planet Ark.

Bin storage and frequency of collection is summarised as follows:

- 3 x 1100 litre of general waste will be collected 5 times per week;
- 6 x 140 litre of commingled recycling will be collected once per week; and
- 8 x 660 litres of paper and cardboard will be collected once per week.

5.13 Ecologically Sustainable Development

A Sustainability Master Plan has been prepared by Norman Disney and Young, and is included in **Appendix H**. ESD principles will be incorporated into the design, construction and ongoing operation phases of the development.

As part of the sustainability benchmarking process for the project, a review of sustainability performance of newly constructed school buildings was undertaken. The proposed Learning Hub will target the following sustainability performance, however the sustainability framework to be used for the project is yet to be confirmed:

- 5 Star Green Star Design and AsBuilt_v1.1;
- Silver or Gold level Core and Shell Certification; and
- Greater than 20% improvement on NCC Section J (Energy) minimum compliance.

Key sustainability features for the Learning Hub are outlined below in **Table 5**.

Table 5 – Learning Hub sustainability features

Component	Proposed Sustainability Features
Management	• Commissioning and tuning commitment • Energy and water metering of major use components • Best practice recycling waste storage facilities are provided
Indoor Environment Quality	• Increase in outside air by 50% (11.25l/s) • Low/zero VOC fixtures and finishes have been specified
Energy	• High-efficiency building façade, HVAC plant and equipment • The project is targeting a 20% improvement on NCC Section J
Water	• Efficient fixtures and fittings • Rainwater harvesting system has been incorporated • Fire test water will be recycled

Component	Proposed Sustainability Features
Materials	• A 30% reduction in Portland cement is being targeted • Certified sustainable timber products is being targeted • Up to 90% of on-site construction waste is being targeted
Land Use and Ecology	• The project will improve the ecological value of the immediate site.
Emissions	• The development will aim to minimise light pollution into the night sky • Zero ozone depleting insulation substances will be specified
Innovation	• The project is targeting enhanced IEQ outcomes by WELL Certification

6.0 Consultation

In accordance with the SEARs issued for this project, consultation was undertaken with relevant public authorities, the community and Council.

A summary of the consultation undertaken to-date with Council, the community and relevant agencies is provided below. Several consultants have undertaken additional consultation with relevant parties during the preparation of their reports.

6.1 Council Engagement

A meeting was held on 13 March 2017 with North Sydney Council's Acting General Manager and Director of City Strategy Division.

There was general support of the proposal to improve teaching facilities at Loreto Kirribilli, and it was acknowledged that a number of local schools were undertaking similar processes. Key issues discussed with Council included:

- Parking;
- Hours of operation;
- Views;
- Increase in student numbers; and
- Construction management.

6.2 Community Consultation

Ethos Urban's consultation approach was based on extensive experience designing and delivering strategic communication and consultation processes for a variety of projects. The consultation program was designed to be practical and effective in capturing valuable feedback, mitigating risks, and highlighting key benefits of the project.

Prior to the public announcement of the project and commencement of the public consultation process on Monday 13 March 2017, letters were sent to the following stakeholders informing them about the upcoming public consultation of the Concept Proposal and Stage 1 works:

- North Sydney Mayor, Jilly Gibson;
- North Sydney Victoria Ward Councillors, Bevan, Carr and Reymond;
- Strata Committee, 111 Carabella Street, Kirribilli;
- Loreto Ministries Limited, Justice Peter Garling RFD;
- Loreto Sisters;
- All Loreto Kirribilli teachers and staff members;
- Department of Planning and Environment;
- Transport for NSW; and
- North Sydney General Manager and Council Planning Staff.

On Monday 13 March 2017, letters were sent to the following stakeholders, informing them about the consultation period for the Concept Proposal and Stage 1 works:

- All parents and guardians;
- Secondary students;
- Ex-students;
- Families on waiting lists;
- Surrounding residents;
- North Sydney Councillors;
- AIS NSW, Dr Geoff Newcombe;
- Catholic Education Commission, Dr Brian Croke;
- Chancery;
- Sydney Catholic Schools, Dr Dan White;
- Other Loreto Schools;
- St Aloysius College;
- State and Federal Politicians; and
- St Mary's Parish.

In addition to letters being dropped to surrounding neighbours on Monday 13 March 2017, members of the project team door-knocked immediate residents in the hope of explaining the Concept Proposal and Stage 1 works and personally inviting residents to attend one of the community information sessions.

A newspaper advertisement was placed in the North Shore Times and Mosman Daily on Thursday 16 March 2017.

A 1800 number and email address were also established, in order to filter community enquiries throughout the consultation process. In total, 12 interested residents asked questions/provided feedback though these channels. Key activities during the consultation process and a summary of issues raised are documented in **Tables 6** and **7**, respectively.

Table 6 – Key activities during the consultation process

Date	Time	Type of consultation	Audience	Numbers
Monday 13 March	11am – 12pm	Briefing	North Sydney Council GM and Planning Staff	5
	3.30pm – 4.30pm		All Loreto Kirribilli staff	80
Friday 17 March	11am – 12pm		Mayor and Councillors	4
Monday 27 March	6.45pm – 8pm	Presentation	Loreto Parents	60
Tuesday 28 March				30
Thursday 20 March	6pm – 8pm	Community information session	Local residents and interested stakeholders	20
Friday 31 March	2pm – 3.30pm	Stakeholder briefing	Meeting with local resident who lives next door to Loreto Kirribilli – 22 Elamang Avenue	5

Date	Time	Type of consultation	Audience	Numbers
Saturday 1 April	10am – 12pm	Community information session	Local residents and interested stakeholders	70
	12pm – 1pm	Stakeholder briefing	Meeting with local residents who live next door – 9/111 Carabella Street	5
Wednesday 19 April	9am – 10am	Site inspection	Inspection of impacts from 22 Elamang Avenue	5
Friday 16 April			Inspection of view impacts from 9/111 Carabella Street	5

Table 7 – Summary of issues raised and responses

Issue	Detail
Traffic and parking	Concern about existing drop off and pick up zones
	Would like to see a new drop off and pick up zone on Elamang Avenue
	Concern about additional traffic impacts, both during construction and future operation
	Concern about loss of parking spaces, during construction and future operation
	Would like Loreto Kirribilli to increase the number of parking spaces on site
	Would like Loreto Kirribilli to work with North Sydney Council and ensure there are parking inspectors at the school every morning and afternoon
	Would like to see a traffic management plan implemented immediately, not just for the future development, but to solve existing problems
	Would like Loreto Kirribilli to shuttle students to other streets, so that Carabella does not remain so congested
	Concern about the difficulty in crossing Carabella Street due to the size of parents' cars, and the speed in which they drive
Height	Would like to see more detail about the heights of the future buildings
Views	Concern about the view loss as a result of the northern connector from 117A Carabella Street
	Concern about the view loss from 113 Carabella Street
	Concern that the loss of views will negatively impact property prices
Design	Concern that there will not be enough open/green space for the students
	Would like to see covered walkways for sun and rail protection
	Pleased to see such a well thought out and designed plan
Heritage	Concern that the heritage buildings will be negatively impacted
Construction	Concern about future construction hours
	Would like to see Loreto Kirribilli being sympathetic to neighbours during construction
	Concern that future students will have to endure years of construction
	Concern about the number of trucks that will be required to use Carabella Street during construction
Engagement	Thankful to the school for engaging with stakeholders at such an early stage of the process
Miscellaneous	Would like further information about the sewer line and if it will be impacted by the development
	Concern that the 3D animation was not accurate
	Concern about the students taking up too much of the footpath when walking to and from school around Carabella and surrounding streets
	Concern about an existing security light from a building that shines directly into properties on High Street
	Very excited to see what the future holds for the school and its students

6.3 Design Changes

Based on the extensive consultation with the community and neighbours, particularly around the visual impact the development would have on immediate neighbours (at 111 Carabella Street and 22 Elamang Avenue), the design team sought to address the items through design alterations, focused primarily on the new Learning Hub.

Initially, the architect, FJMT, undertook a View Impact Analysis (most recent version dated 25 July 2017) to determine the impact of the development from surrounding buildings, including 111 Carabella Street and 22 Elamang Avenue.

The original scheme for the new Learning Hub that was presented to the community during the consultation period included the development of:

- A seven storey building (two storeys above ground at Carabella Street) including an external roof terrace providing access to the Marian Centre, Junior School, Gymnasium, and Centenary Hall;
- Two level extensions to the front of the existing Gymnasium;
- Landscaped terrace; and
- External covered landscape walkways, providing an accessible path of travel to the new Learning Hub, including an extension to the Junior School play terrace.

The most significant design changes pertain to the roof top of the new Learning Hub, which has been rearranged with consideration given to the amenity of the outlook from the upper levels of 111 Carabella Street. The changes on the roof top can be summarised as follows:

- Mechanical plant has been redistributed from the roof enabling the roof plant enclosure to reduce in size. The roof plant enclosure has been relocated to enable an improved outlook from 111 Carabella Street;
- A landscaped planter has been integrated into roof, reducing the height of the building at the western boundary and creating a green buffer between 111 Carabella Street;
- Solar panels have been removed due to reduced mechanical plant enclosure; and
- The louvred roof structure has been removed to preserve views.

In addition to the changes to the roof top, the following changes have occurred out of consideration for community feedback.

- The lift shaft materiality has been changed to glazing in an attempt to make the it less obtrusive;
- High level and slot windows have been introduced to provide greater articulation to the vast brick boundary wall whilst still ensuring privacy between 111 Carabella and Loreto Kirribilli is maintained;
- Setting back the Gymnasium extension to improve light and air access for residents of 22 Elamang Avenue; and
- Better façade treatment for aesthetic purposes.

The full Consultation Outcomes Report prepared by Ethos Urban can be found at **Appendix T**.

Further, the proposed development will be placed on public exhibition for 30 days in accordance with clause 83 of the *Environmental Planning and Assessment Regulation 2000*. During the public exhibition period Council, State agencies and the public will have an opportunity to make submissions on the project.

7.0 Environmental Assessment

This Section of the report assesses and responds to the environmental impacts of the proposed development. It addresses the matters for consideration set out in the SEARs (see **Section 2.5**).

The Mitigation Measures at **Section 10.0** complement the findings of this section.

7.1 Consistency with Relevant EPIs, Policies and Guidelines

The following legislation, planning instruments and strategies are relevant to the proposed development and have been addressed in **Table 8**:

- *Environmental Planning and Assessment Act 1979* (EP&A Act);
- *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP);
- *State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017* (Education SEPP);
- *State Environmental Planning Policy (Infrastructure) 2007* (SEPP Infrastructure);
- *State Environmental Planning Policy 55 – Remediation* (SEPP 55);
- *North Sydney Local Environmental Plan 2013* (North Sydney LEP 2013);
- *North Sydney Development Control Plan 2013* (North Sydney LEP 2013);
- North Sydney Section 94 Contributions Plan 2013;
- NSW State Priorities;
- A Plan for Growing Sydney;
- NSW Long Term Transport Masterplan 2012;
- Sydney's Cycling Future 2013;
- Sydney's Walking Future 2013; and
- Healthy Urban Development Checklist, NSW Health.

Table 8 – Summary of consistency with relevant Strategies, EPIs, Policies and Guidelines

Instrument/Strategy	Comments
Strategic Plans and Policies	
NSW State Priorities	The NSW State Priorities are a series of reforms designed to grow the economy, deliver infrastructure, and improve health, education and other services across NSW. Whilst not directly related to the proposed development, the project will facilitate the delivery of education infrastructure, noting that the NSW State Priorities seek to improve educational results.
A Plan for Growing Sydney	One of the key goals of the Plan is to *'Assist the….Association of Independent Schools of NSW to identify and plan for new school sites throughout Sydney'* to meet Sydney's growing needs. North Sydney is also identified as a Strategic Centre. Strategic Centres are identified as areas of intense, mixed economic and social activity that are built around the transport network and feature major public investment in services such as hospitals, education and sports facilities. The proposed development will enhance the provision of education infrastructure in the locality, thereby supporting the actions of A Plan for Growing Sydney.

Instrument/Strategy	Comments
NSW Long Term Transport Master Plan	The proposed development is consistent with the Master Plan as it supports the provision of education facilities in proximity of existing bus and rail infrastructure. In doing so, and by providing no additional parking, the proposal supports a reduced reliance on private vehicles, assisting in improving the modal split between cars and public transport.
Sydney's Bus Future 2013	The school is supportive of students and staff using buses as a mode of transport. The school will continue to encourage public transport use.
Sydney's Cycling Future 2013	The school is supportive of students and staff using bikes as a mode of transport.
Sydney's Walking Future 2013	Whilst the development does not propose any walking infrastructure on the site, the school's location near North Sydney CBD and Milsons Point train station means that students will continue to have safe walking and cycling access to transport and amenities.
Healthy Urban Design Checklist, NSW Health	The proposed development is consistent with the HUD checklist in that it provides recreation facilities within the school campus which promotes and encourages physical activity and exercise.
State Legislation	
EP&A Act	The proposed development is consistent with the objects of the EP&A Act, in particular: • it promotes the social welfare of the community; • it allows for the orderly and economic development of land; and • it is development for public purposes and will facilitate the delivery of community services. The proposed development is consistent with Division 4.1 of the EP&A Act, particularly for the following reasons: • the development promotes education services and stimulates social welfare of the community; and • the development has been evaluated and assessed against the relevant heads of consideration under Section 79C.

<table>
<tr><th>Instrument/Strategy</th><th>Comments</th></tr>
<tr><td>EP&A Regulations</td><td>This EIS has addressed the criteria within Clauses 6 and 7 of Schedule 2. Similarly, the EIS has addressed the principles of ecologically sustainable development through the precautionary principle, which assesses the threats of any serious or irreversible environmental damage. These are further addressed at Section 7.15.

Clause 7(1)(d)(v) of Schedule 2 is addressed below.

<table>
<tr><th>Act</th><th>Approval Required</th></tr>
<tr><td colspan="2">Legislation that does not apply to State Significant Development</td></tr>
<tr><td>Coastal Protection Act 1979</td><td>N/A</td></tr>
<tr><td>Fisheries Management Act 1994</td><td>N/A</td></tr>
<tr><td>Heritage Act 1977</td><td>N/A</td></tr>
<tr><td>National Parks and Wildlife Act 1974</td><td>N/A</td></tr>
<tr><td>Native Vegetation Act 2003</td><td>N/A</td></tr>
<tr><td>Rural Fires Act 1997</td><td>N/A</td></tr>
<tr><td>Water Management Act 2000</td><td>N/A</td></tr>
<tr><td colspan="2">Legislation that must be applied consistently</td></tr>
<tr><td>Fisheries Management Act 1994</td><td>No</td></tr>
<tr><td>Mine Subsidence Compensation Act 1961</td><td>No</td></tr>
<tr><td>Mining Act 1992</td><td>No</td></tr>
<tr><td>Petroleum (Onshore) Act 1991</td><td>No</td></tr>
<tr><td>Protection of the Environment Operations Act 1997</td><td>No</td></tr>
<tr><td>Roads Act 1993</td><td>No</td></tr>
<tr><td>Pipelines Act 1967</td><td>No</td></tr>
</table>
</td></tr>
<tr><td>SRD SEPP</td><td>The aim of the policy is to identify development that is SSD. Pursuant to the SRD SEPP a project will be SSD if it falls into one of the classes of development listed in Schedule 1 of the SEPP.
'Development that has a capital investment value of more than $20 million for the purpose of alterations or additions to an existing school' with a CIV of $20 million or more are identified as SSD and are considered to be development of State significance.
The Staged DA has a CIV of $97,697,500 and so qualifies as State Significant Development. A Quantity Surveyor's certificate prepared by QS1 confirming the total CIV is included at Appendix W.</td></tr>
<tr><td>Infrastructure SEPP</td><td>On 1 September 2017, Division 3 of the Infrastructure SEPP was repealed, and the new State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017 came into force.

With respect to Schedule 3 of the Infrastructure SEPP, as the development will not accommodate more than 50 additional staff or students on the campus, the development requires referral to the Roads and Maritime Services (RMS) under Schedule 3 of the SEPP.</td></tr>
<tr><td>Education SEPP</td><td>State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017 came into force on 1 September 2017.

The Education SEPP seeks to assist in the efficient delivery of high quality education facilities. To provide the flexibility to accommodate the built form requirements of schools, clause 42 of the Education SEPP states that:

'Development consent may be granted for development for the purpose of a school that is State significant development even though the development would contravene a development standard imposed by this or any other environmental</td></tr>
</table>

Instrument/Strategy	Comments
	planning instrument under which the consent is granted'. Notwithstanding this, a clause 4.6 variation has been prepared to demonstrate that compliance with the height of buildings development standards contained in North Sydney LEP 2013 would be unreasonable and unnecessary.
SEPP 55	SEPP 55 aims to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment. The SEPP specifies when consent is required for remediation of contaminated land. As detailed in **Section 7.14** of this report, a Preliminary Stage 2 Environmental Site Assessment and Remediation Action Plan (RAP) have been prepared by Environmental Investigation Services (EIS). EIS consider that the site can be made suitable for the proposed development provided that the following recommendations are implemented: • Undertake a Hazardous Materials Assessment (Hazmat) for the existing buildings prior to the commencement of demolition work; • Prepare a Remediation Action Plan (RAP) to outline remedial measures for the site; and • Prepare a Validation Assessment report on completion of remediation.
Local Planning Instruments and Controls	
North Sydney LEP 2013	Refer to detailed discussion at **Section 7.1.1**.

7.1.1 North Sydney LEP 2013

North Sydney Local Environmental Plan 2013 (LEP 2013) is the applicable local planning instrument for the proposed development and establishes the relevant land uses and other development standards for the site. **Table 9** sets out the proposal's compliance against the relevant provisions.

Table 9 – North Sydney Local Environmental Plan 2013

Control	Compliance
Clause 2.1 - Land Use Zones	The site is zoned part SP2 Infrastructure (Educational Establishment) and part R4 High Density Residential. Educational Establishments are either permissible in their own right under LEP 2013, or by virtue of Clause 35(1) of the Infrastructure SEPP.
Clause 2.3 – Zone objectives	The proposal is consistent with the objectives of the SP2 Infrastructure (Educational Establishment) as it will provide for educational infrastructure in accordance with the zoning of the site. The proposal is consistent with the objectives of the R4 High Density Residential zone where relevant, as it will provide services to meet the day to day needs of residents, in an accessible location.
Clause 4.3 Height of buildings	LEP 2013 sets a maximum height of 8.5m for the land zoned SP2 Educational Establishment and a maximum height of 12m for the land zoned R4 High Density Residential. • The highest point of the Concept Proposal is 14.7m (the Eastern Precinct envelope). • The highest point of the Stage 1 works is also 14.7m (the North Precinct connector). See further discussion at **Section 8.0** of this report which includes a request to vary the height development standard in accordance with Clause 4.6 of LEP 2013.

Control	Compliance
Clause 4.4 Floor Space Ratio	There is no maximum floor space ratio applying to the site.
Clause 5.9 - Preservation of trees or vegetation	The development requires the removal of 11 trees. The trees are not required as native fauna habitat and are required to be removed as they are located within the proposed footprint of the new building. The trees do not contribute to the heritage significance of the site, and are generally of low to moderate retention value. See **Section 7.8** for further discussion.
Clause 5.10 Heritage Conservation	Part of the broader development site is listed as a local heritage item under LEP 2013, however the site of the new Learning Hub is outside of the listing. The heritage assessment undertaken by GML Heritage (**Appendix I**) demonstrates that there will be no adverse impact on the heritage buildings on the site, subject to implementation of the suggested recommendations. See **Section 7.4** for further discussion.
Clause 6.9 Limited Development in the Foreshore Area	The school campus is not identified as being within the foreshore area or within the foreshore building line.

7.2 Urban Design and Built Form

7.2.1 Concept Proposal

Building Configuration and Massing

The proposed envelopes have been designed to be consistent with the massing of existing buildings on the campus, whilst delivering a new future focussed learning environment for Loreto.
A key focus of the Concept Proposal is to ensure that, when viewed from Carabella Street, the new insertions do not dominate the streetscape, but rather sit alongside or under the alignment of the existing roof forms. This will enable existing significant buildings, in particular the Chapel and bell tower, to continue to be the most prominent buildings along the school's Carabella Street frontage.

The existing streetscape of the campus is built above the height limit that has been established for the site under LEP 2013. As a result, the new buildings have been designed to either align with, or be lower than, the height of the existing buildings along the Carabella Street elevation. This is demonstrated by **Figure 37**.

Similarly, when viewed from Elamang Avenue, the Concept Proposal has been designed to sit within the height of existing buildings on the campus. Further, the topography of the land has been utilised to reduce the height of the buildings above ground level, which enables the scale of the buildings to be minimised when viewed from Elamang Avenue and the Harbour (refer to **Figure 38**).

Figure 37 – Carabella Street Elevation – Concept Proposal

Source: FJMT

Figure 38 – Elamang Avenue Elevation – Concept Proposal

Source: FJMT

Building Setbacks and Interface with Adjoining Development

Setbacks to side boundaries have been given significant consideration during the design of the Concept Proposal. The setbacks generally align with either the footprint of the existing buildings or the requirements of the relevant planning controls.

With regards to the Eastern Precinct envelope, the north edge of the envelope has been designed to respect sightlines from the neighbouring property at 10 Elamang Avenue, consistent with the form of the existing building. Similarly, a setback of 5m is proposed to the site's eastern boundary (to 10 Elamang Avenue) consistent with the setback of the existing building.

As with the new Learning Hub the built form will be refined as part of the detailed design process to minimise visual and amenity impacts on neighbours.

7.2.2 Stage 1 Works

Building Configuration and Massing

The Learning Hub has been designed to follow the topography of the site towards the north. As with the remainder of the Concept Proposal, the main bulk of the new Learning Hub has been pushed deep into the site to minimise the scale of the building above ground level, and minimise any impacts on views and residential amenity. As a result, despite the Learning Hub being spread over seven storeys, the building is predominantly within the 12m height limit which applies to this part of the school campus. Whilst there are point exceedances to accommodate the lift, stairs and plant, the Learning Hub sits well below the height of the existing Marian Centre fronting Carabella Street, thereby reducing any streetscape impacts.

The new Learning Hub has been broken down into a series of smaller forms in order to maintain a consistent scale with the surrounding built fabric of the campus. The envelope has been designed to respect sight lines from within and outside of the school grounds, and has been split to provide physical and visual access to the Marian Centre. The splitting of the envelope has enabled the eastern part of the building to be angled to align with both the Carabella (and Marian Centre) grid and the Elamang (and Junior School) grid. Finally, the envelope has been refined to reduce the scale of the building, with the use of a simple concrete frame with a glazed northern façade reducing the apparent bulk of the building.

The massing analysis is provided at **Figure 39**.

Building Setbacks and Interface with Adjoining Development

The Learning Hub is setback a minimum of 3.14m to the site's west boundary, consistent with North Sydney DCP which requires a minimum setback of 3m where non-residential uses are proposed adjacent to residential development.

Whilst there is a minor encroachment into the 45 degree setback plane, the encroachment has been ameliorated by setting the overall built form back from the boundary by over 3m. As detailed throughout this report, the impact of the minor non-compliance on the neighbouring properties is consistent with the impact of a fully compliant envelope with respect to solar access and views

Consistent with the objectives of the North Sydney DCP, it is acknowledged that the new Learning Hub does have the potential to adversely affect existing views from the surrounding residential properties. As identified in the DCP, there is *"a need to strike a balance between facilitating new development while preserving, as far as practicable, access to views from surrounding properties"*. The final schematic resolution has carefully considered views from the surrounding properties and on the whole will meet the objectives of the DCP. The main property affected by the new Learning Hub is 111 Carabella Street located to the west of the campus. One apartment (9/111 Carabella) has oblique water views which will be affected by the new development. In order to ameliorate this specific attention has been paid to the roof scape of the Learning Hub to provide an acceptable outlook. A detailed view impact analysis is provided at **Section 7.6**.

The new Learning Hub has carefully considered privacy from the adjacent residential buildings. Views to and from all windows in close proximity to the boundary will either be screened or will use opaque glazing. To minimise amenity impacts, all outdoor learning areas are located to the north of the development overlooking the existing campus, with the western walls of these spaces being screened from the adjacent developments.

1.0 The envelope of the new bookend development is setback from the Gymnasium and Multi Purpose Sports Court to provide new connections and landscape recreational and learning areas.

2.0 The envelope is profiled to consider views from the neighbouring properties.

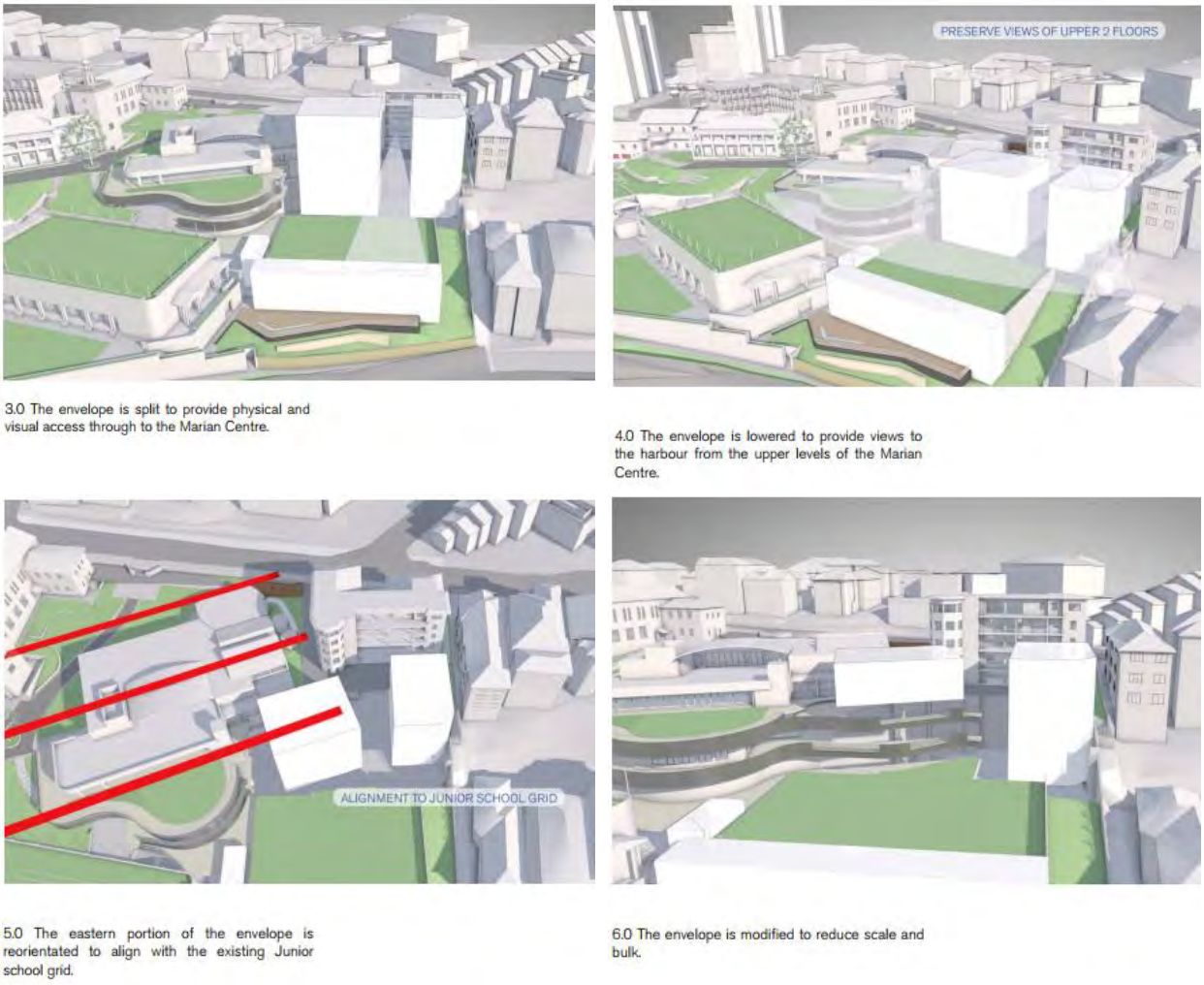

Figure 39 – Learning Hub bulk, scale and massing analysis

Source: FJMT

7.3 Parking, Traffic and Servicing

A Traffic and Parking Impact Assessment has been prepared by McLaren Traffic Engineering and Road Safety Consultants (refer to **Appendix G**). The Assessment identifies the existing transport and parking context, operations and addresses the parking and traffic impacts as a result of the proposal.

As noted above, there are no changes proposed to existing on-site parking or access arrangements as part of the Concept Proposal or Stage 1 works, with the exception of the creation of a dedicated loading bay for the Learning Hub.

7.3.1 Parking

Existing Parking Environment

Surveys of on-street parking supply within a 200m walking distance of the site were undertaken during peak drop-off and pick-up times to examine the availability of on-street parking. The results (refer to **Table 10**) indicate that there was a minimum of 67 and 32 parking spaces observed to be available during the survey, corresponding to occupancy rates of 81.6% and 91.2% respectively.

However, it was identified during the survey that some lengths of kerb were occupied by a higher-than-capacity number of cars (often due to a high use of small cars and lower tolerances when parking). This is typically observed in urban environments where on-street parking is in high demand.

Based on the maximum observed occupancy of each parking area (rather than the dimensions suggested by the Australian Standards), the surrounding streets have a total capacity for approximately 400 cars, rather than the 363 suggested by the Australian Standards (which assumes a high proportion of large cars)

Table 10 – Parking capacity within 200m walking distance of the site

Total Capacity	Morning Peak	Afternoon Peak
On-Street Availability – Australian Standard Dimensions		
363	67 (18.4%)	32 (8.8%)
On-Street Availability – Observed Capacity		
400	83 (20.7%)	42 (10.5%)

It has conservatively been estimated that 90% of school staff drive to work and park on or around the campus, corresponding to a total demand of 162 parking spaces. With 100 spaces available for school staff (80 of which are located on-site, and 20 of which are provided for staff in the nearby Royal Sydney Yacht Squadron). This results in a total existing displacement of 62 staff vehicles to the surrounding streets. However as noted above, this is considered a conservative assessment, and it is likely that less staff drive to school due to the close proximity to public transport.

Parking Controls

North Sydney Development Control Plan 2013 (DCP 2013) provides a rate of 1 space / 6 staff for educational establishments.

Based on the parking rates contained in DCP 2013, the school, including the two additional staff proposed (i.e. a total of 182 staff) requires provision of 30.3 parking spaces. A total of 100 staff parking spaces are currently provided for staff (80 on-site and 20 off-site), exceeding the DCP 2013 requirement for 182 staff.

Consideration has also been given to the NSW Department of Education and Communities Parking Requirements, which provides a maximum overall parking rate of 115 spaces for the site (based on the nine primary school home bases and six high-school streams). A total of 100 parking spaces are provided, consistent with the maximum requirement.

Parking Impact Assessment

Based on the 90% vehicle driver rate of staff, the additional two staff will result in an additional on-street parking demand for two vehicles.

The resulting impact on the parking supply in the streets surrounding the campus is summarised in **Table 11**.

Table 11 – Impact on on-street parking

Scenario	Available Spaces (no school)	Staff	Staff Demand (spaces)	Remaining Spaces Available	
				Morning Peak	Afternoon Peak
Existing	131	180	62	69 (19.0%)	34 (9.3%)
Future		182	64	67 (18.4%)	32 (8.8%)

As demonstrated above, the increase in staff will have an insignificant impact on the on-street parking supply surrounding the campus.

Considering that the site has sufficient parking to satisfy the requirements of both the North Sydney Council DCP and the NSW Department of Education and Communities parking requirements, and the insignificant impact on the existing on-street parking, the supply of off-street parking is considered acceptable.

7.3.2 Traffic

Existing Traffic Environment

Traffic tube surveys were undertaken between the 7th February 2017 to the 14th February 2017 along both Elamang Avenue and Carabella Street to determine the existing characteristics of these roads.

The assessment found that the surrounding intersections are operating satisfactorily, with low average delays and queue lengths.

Traffic Generation

The traffic generation associated with the increase of 100 students and two staff has been established using data from in-class surveys that were undertaken by the school. Based on the data obtained, the additional traffic generation associated with 100 students and two teachers would be an additional 37 vehicles in the morning peak and 22 vehicles in the afternoon peak.

Traffic Assessment

Following an assessment of the surrounding road network and the existing traffic flows at the surrounding intersections, traffic travelling to and from the site has been assumed to take the following route:

- Entry:
  - 50% from the Carabella Street north via Willoughby Road; and
  - 50% from Fitzroy Street.
- Exit:
  - 70% via the Elamang Street / Willoughby Road Exit; and
  - 30% via Carabella Street south.

When compared to the existing performance of the surrounding intersections, there is no significant increase in intersection delays or approach queues as a result of the additional traffic related to the

proposed increase in staff and students. All surrounding intersections will continue to operate at Level of Service 'A'.

Residential Amenity

The Roads and Maritime Services (RMS) Guide to Traffic Generating Developments (2002) suggests an 'environmental goal' and maximum peak hourly two-way traffic volume for residential streets of 200 and 300 vehicles respectively.

The future two-way volumes on both Carabella Street and Elamang Avenue are within the environmental goal volumes provided by the RMS. The increased traffic volumes resulting from the additional 100 students and two staff will not significantly affect residential amenity surrounding the site.

7.3.3 Servicing

The existing waste management procedures for the site will not be altered by the proposed development.

Waste will continue to be collected from Elamang Avenue by a private contractor. Existing deliveries to the site are undertaken kerbside on Carabella Street in the existing on-street loading zone or at the rear of the site from Elamang Avenue, no changes are proposed to these loading procedures as part of the Concept Proposal or Stage 1 works.

However, the new Learning Hub will include a loading area with access via the existing driveway on Carabella Street. This loading area is dimensionally restricted to use by vehicles of up to 5.2m length, as insufficient turning area is available for larger vehicles. Truck movements associated with the loading dock will be limited to 7:00am to 6:00pm Monday to Saturday and 08:00am to 6:00pm Sundays and Public Holidays.

Table 12 outlines the anticipated type and frequency of services movements.

Table 12 – Frequency and nature of servicing movements

Operation	Frequency	Typical Vehicle Size
Waste Collection	Daily during school term	Medium Rigid Vehicle (Up to 8.8m in length)
Sanitary Waste	Four times per term	Small Rigid Vehicle (up to 6.4m in length)
Cleaning and Perishable Products	Once per term	Small Rigid Vehicle (up to 6.4m in length)
Science and TAS Materials	Once per term	Small Rigid Vehicle (up to 6.4m in length)
Food Technology Products	Once per term	Small Rigid Vehicle (up to 6.4m in length)
Functions and Event Materials	Approximately four times per year	Various

7.4 Heritage

7.4.1 Aboriginal Heritage

An Aboriginal Heritage Due Diligence Report has been prepared by GML Heritage and is included at **Appendix J**. The Report was prepared to identify whether the Western Precinct (the site of the proposed Learning Hub) contains or has the potential to contain Aboriginal Heritage sites, places, objects and/or values as per the guidelines for due diligence (*Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW (13 September 2013)* set out by the Office of Environment and Heritage.

This Due Diligence Report has found that the study area has no to very low potential for Aboriginal objects. There are no specific landforms or places which may have been a focus for Aboriginal activities, which could have resulted in the creation of Aboriginal objects. Furthermore, as the study area has been subject to significant and repeated disturbance in the form of clearing, urban development and construction and development of Loreto School, if Aboriginal objects were present they would most likely be in a disturbed context.

Whilst there is no need for further Aboriginal heritage assessment, the Due Diligence Report concludes that best practice Aboriginal heritage approach prior to future development should include the following:

- The report should be issued to the Metro Local Aboriginal Land Council (MLALC) for review and comment. Their recommendations in relation to Aboriginal heritage management should be included and could form a component of the conditions of consent.
- Should the MLALC review identify Aboriginal social or other values not apparent during the preparation of this report, then further assessment may be relevant.
- During construction works, should Aboriginal objects be identified, the proponent must stop work. The OEH and Metro Local Aboriginal Land Council should be notified.
- The requirements for Aboriginal heritage management should be defined based on the nature and extent of the identified Aboriginal sites, taking into account relevant OEH policy and methodologies (OEH 2010 *Code of Practice for Archaeological Investigations of Aboriginal Objects in NSW*[57]), and the recommendations of the Burra Charter.
- In principle, sites should be avoided and retained in situ without impact. If this is not possible then archaeological mitigation to offset the impact and retain the value of the site should be undertaken.
- Adequate time and budget must be allowed for archaeological works to be undertaken. Works would require involvement of the Aboriginal community. The outcomes of any archaeological works should be interpreted within the context of the study area's redevelopment.

The recommendations provided in the Aboriginal Heritage Due Diligence Report have been included in the Mitigation Measures at **Section 10.0**.

7.4.2 European Heritage

A Heritage Assessment and Impact Statement (HAIS) has been prepared by GML Heritage and is included at **Appendix I**. The HAIS assesses the potential heritage impacts of the proposed

development on the built heritage items within the school site and heritage items in the vicinity of the campus.

Heritage Listings and Grading of Significance

A summary of heritage listings on and around the site is provided below:

- The Loreto Kirribilli school is listed as an item of local heritage significance in the North Sydney LEP 2013 under the name 'Elamang' (Item I0204) (Figure 4.1). The State Heritage Inventory includes the following Statement of Significance for Loreto Kirribilli:

  The listing includes the whole site. Of particular note are 'Elamang', a two-storey Colonial Georgian style mansion c 1851–52, Bell tower, Chapel and Presbetery. No. 71 Carabella St also has assocation [sic] with the school as the convent. Elamang is an important early house in Kirribilli associated with prominent local family. Built as one of the North Shore mansions on an elevated site commanding extensive harbour view. It is an intact, though modified, Georgian house on substantial grounds. It has been used throughout the twentieth century by a prominent private girls school. It remains a landmark in the area

- An area of land in the western part of the campus is not included in the listing. As shown in **Figure 40**, this includes the Marian Centre and B-Block (the site of the new Learning Hub).
- There are no items individually listed as heritage items within the school campus.
- Loreto Kirribilli is not located within any heritage conservation area.
- There are no buildings within the subject site listed on the Australian Institute of Architects Register of Significant Architecture in NSW.
- There are several heritage-listed items within the vicinity of the site, and the Careening Cove Conservation Area (CA10) is located to the north-west of the site.

Figure 40 – LEP heritage listing overlaid on the Loreto site plan

Source: GML Heritage

Although the majority of the Loreto Kirribilli campus is included in the site's heritage listing, the various buildings and elements within the campus make a different relative contribution to the site's heritage value. As such, the buildings within the campus have been graded in accordance with 'grading of significance', as described in the NSW Heritage Office document *Assessing Heritage Significance*, 2001. The various components that make up a heritage item can be graded as exceptional, high, moderate, little and intrusive, as shown in **Figure 41**.

Figure 41 – The grading of significance of the buildings on the Loreto Kirribilli campus

Source: GML Heritage

Built Heritage Impact Assessment

The HAIS assesses the potential impact of the Concept Proposal and Stage 1 works on the school's heritage significance.

The Concept Proposal and Stage 1 works are generally compatible with the heritage significant buildings on the subject site and those in the vicinity. In particular, Elamang, Administration and the school's entry drive will remain physically unaffected by the Concept Proposal. Similarly, the Chapel tower will remain the highest built element on the site, with little change anticipated to district and Harbour views of the tower.

A conclusion for each precinct is provided below.

Northern Precinct

The proposed connector pod and raised walkway will potentially impact on the setting of Elamang, and views between the building and the Harbour.

The design of the northern connector pod and raised walkway has been developed to maximise the transparency of the new building elements. The connector pod has been minimised in size, and its elevations articulated to reduce the perceived scale of the building and its visual impact when seen

from Elamang Avenue. In these ways, the potential impact of the connector pod and raised walkway on the setting of Elamang has been reduced.

It should be noted that the connector and walkway will benefit the school community in other ways, providing a continuous equitable path of travel from the basement level carparks to Centennial Hall, Elamang and Administration.

Eastern Precinct

There is a potential heritage impact associated with the proposed demolition of the Mary Ward building, assessed as being of moderate heritage significance. Strategies to mitigate the impact are discussed in the recommendations, below.

The proposed new building will have a minimal impact on the setting of Elamang, Administration or the Chapel building. It is anticipated that the new building will result in improved views to and from Vanduara (10 Elamang Avenue) representing a positive heritage impact. The proposed new building has the potential to impact on views to and from Araluen and Fairhaven (71 and 69 Carabella Street) and the Harbour, and to result in an increase in overshadowing of the rear gardens of Araluen. The future design of the building should be developed to minimise impact on views to these buildings and the potential increase in overshadowing. The proposed building will not result in a heritage impact on other heritage items in the vicinity.

There is no heritage impact anticipated in association with the Stage 1 works (construction of disabled ramp and associated works) within the Eastern Precinct.

Southern Precinct

There is a positive heritage impact in the proposed demolition of the 1970s top floor addition to the Chapel building's southern wing and the open walkways on its north-eastern side, as these elements are assessed as being intrusive. The reinstatement of the original street-front façade of the wing also represents a positive heritage impact.

There is little adverse heritage impact anticipated in the demolition of the Junior School and construction of a new six-storey building. It will potentially have little impact on the setting of the Chapel building, Elamang or the entry drive. It will have a minimal impact on the Careening Cove Conservation Area, the Carabella Street streetscape or the setting of heritage listed houses in the vicinity. There will, however, be a minor impact on Harbour and district views from heritage listed houses opposite the campus on Carabella Street.

The proposed southern connector pod (including walkways and locker areas) has the potential to result in both positive and adverse heritage impacts. There is a major positive heritage impact in the removal of the intrusive 1970s addition to the Chapel and reconstruction of the original form of the southern wing. However, there is an adverse impact associated with the removal of the original north-eastern external wall of the building, and the merging of the existing internal space with the new space. The removal of the internal stair represents a moderate heritage impact, but is considered to be acceptable as it is the least intrusive means of achieving disabled access to the Chapel.

Within the main part of the Chapel building (Levels E and F), it is considered that the changes proposed will have a minor heritage impact, and are acceptable.

Western Precinct

It is considered that the proposed building works in the Western Precinct will have a minimal impact on Elamang, Administration or the Chapel, with only the proposed raised walkway having the potential to have a minor impact on the setting of Elamang. There will be little impact on the Careening Cove Conservation Area, or the Carabella Street and Elamang Avenue streetscapes. There will be a negligible heritage impact on the setting of the heritage listed houses in the vicinity on Elamang Avenue and Carabella Street. There will be a minor impact on Harbour and district views from some heritage listed houses in Carabella Street.

The demolition of the nineteenth-century sandstone retaining walls located between the Marian Centre and B-Block to allow for the construction of the Learning Hub will potentially have an adverse heritage impact. The walls represent rare historic fabric on the site, and are evidence of the existence of the former house Tremayne, and the historic use of the site.

It is considered that the impact from the demolition of the walls can be reduced, subject to implementation of the recommendations outlined below.

Built Heritage Recommendations

The following recommendations are made in relation to the Concept Proposal and Stage 1 works. These recommendations are included in the Mitigation Measure at **Section 10.0** and have been included in the design, where appropriate.

Northern Precinct

- The part of the northern connector lift shaft above ground level is to be detailed to maximise transparency.
- The balustrades of the raised walkway are to be clear glazed and are to be detailed to maximise transparency.
- The structure of the raised walkway should be designed to be as slender and unobtrusive as possible.

Eastern Precinct

- An archival recording (internal and external) of the intact spaces of the Mary Ward building should be carried out prior to demolition of the building.
- The sandstone retaining wall on the school's property boundary with Araluen and Fairhaven should be protected from damage during construction.
- The jacaranda tree within the grounds of Araluen should be protected from damage during construction.
- The design of the proposed new building, in particular its uppermost level, should be developed to minimise any obstruction to views to and from Araluen and Fairhaven.
- The garbage room building is to be retained and protected from damage during construction.

Southern Precinct

- The proposed reinstatement of the south-western elevation of the Chapel building's southern wing is to be undertaken to match the form, materials and detailing used on the south-western elevation of the building's northern wing.

- Existing windows on the south-western elevation are to be retained in place and repaired in preference of installing new windows.
- The works undertaken in the southern wing should aim to maximise retention of existing building fabric.
- New openings in original masonry walls are to be designed so that sufficient brick nibs remain to reference the existence of the original wall. This is in keeping with accepted best practice in heritage conservation.
- Original windows and joinery doors that are proposed to be removed are to be salvaged and reused in the Chapel building in suitable locations.
- New windows and doors in the Chapel building are to be timber framed joinery units. Glazing in external windows is to be articulated with transoms and mullions to match the pattern of articulation of the existing external windows.
- The St Aloysius verandah is an original part of the Chapel building and is to be retained. The verandah is to be protected from damage during construction works. Non-original elements of the verandah, such as its metal roof sheeting, can be replaced.
- The statue of St Michael near the entry drive is to be protected from damage during construction.
- The Carabella Street boundary fence and main entry gates are to be protected from damage during the construction works.
- The proposed alterations to J-Block should not result in any alterations to the Carabella Street elevation of the building.

Western Precinct

- Prior to demolition, an archival recording should be made of the sandstone retaining walls near B-Block in accordance with the relevant NSW Heritage Division guidelines.
- The sandstone retaining walls are to be carefully dismantled using equipment and methods to avoid damage to the sandstone. All sandstone blocks from the retaining wall, and any other historic sandstone blocks within the area, are to be salvaged for re-use on site, and are to be protected during construction of the Learning Hub.
- Interpretation of the sandstone retaining walls and Tremayne House should be included in a suitable location within the proposed Learning Hub building.
- A new jacaranda tree should be planted in a suitable location to replace the jacaranda tree near B-Block that is proposed to be removed.
- The large fig tree (tree No. 8 in the arborist's report) in the northern corner of the site is to be protected from damage during construction works.

7.4.3 Historical Archaeology

The Heritage Assessment and Impact Statement (HAIS) prepared by GML Heritage (**Appendix I**) also assesses the potential for subsurface archaeological remains on the site.

Historical Archaeological Potential and Significance

Whilst the majority of the site has been disturbed for the development of Loreto School, there are localised areas of potential for archaeological remains associated with the mid-nineteenth to early

twentieth century domestic occupation of the site. These remains are associated with the Milson family, wealthy landowners and of significance to the local area. Archaeological remains, in particular artefacts from features such as wells, cesspits and rubbish pits, may provide evidence regarding the historical development of the local area and the daily lives of those who lived in North Sydney. There have been few archaeological excavations of this site type in the local area, and investigation of any remains would provide a valuable dataset for research and comparative analysis.

Archaeological Impact Assessment

The Loreto Kirribilli site contains localised areas with potential for archaeological remains of local significance that would be impacted by the proposed development. Demolition of B-Block, the Junior School and the courtyard area between the Chapel and J-Block, and activities associated with construction of the vertical connector pods within each precinct may have an impact on archaeological remains that may be present within the footprint of these works. To mitigate against these impacts, a program of archaeological investigation and recording is recommended that would ensure that any historical archaeological remains identified during the proposed works would be appropriately investigated, recorded and interpreted.

GML Heritage has made a number of recommendations with respect to historical archaeology, including:

- It is recommended that archaeological works be undertaken in accordance with archaeological best practice. This would involve detailed investigation of any exposed archaeological relics, by applying established archaeological methodologies (cleaning, recording note taking, photographing, planning, level taking). These methodologies would be outlined in an appropriate Archaeological Research Design specifically prepared for the subject site.
- For works within the Western Precinct and Southern Precinct an Archaeological Research Design (ARD), detailing the proposed methodology for investigation and salvage should be prepared. The ARD should propose a strategic approach to the investigation of the historical archaeological resource in order to manage risks and delays over the course of the development program. The ARD should include a flexible archaeological methodology to respond to the needs of the construction program and provide contingency should more significant archaeological remains than expected be found.
- The Northern Precinct and Eastern Precinct have a low potential to contain archaeological remains and no further work is recommended for these precincts. An unexpected finds procedure should be developed and implemented prior to the commencement of works.
- Any retrieved historical artefactual material would be the responsibility of the owner of the site. This includes appropriate treatment of the artefacts, and their long-term storage in a safe and accessible place.
- All contractors responsible for ground disturbance within the study area should be provided with a heritage induction conducted by a suitably qualified archaeologist prior to any works commencing.

The recommendations provided in the Aboriginal Heritage Due Diligence Report have been included in the Mitigation Measures at **Section 10.0**.

7.5 Solar Access and Overshadowing

Due to the orientation of the site, the general absence of any immediate neighbours to the south, the scale of the development and the location of the proposed building envelopes on the campus, there will be limited overshadowing impacts outside of the school grounds.

Most shadows will fall onto the school's own land or Carabella Street, and there will be no shadow impacts on 22 Elamang Avenue or 69 Carabella Street. Whilst the envelope in the Eastern Precinct will result in some additional overshadowing of 10 Elamang Avenue in the afternoon on the winter solstice, solar access will be retained during the morning. Further, the proposed envelope will be refined at the detailed design stage to minimise overshadowing impacts on this property.

Elevation studies of 111 Carabella Street demonstrate that the proposed development will not significantly impact solar access to this building. Whilst 111 Carabella Street receives solar access at 9am on the winter solstice, the building is currently in shadow from 12pm onwards. The shadow studies demonstrate that the proposed Learning Hub will not significantly change the existing shadow impacts. Further, the studies show that a complying building would not result in any meaningful improvement to solar access.

7.6 View Impacts

FJMT has undertaken a View Impact Analysis (VIA) to determine the impact of the development on views from surrounding buildings which currently have views over the site (refer to **Appendix D**).

The properties which are most affected by the proposed Stage 1 works, being 111 Carabella Street and 22 Elamang Avenue, have been addressed in detailed below. As described in **Section 6.0**, significant consultation has been undertaken with owners in these two properties to mitigate concerns relating to view loss and visual impacts.

The other surrounding properties on Carabella Street and Elamang Avenue will not be impacted by the Stage 1 works, however there will be some impact as a result of the Concept Proposal. These properties have been addressed collectively. The VIA should be reviewed from a more detailed analysis of each property.

7.6.1 111 Carabella Street

111 Carabella Street is located adjacent to the site's western boundary. 111 Carabella Street is a three storey apartment building with windows on its eastern elevation. The building does not have any balconies. The building has a varied floor plan, and so most of the apartments face in directions other than directly to the east and would not be significantly impacted by the proposal. Notwithstanding this, those apartments with east and north-eastern aspects have some potential to be affected. However, because the proposed development is stepped with the slope of the site (whereas the floor plates of 111 Carabella Street are not), the potential for there to be view impacts varies with the location and orientation of the individual apartments. The east and north-east facing apartments that have the potential to be impacted by the development currently benefit from borrowed views across the side boundary towards Loreto Kirribilli and partly over existing structures. In these views, and particularly in Level 1 and Level 2, the foreground is almost entirely composed of existing landscaping and structures, to the extent that there is very limited access to views beyond.

Orientation of Views

The views that are available from the uppermost level of 111 Carabella Street towards the east are less impacted by existing buildings and vegetation, with water glimpses available over existing school buildings.

Apartments orientated towards the north-east are less impacted by existing buildings and vegetation, with the apartments at all levels on the northern end of the building enjoying reasonably unencumbered views towards the Harbour and Kurraba Point. These views will remain largely unaffected by the proposal.

View Loss from the Private Domain

An assessment against the principles established by Senior Commissioner Roseth of the Land and Environment Court of NSW in the judgement in *Tenacity Consulting v Warringah [2004] NSWLEC 140 - Principles of view sharing: the impact on neighbours which provided a planning principle concerning view loss* is provided below.

Application of the Four-Step View Sharing Principles in Tenacity

- **Step 1**: The view to be affected

The first step is the assessment of views to be affected. Senior Commissioner Roseth cites that water views are valued more highly than land views. Iconic views (eg Opera House, Harbour Bridge and North head) are valued more highly than views without icons. Whole views are valued more highly than partial views, e.g. a water view in which the interface between land and water is visible is more valuable than one in which it is obscured.

The views that are to be affected are described above and vary depending on the angle of view, location of the apartment and level of 111 Carabella Street from which it is experienced.

Roseth SC in *Tenacity* points out that water views are valued more highly than land views, as are whole views and those containing iconic features. The views from the north of the building contain water, land-water interfaces, largely whole views and scenic items. Whilst views across the school site from apartments in the east of the building do contain water, and a small area of land-water interface, they do not comprise whole views and do not contain iconic items. What would be lost from these apartments would primarily be a foreground composed of buildings, with water glimpses beyond.

- **Step 2**: The part of the property from which views are obtained

The second step is to consider from what part of the property the views are obtained. For example the protection of views across side boundaries is often more difficult than the protection of views from front and rear boundaries. In addition, whether the view is enjoyed from a standing or sitting position may also be relevant. Sitting views are more difficult to protect than standing views. The expectation to retain side views and sitting views is often unrealistic.

All of the views that were assessed are obtained from areas which were considered as important by the owners, whether dining, lounge or bedroom areas. Kitchens, living rooms and outdoor recreation spaces are however considered the most significant in *Tenacity* and are to be given the greatest weight in assessing view sharing. That is, they are locations from which it is more reasonable to expect view sharing. *Tenacity* points out that the view loss should be assessed from the whole dwelling and not only in relation to the view to be affected.

With respect of the views to the north from 111 Carabella Street it is noted that these are obtained over the front boundary and are largely retained by the proposal. Views to the east from this property are obtained over a side boundary in a standing position at an oblique angle. These views will be impacted by the proposed development.

- **Step 3**: The extent of the impact

The third step is to assess the extent of the impact. This should be done for the whole of the property, not just for the view that is affected. The impact on views from living areas is more significant than from bedrooms or service areas. The impact may be assessed quantitatively. However, it is usually more useful to assess the view loss qualitatively as negligible, minor, moderate, severe or devastating.

The proposed development will result in views being impacted from the living areas and kitchens of some of the affected dwellings, and in particular 9/111 Carabella Street located on the uppermost level of the building's eastern elevation. In this instance the view from the kitchen window will be affected. What will be lost is not a scenic view in *Tenacity* terms, but is one that alters the scenic character and spatial definition of the view (a view of buildings, sky and water glimpses is replaced by a building closer to the viewer).

Considered in isolation, the extent of the view loss could be considered to be moderate to severe, using the qualitative ratings recommended in *Tenacity*.

From apartments at the northern end of the building, the proposed development will result in views being impacted from bedrooms only. Whilst the views from these apartments are considered scenic views in *Tenacity* terms, the extent of the view loss could be considered minor as it only impacts a small part of the view, when viewed obliquely across the school site. Direct views from these dwellings to the north across the front boundary will remain unaffected by the proposed development.

- **Step 4**: The reasonableness of the proposal

The fourth step is to assess the reasonableness of the proposal that is causing the impact. Commissioner Roseth states:

> *"development that complies with all planning controls would be considered more reasonable than one that breaches them. Where an impact on views arises as a result of non-compliance with one or more planning controls, even a moderate impact may be considered unreasonable."*

To assist in determining whether the non-compliance with the controls in itself causes view loss, a series of 3D models have been prepared to determine the impact of the proposed exceedance of the height controls.

The models show that the existing view across the side boundary form the kitchen of 9/111 Carabella Street would be lost by a 12m complying building. Whilst the proposed 14.5m high building would cause additional view loss, what is lost by the non-complying component is sky views which would not be considered scenic to the extent that it is reasonable to expect it to be retained.

The final consideration of the view impact analysis is whether or not a more skilful design could be proposed that would result in better view sharing. In this instance the proposed design has been amended to accommodate the views from this apartment as best possible. In this regard:

- Mechanical plant has been redistributed from the roof enabling the roof plant enclosure to reduce in size. The roof plant enclosure has been relocated to enable an improved outlook from 111 Carabella Street;
- A landscaped planter has been integrated into roof, reducing the height of the building at the western boundary and creating a green buffer between 111 Carabella Street;
- Solar panels have been removed due to reduced mechanical plant enclosure;
- The louvred roof structure has been removed to preserve views;
- The lift shaft materiality has been changed to glazing in order to make it less obtrusive;
- High level and slot windows have been introduced to provide greater articulation to the vast brick boundary wall whilst still ensuring privacy between 111 Carabella and Loreto Kirribilli is maintained;
- Setting back the Gymnasium extension to improve light and air access for residents of 22 Elamang Avenue; and
- Better façade treatment for aesthetic purposes.

It would be unreasonable to require that the building be lowered by a level to retain this view given that:

- The view is over a side boundary;
- The view is not iconic and is a distant view;
- The view would be lost even if a complying envelope was proposed: and
- There would be a significant impact to the space proposed within the building and the quality and quantity of teaching space that is proposed. The benefit of providing the new education space for the benefit of many generations of students to come is considered to outweigh the benefit of retaining a partial view across a side boundary.

Conclusion for 111 Carabella Street

The analysis of the likely effects on views shows that the proposed development would cause some view loss to some apartments on the uppermost levels of the residential building at 111 Carabella Street.

The VIA demonstrates that the views from apartments on the east of 111 Carabella Street are more appropriately defined as an outlook rather than a view. The views that will be lost are not scenic, iconic or culturally significant. Further, whilst water glimpses are available, no whole views or iconic items are lost. Considering that the most affected views are across the side boundary, it is considered that the proposal is reasonable in regards to view impacts.

Views from the north of 111 Carabella Street are considered a scenic view in *Tenacity* terms, with water and land-water interface. However, the extent of view loss is limited to partial, oblique views from bedrooms, it is considered that the proposed impact is reasonable in regards to view impacts.

7.6.2 22 Elamang Avenue

To the north-west of the school site, fronting Elamang Avenue, lies a three storey apartment building with basement parking called Waterford. There are three (3) apartments in the building, each of which occupies an entire floor. The apartments have windows and outlook in all directions with kitchen and living rooms windows, and courtyards / terraces orientated towards the site.

However, because of the topography of the land, the presence of significant vegetation and the existing Gymnasium on the school campus, the potential for view impacts are limited and vary depending on the location of the individual apartments. Whilst the outlook from most windows along the eastern elevation of 22 Elamang Avenue is dominated by existing vegetation and the Gymnasium, the top apartment in the building benefits from borrowed views across the side boundary towards Loreto Kirribilli and partly over existing structures. In these views, and particularly at the lower levels, the foreground is entirely composed of existing landscaping and structures, to the extent that there is very limited access to views beyond.

Orientation of Views

Disregarding the existing vegetation, the views that are potentially available to the north-east from the uppermost level of 22 Elamang Avenue are contained by the existing Gymnasium building and the Squadron Tower apartments to the east. The foreground of views from apartments in 22 Elamang Avenue are composed almost entirely of vegetation on the school.

In general, the existing Gymnasium building that is intended to be extended as part of the proposed development is screened by the vegetation canopy.

View Loss from the Private Domain

An assessment against the principles established by Senior Commissioner Roseth in *Tenacity* is provided below.

Application of the Four-Step View Sharing Principles in Tenacity

- **Step 1**: The view to be affected

The view that is to be affected is described above. Roseth SC in *Tenacity* points out that water views are valued more highly than land views, as are whole views and those containing iconic features. The views lost do not include water, land-water interfaces, whole views or scenic items. What would be lost would be a screened view of buildings and a sense of space behind it.

- **Step 2**: The part of the property from which views are obtained

As noted above, kitchens, living rooms and outdoor recreation spaces are considered the most significant in *Tenacity* and are to be given the greatest weight in assessing view sharing. *Tenacity* points out that the view loss should be assessed from the whole dwelling and not only in relation to the view to be affected. In the context of the Waterford building, where each apartment occupies a whole floor and has access to views and outlook in all directions, it is reasonable to interpret this principle as meaning that the overall effect of the proposal on the view should be considered, rather than concentrating only on the view from a part of the most affected apartment.

- **Step 3**: The extent of the impact

The proposed development will result in views being obscured from the primary living areas of the affected dwellings. What will be lost is not a scenic element in the view in *Tenacity* terms, but is one

that alters the scenic character and spatial definition of the view (a view of vegetation and/or sky replaced by a building closer to the viewer). Considered in isolation, the extent of the view loss could be considered to be moderate, using the qualitative ratings recommended in *Tenacity*. While the view loss may be considered to be moderate in some individual apartments if considered in isolation, when considered in relation to the controls that apply to the site, and the desired future character of the area, the extent of the visual impact is considered acceptable. The views impacted do not pass the test of being a significant part of the viewing experience from the dwellings which should not be taken away for the benefit of the school. Further, the view represents an outlook, but is not a scenic item.

- **Step 4:** The reasonableness of the proposal

In considering whether a proposal is reasonable in regard to view sharing, a development that complies with all planning controls would be considered more reasonable than one that breaches them, if an impact on view arises directly as a result of the non-compliance.

The proposed extension to the Gymnasium has a maximum height of 8.7m, and is within the 12m height limit applying to this part of the school site. It is considered that while there is view loss, the loss is reasonable in the circumstances.

Conclusion

The analysis of the likely effects on views shows that the proposed development would cause some view loss to some apartments at 22 Elamang Avenue.

However, the views impacted are more appropriately defined as an outlook rather than a view. What is lost is not scenic, iconic or culturally significant. Further, no water, land-water interface, whole or iconic items are lost.

Considering that the views affected are across the side boundary, are from a low scale building where it is not reasonable to expect view sharing, and the view loss results from a complying built form, it is consider that the proposal is reasonable in regards to view impacts on 22 Elamang Avenue.

7.6.3 Carabella Street

In addition to 111 Carabella Street, analysis has been carried out for properties to the south, south-east and south-west of the site at 56, 58, 60, 69 and 71 Carabella Street.

56, 58 and 60 Carabella Street

The properties on the opposite side of Carabella Street, being numbers 56, 58 and 60, all have windows and balconies to the north, overlooking the street and school campus. These properties currently have filtered views across the site through existing vegetation on Carabella Street and buildings on the school site. At the upper levels of these properties, there are some partial, filtered views of the Harbour and Kurraba Point.

The views that are to be affected vary depending on the property and angle of view, however whilst some of the views contain water, they generally do not contain land-water interfaces, do not comprise whole views and do not contain scenic items. What would be lost from these properties would primarily be a foreground composed of vegetation and buildings, with filtered water and district views beyond.

The VIA shows that the envelope in the Southern Precinct will result in some loss of existing views across the site, however both a compliant 8.5m building and a 9.5m building would result in a similar impact. Given the nature of the view, the extent of the impact and the fact that the views would be impacted by a complying envelope, the view loss is considered minor and acceptable.

Further, the analysis is based on the building envelopes only. The future buildings will be designed and articulated to minimise visual impacts, where possible.

69 and 71 Carabella Street

69 and 71 Carabella Street are located on the northern side of Carabella Street, on the same side as the school. Both properties share a common boundary with the school, overlooking the Mary Ward building. 71 Carabella Street does not form part of the masterplan site area, however it is owned by the Trustees of the Loreto Property Association and has been used by the school as a Sister's residence since 1980. Whilst the VIA considered views from 71 Carabella Street, only 69 Carabella Street has been addressed below.

69 Carabella Street has windows and external areas to the north, overlooking the school campus. This property has views of the Harbour and Kurraba Point through vegetation on the school site and over the Mary Ward building. The view contains water and land-water interfaces. Views to the north from the upper level of this property are reasonably unencumbered, however views to the east and west are constrained by existing buildings and vegetation.

Whilst the envelope in the Eastern Precinct is above the 8.5m height limit applying to the site under North Sydney LEP 2013, the proposed envelope is within the maximum height of the existing Mary Ward building (14.7m). On this basis, and because the proposal will not impact views of the land-water interface available from the upper level of the property where views are less restricted by the existing building form, the view impacts are considered minor. Further, the proposed envelope will be further refined at the detailed design stage to mitigate any visual impacts from this property.

This property will not be impacted by the Stage 1 works.

7.6.4 Elamang Avenue

In addition to 22 Elamang Avenue, analysis has been carried out for properties to the east and north-east of the site at 10 and 11-13 Elamang Avenue.

10 Elamang Avenue is located to the east of the school. The property's primary orientation is to the north, over Elamang Avenue, where there are partial views of the Harbour over existing properties. The property also has windows to the west, across the school campus, however this view is constrained by existing vegetation and the Mary Ward building. There are no water views available to the west.

The upper levels of the proposed envelope in the Eastern Precinct have been designed to align with the setback of the existing Mary Ward building, and so there will be no additional view impacts associated with the proposed development (refer to **Figure 42**). This property will not be impacted by the Stage 1 works, and the view impact is considered negligible.

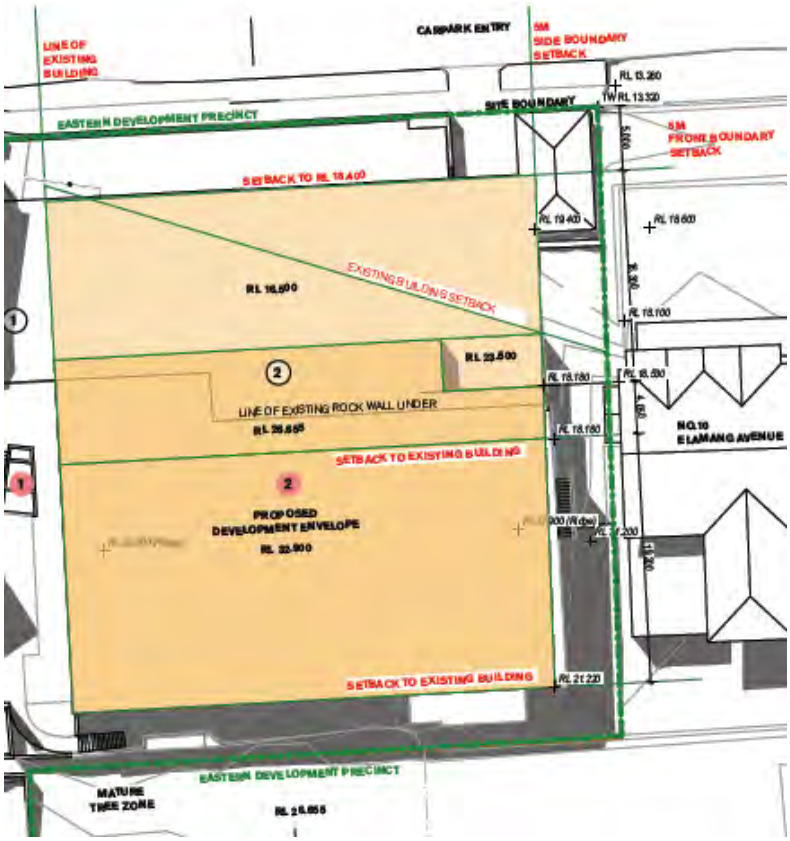

Figure 42 – Eastern Precinct building envelope, including proposed setbacks

Source: FJMT

11 - 13 Elamang Avenue is located on the northern side of Elamang Avenue, opposite the school. Some apartments in this building are orientated to the south, overlooking the school. The views from these properties would best be described as an outlook dominated by existing school buildings. The proposed envelope in the Eastern Precinct is consistent with the height of the existing Mary Ward building. Any impact on the outlook of these apartments is considered to be negligible. This property will not be impacted by the Stage 1 works.

7.7 Operational Noise Impacts

Renzo Tonin and Associates have prepared an Operation and Construction Noise and Vibration Assessment to assess the potential acoustic impacts of both the Concept Proposal and Stage 1 works on surrounding sensitive receivers (refer to **Appendix E** and **Appendix F**).

7.7.1 Existing Acoustic Environment

The Assessment outlines the location of sensitive receivers and the existing noise environment. The site, receivers and noise monitoring locations are shown at **Figure 43**.

Long-term noise monitoring at locations L1, L2 and L3 was carried out in 2017. The data indicates that there is little difference in background noise levels between an operational and non-operational school and little difference between a weekday (5 days) and whole week (7 days) data set. For a conservative assessment, the lowest background noise level for each period has been adopted for the noise goals. The project noise goals have been established from the criteria presented in Section 3 of the Assessment, and have been established for the assessment of school students, music noise, mechanical equipment, loading docks and carparks.

Figure 43 – Site, receivers and monitoring locations

Source: Renzo Tonin and Associates

7.7.2 Operational Noise Assessment

The primary operational noise sources associated with the development and a summary assessment of each are outlined in **Table 13**.

Table 13 – Operational noise sources and assessment

Noise Source	Assessment Summary
Classrooms and students including: • Breakout noise from internal classrooms/studios/gymnasium; • External outdoor learning areas/balconies; • External multi-purpose/tennis court sports activities; and • External recess/lunchtime eating areas/courtyards.	With the exception of the Metalwork Workshop and Woodwork Workshop within the Learning Hub, noise emanating from classrooms and areas will primarily be due to student voices. Conservatively, the assessment is based on a worst-case scenario, which assumes all classrooms/learning spaces, multi-purpose courts and Gymnasium and are fully occupied and the Centenary Hall has live music playing inside. The nearest most affected residential receivers during standard class times and during the lunch break is located to the west of the site (NCA_1) and to the north of the site (NCA_2). The assessment at the identified locations demonstrates that noise compliance is achieved at all residential receivers for the period of use.
Vehicular movement on site	On-site vehicular movements for Loreto are limited. The site's existing carpark entrance/exit along Elamang Avenue will be maintained and used for access for the existing underground carpark located below the Music and Performing Arts and Science building. The only other on-site vehicle movements will be for the loading dock activity, The nearest most potentially affected residential receiver has been identified as being located to the north of the site (NCA_2). The assessment at the identified location demonstrates that noise compliance is achieved at all residential receivers for all periods.
Loading dock activities	The loading dock will be situated towards the middle of the site, near the eastern façade of the proposed Learning Hub. Access to the loading dock is

Noise Source	Assessment Summary
	via an existing driveway located adjacent to the eastern façade of the Marian Centre, off Carabella Street. Truck movements associated with the loading dock will be limited to 7:00am to 6:00pm Monday to Saturday and 08:00am to 6:00pm Sundays and Public Holidays. The loading dock will be approximately 35 metres from the site's southern boundary. The most exposed residential receptor has been identified as NCA_4, located to the south of the site. The assessment at the identified location demonstrates that noise compliance is achieved at all residential receivers for the period of use.
Carpark	The existing underground carpark is located below the Music and Performing Arts and Science building. The noise sources generated by carparks include vehicle doors closing, vehicle engines starting, vehicles accelerating and vehicles moving. Noise level measurements from Renzo Tonin and Associates' database were used for the purpose of this assessment. For the purposes of the assessment, the entire carpark has been estimated to be filled or emptied within any hour, during the day, evening and night. Carpark usage during the evening and night is only anticipated to be used for Auditorium events. The nearest most potentially affected residential receiver has been established as NCA_2 to the north of the site. The assessment at the identified location demonstrates that noise compliance is achieved at all residential receivers for all periods.
Music and Performing Arts building	The nearest residential receivers to the future Performing Arts Building are located to the south along Carabella Street. Based on the Concept Proposal, there will be internal spaces located to the south and above the auditorium which will provide acoustic shielding to the nearest residences. Furthermore, to maximise acoustic shielding, it is recommended that the proposed music rehearsal rooms be located below street level, to the south of the auditorium. A detailed review of the building envelope will be carried out during the design development process, inclusive of walls and roof constructions to ensure compliance with the noise goals is achieved.
Mechanical plant and equipment	Detailed specifications of mechanical services equipment that would allow an acoustic assessment of noise emission from the site are not yet available. Notwithstanding this, for the Learning Hub (Western Precinct) the majority of plant and equipment is to be located within a plant room on the roof which is located 25m from NCA_1. The plant room will be surrounded by 2-3m high walls on all sides, therefore reducing noise emissions from the site to surrounding areas. If required, a partial or complete roof will be adopted and acoustic louvres can be incorporated to allow adequate heat dissipation and air flow for equipment. Where possible, the outlet of the equipment should point east, towards the centre of the site, to maximise acoustic directivity and limit noise emission to surrounding residences along the western boundary. For the remaining stages of development, mechanical equipment should be located towards the centre of the site, away from the surrounding residential receivers.

Renzo Tonin and Associates have also considered cumulative noise impacts based on the predicted noise level for the relevant on-site activities, as well as the relevant times periods for each activity at

the two most sensitive receivers (NCA_1 and NCA_2). The cumulative noise predictions to the nearest residential receptors show that noise compliance is achieved at all residential receivers for all periods.

7.7.3 Road Traffic Noise

Additional noise from traffic generated by a development on the local road network is assessed against the EPA Road Noise Policy. The assessment involves consideration of the existing traffic noise levels and the potential change in noise as a result of the development.

Based on data of existing noise conditions and expected traffic generation associated with the Concept Proposal and Stage 1 works, there will be a potential noise increase of 1.2 dB(A) along Carabella Street and 0.9 dB(A) along Elamang Avenue. On this basis, the additional traffic noise generated by the development is less than 2dB(A), and is therefore acceptable.

7.7.4 Recommendations

Renzo Tonin and Associates have provided a series of recommendations with respect to the acoustic performance of the building envelopes, music noise control and mechanical plant, including:

- For the Learning Hub and future buildings, a detailed review of the building envelope should be carried out during the design development process, inclusive of walls and roof constructions.
- The Learning Hub and future buildings should incorporate acoustically absorptive finishes both within internal areas and outdoor areas is recommended to assist in controlling noise emission from the development.
- Floor to ceiling partitions along the western side of the Learning Hub balconies (only the balconies located west of the stairs) are recommended to provide shielding to 111 Carabella Street.
- Operation of outdoor learning terraces/spaces proposed as part of the Stage 1 works will need to be managed so that raised voices are kept to a minimum. Group conversations will be encouraged to be undertaken indoors.
- Where an in-house sound system is installed for the future Auditorium, it is recommended that the noise level is controlled by an RMS compressor/limiter.
- If entertainment within the future Auditorium is to require use of non-in-house sound systems, instrument amplification or acoustic instruments, the above mentioned sound system limiter will not effectively control internal noise levels. A permanent sound 'monitor' device is therefore recommended to be installed.
- Acoustic assessment of mechanical services equipment should be undertaken during the detailed design phase of all stages of the development to ensure that the cumulative noise of all equipment does not exceed the applicable noise criteria.
- Mechanical plant noise emission for all stages of the development can be controlled by appropriate mechanical system design and implementation of common engineering methods, which may include:
  - Procurement of 'quiet' plant.
  - Air-conditioners and condensers should include day/night modes to further reduce noise emission.

- Strategic positioning of plant away from sensitive neighbouring premises to maximise intervening acoustic shielding between the plant and sensitive neighbouring premises.
- Commercially available acoustic attenuators for air discharge and air intakes of plant.
- Acoustically lined and lagged ductwork.
- Acoustic barriers between plant and sensitive neighbouring premises.
- Partial or complete acoustic enclosures over plant.
- Acoustic louvres.

Renzo Tonin and Associates recommendations have been included in the Mitigation Measures at **Section 10.0**.

7.8 Tree Removal and Ecological Impacts

An Arboricultural Impact Appraisal and Method Statement has been prepared by Naturally Trees and included in **Appendix S**. The report provides an analysis on the impacts of the proposed works on the existing trees and guidance on the appropriate management and protective measures required.

The report is based on the *A-Z method of tree assessment*, whereby a systematic method assessing the individual tree's importance and management considerations are outlined. The trees assessed as potentially important are categorised as 'A' and those with less importance are categorised at 'Z'.

A total of 57 trees were identified and assessed on the site with seven category 'A' and four category 'Z' trees required to be removed to accommodate the proposed development. Naturally Trees note that the majority of these trees are not visible from outside of the site and the retention of the remaining significant boundary tree cover will ensure that there is little impact on the amenity of the school and the surrounding area. Notwithstanding this Naturally Trees believe consideration should be given to replacement planting within the site to compensate for the loss of these trees. A comprehensive new landscaping scheme has been prepared for the development which identifies the locations where new trees are proposed to be planted (refer **Appendix M**).

In order to ensure the ongoing health of the trees identified for retention on site, Naturally Trees have recommended that protection measures be implemented. Naturally trees are of the opinion that if the specified protection measures are implemented, the development proposal will have no adverse impact on the contribution of trees to the local amenity or character.

7.9 Stormwater Management

A Stormwater Management Plan has been prepared Henry and Hymas for the Concept Proposal and Stage 1 works. The report is provided at **Appendix K** and the findings are summarised below.

7.9.1 Water Quality

Urban developments have the potential to increase gross pollutants, sediments, hydrocarbons and nutrient concentrations in stormwater runoff. To limit the impact on the downstream system, at source water quality treatment measures will be provided. It is proposed that Enviropod pit baskets will be added to all new pits.

Sedimentation and Erosion Control measures during the construction phase of the project will be implemented (sedimentation basin, catch drains, hay bales and geotextile filter inlets around pits) to retain the sediments on site during the course of construction. Refer to further detail at **Section 7.10**.

7.9.2 Water Quantity

The impervious surfaces (such as roads, roofs, driveways, etc.) associated with the development remain largely the same, therefore there will be no significant increase in peak stormwater flows from the site during storm events. On-Site Detention (OSD) is not proposed for the development as the area of pervious to impervious ratio remains the same.

Furthermore, the site is located very close to the Harbour. The distance from the site outlet to the Harbour is approximately 50m. The site stormwater system has been designed to safely convey the flows through the site and within the capacity of the downstream system.

The proposed new buildings and remodelled outdoor areas will all be connected to the site's existing drainage system. The new site pipe network will be designed to cater for the 20 year ARI storm as a minimum. The system will also be designed in such a way that the 100 year ARI will be conveyed via piped and overland flow paths. In the event of a total system blockage / failure, site grading is such that overland flow will be directed towards the northern boundary.

Whilst OSD is not required, to ensure that the post-developed flows do not exceed pre-developed flows, it is proposed to use rainwater tanks in the appropriate locations and strategic placement of orifice plates in some pits. This will ensure that the small increase of flow can be compensated for, and can be reduced to the pre-developed flows.

7.10 Construction Impacts – Stage 1 Works

A Preliminary Construction Management Plan has been prepared by APG (refer to **Appendix N**). The Preliminary Construction Management Plan details how the construction process will be managed in the context of an operating school and how impacts on the surrounding neighbourhood will be minimised.

7.10.1 Construction Hours and Duration

The proposed hours of construction are:

- Monday to Friday: 7:00am to 6:00pm;
- Saturday: 8:00am to 1:00pm; and
- No work on Sundays and NSW public holidays.

The expected duration of construction for the Stage 1 works is approximately 19 months, comprising the following estimated timeframes for each phase, noting that there will be some overlap in the later phases of the program:

- Site Establishment and Demolition – 8 weeks;
- Earthworks – 23 weeks;
- Construction – 39 weeks;

- Fit out – 28 weeks; and
- External works – 14 weeks.

7.10.2 Construction Noise and Vibration

The Construction Noise and Vibration Assessment prepared by Renzo Tonin and Associates addresses construction noise and vibration, and the potential impacts of construction on surrounding sensitive receivers (refer to **Appendix F**).

Construction Noise

The report sets out the construction noise criteria as prescribed by the *Interim Construction Noise Guidelines 2009* for the standard construction hours. Based on typical construction practices and equipment used, it is anticipated that the principal source of noise emissions will be during the demolition and ground excavation phases.

The predicted noise levels presented in Section 6 of the Assessment indicate that the majority of the items of plant and equipment are predicted to exceed the established noise criteria at receivers NCA_1, NCA_2 and NCA_4, particularly when operating near the corresponding receiver location. With the exception of sawing activities, no exceedances are predicated at OSR_06 (Ensemble Theatre) and no exceedances are predicted within NCA_3 and at OSR_5 (St Aloysius' College Junior School) during any operations (refer to receiver locations at **Figure 43**).

In order to mitigate these impacts, reasonable and feasible noise management measures will need to be adopted to reduce noise levels as much as possible. These measures should be determined in detail when a contractor has been engaged on the project, and construction techniques have been better defined.

Implementation of noise control measures, such as those suggested in Australian Standard 2436-2010 'Guide to Noise Control on Construction, Demolition and Maintenance Sites', are expected to reduce predicted construction noise levels. The works are taking place in the context of an operating school, and so it is in the best interests of both the school and the neighbours to reduce construction noise impacts as far as possible.

Other potential mitigation measures include, but are not limited to:

- All truck movements involved in the demolition, excavation and construction would approach and depart via Carabella Street. The first round of trucks are planned to arrive at site between 7:15am and 7:30am, this will prevent trucks arriving/parking on Carabella Street before 7am and will alleviate sleep disturbance impacts.
- All demolition and excavated spoil material will be loaded wholly within the centre of the site, the existing school buildings provide significant shielding to surrounding dwellings.
- All employees, contractors and subcontractors are to receive site induction and toolbox talks and ongoing training so that the noise management measures are implemented accordingly. Content within toolboxes will include, location of nearest sensitive receivers, relevant project specific and standard noise and vibration mitigation measures, permissible hours of work, truck route and truck loading restrictions.

In addition, the following noise management recommendations provide feasible and reasonable noise control solutions to reduce noise impacts to sensitive receivers:

- General noise management measures including using less noisy plant, maintaining plant and equipment property and directing noise-emitting plant away from sensitive receivers.
- Regular periodic noise monitoring to confirm predicted noise impacts, and ensure that reasonable and feasible noise reduction measures are successful.
- Long term noise monitoring at NCA_1, NCA_2 and NCA_4 to inform the contractor of any excessive noise exposure levels at the various receptor locations.

Construction Vibration

Renzo Tonin and Associates have set vibration criteria for building damage and human comfort. The potential for vibration will be greatest when site preparation and excavation works are taking place. Based on an assessment of the receivers surrounding the site, the adjoining buildings to the west of the subject site (i.e. 111 Carabella Street and 22 Elamang Avenue) would be most at risk from vibration impacts from the construction works due to them sharing common boundaries with the subject site. The main risks are physical damage from hitting unknown sandstone or structural foundations of building. The risk of damage from excavator moving and digging soil next to a building is very low.

The following recommendations are proposed to minimise vibration impacts from construction activities to the nearest affected receivers:

- A management procedure must be implemented to deal with vibration complaints. Each complaint must be investigated and where vibration levels are established as exceeding the set limits, appropriate amelioration measures must be put in place to mitigate future occurrences.
- Where vibration is found to be excessive, management measures must be implemented to ensure vibration compliance is achieved. Management measures may include modification of construction methods such as using smaller equipment, establishment of safe buffer zones and if necessary, time restrictions for the most excessive vibration activities.
- Where construction activity occurs in close proximity to sensitive receivers or on material that will cause vibration to all identified receivers, vibration testing of actual equipment on site must be carried out prior to their commencement of site operation to determine acceptable buffer distances to the nearest affected receiver locations.
- Dilapidation surveys must be conducted at all receivers within close proximity of the construction site. Notification is to be provided to all occupants prior to any works that may cause vibration.

The recommendations made by Renzo Tonin and Associates have been included in the Mitigation Measures at **Section 10.0**.

7.10.3 Construction Traffic

A Preliminary Construction Traffic Management Plan (preliminary CTMP) has been prepared by McLaren Traffic Engineering (refer to **Appendix O**). The preliminary CTMP establishes the principles for the management of up to 16 heavy vehicle movements per day during the demolition phase (when the majority of truck movements will occur).

Construction vehicles will utilise the existing road network from the Cahill Expressway / Clark Road / Broughton Street / Willoughby Street. The vehicles will then continue down Carabella Street or Elamang Avenue to arrive at the work zones, where loading / unloading of deliveries / materials will be undertaken on-street. The vehicles can then utilise Peel Street to connect Elamang Avenue and Carabella Street to allow the vehicles to loop around.

The route indicated is based on a preliminary examination of the road network surrounding the site. However consultation should be undertaken with North Sydney Council to determine the best route and methods of traffic control to facilitate access for construction vehicles in the narrow streets servicing the site.

The expected generated construction traffic is relatively low and is not expected to measurably increase expected delays or impact on surrounding road network performance. No detours are necessary as part of the work and no traffic will be redirected.

Due to the lack of space on the campus, construction work zones will be required on both Carabella Street and Elamang Avenue at various stages of the construction process. The locations of the proposed works zones during various stages of construction are outlined in the Preliminary Construction Management Plan (refer to **Appendix N**). For excavation and construction of the Learning Hub, a tower crane will be erected to the west of the Gymnasium. The location, reach and capacity of the crane has been selected to allow loading from Elamang Avenue to assist in dispersing construction traffic from the school's Carabella Street entrance.

7.10.4 Pedestrian Management

In order to maintain pedestrian safety during construction, the pedestrian footpaths will be kept free of any waste, construction material or trip hazards associated with the development. Where a pedestrian path is within a work zone, pedestrians will be directed by signage to the footpath on the opposite side of the road at an appropriate crossing location.

For each construction site, temporary hoardings and fencing will be erected around the works to protect students, staff and visitors to the campus. Access to the site will be through limited gates which would either be manned or locked to prevent unauthorised access.

7.10.5 Air and Water Quality

Air Quality

The Preliminary Construction Management Plan has been prepared by APG (**Appendix N**) and contains a series of mitigation measures that will be adopted to ensure that the construction process does not result in any unacceptable amenity impacts, including adverse air quality impacts. The contractor will implement a range of mitigation measures, including:

- Cover loads of trucks removing demolition material from the site;
- Installation of a 'cattle grid' or similar at the site entrance point;
- Wet down areas with hoses and sprinklers in particular weather conditions; and
- Utilise road sweepers to clean up dust and debris from site vehicles, as necessary.

Water Quality

An Erosion and Sediment Control Plan has been prepared by Henry and Hymas (refer to **Appendix K**) which outlines the erosion and sediment control measures that will be employed.

During construction, erosion and sediment control measures will be put in place to prevent or ensure any site stormwater run-off is cleaned prior to discharge. The plan details the proposed geotextile filter pits, sediment fences and sediment traps that will be installed on the site during construction. These erosion and sediment control devices will be cleaned out after storm events and adjusted to suit construction progress.

In addition, dust suppression, construction vehicle inspections and cleaning measures will be put in place as outlined in the preliminary Construction Management Plan prepared by APG at **Appendix N**.

7.10.6 Construction Waste Management

The Waste Management Plan (WMP) prepared by MRA Consulting Group addresses the issue of waste management during the demolition and construction phases of the Stage 1 development.

The WMP estimates the amount of waste that will be generated on site and then identifies whether or not the various materials will be reused, recycled or disposed of. It is the aim of the plan to minimise waste generation where possible and to reuse resources where possible. For example, quarried sandstone will be stored offsite for storage and prepared for later installation on site.

Due to the lack of space on site to store and sort construction and demolition waste material as well as minimal access to vehicles, separation of this type of waste will have to occur at a suitable site which is licensed to process construction and demolition wastes. In order to maximise material recovery, the waste disposal contract shall include a provision requiring processing of the site waste prior to landfilling and materials.

Waste removal from site is anticipated to require a crane to operate in conjunction with waste transport vehicles. In all circumstances, it is expected that appropriate controls will be implemented by site management to ensure safety and efficiency on-site. Examples of appropriate controls relevant to crane and vehicle use have been provided in the WMP.

7.10.7 Complaints Management

As outlined in the Preliminary Construction Management Plan (CMP) prepared by APG (refer to **Appendix N**) a complaints handling procedure will form part of the project communications plan to be developed by the contractor in conjunction with Loreto. The procedure will dictate response timeframes as well as an escalation framework for responding to complaints.

7.11 Construction Impacts – Concept Proposal

The Preliminary Construction Management Plan (CMP) prepared by APG (**Appendix N**) addresses the Concept Proposal, as far as practicable given the exact scope and sequencing of the future stages is not yet known.

The impacts associated with Stages 2 and 3 of the Concept Proposal, and the measures that will adopted to mitigate them, remain the same with respect to:

- Construction hours;
- Air and water quality;
- Complaints handling;
- The principles of construction noise and vibration management; and
- The principles around construction waste management.

With respect to construction traffic, the Preliminary Construction Management Plan (**Appendix N**) establishes the following principles for Stages 2 and 3.

- For Stage 2 (Eastern Precinct) a work zone will be established on Elamang Avenue, in front of the existing car park. A tower crane, if needed, will work to the Elamang Avenue street frontage.
- For Stage 3 (Southern Precinct) a work zone will be established fronting Carabella Street in front of the Junior School. Similarly to Stage 1.1 (the Learning Hub) the only direct access to the construction site will be off Carabella Street, via the laneway adjacent to the Marian Centre.

7.12 BCA, Access and Fire Safety

BCA

Steve Watson and Partners have prepared BCA Assessment Reports for the new Learning Hub and connectors (refer to **Appendix X**).

The preliminary assessment has found the design is capable of achieving compliance with the BCA subject to further detail at the design development stage. The assessment has also identified a number of non-compliances which are proposed to be addressed by Fire Engineered Alternative Solutions. Notwithstanding this, the development adequately satisfies the intent of being able to comply with the requirements of the BCA for the purpose of SSD DA submission.

Accessibility

Morris Goding Accessibility Consulting has undertaken as Access Review of the Concept Proposal and Stage 1 works (refer to **Appendix R**).

The Review concludes that the design of the proposed new works is able to meet the requirements of the performance-based BCA / NCC and the intent of the Disability Discrimination Act.

Fire Safety

Exova Warringtonfire has undertaken a Fire Safety Engineering Assessment of the proposed Stage 1 works (refer to **Appendix Y**).

From the assessment undertaken, Exova Warringtonfire concludes that the matters identified that are likely to form fire safety engineering Performance Solutions can be readily addressed, enabling the proposed development to achieve compliance with the relevant fire safety-related provisions of the BCA.

7.13 Structural Adequacy

Henry and Hymas has prepared a Structural Design Statement for the proposed Stage 1 works (refer to **Appendix Q**).

The statement confirms that the structural design shall conform to the relevant SAA Codes, in particular:

- *AS 1170 Structural Design Actions*
- *AS 1720 Timber Structures;*
- *AS 2159 Piling Code;*
- *AS 2870 Residential Slabs and Footings;*
- *AS 3600 Concrete Structures;*
- *AS 3700 Masonry Structures; and*
- *AS 4100 Steel Structures.*

7.14 Soils, Geotechnical and Groundwater

7.14.1 Contamination and Remediation

Environmental Investigation Services (EIS) has prepared a Preliminary Stage 2 Environmental Site Assessment and Remediation Action Plan (RAP) for the site. The assessment was confined to accessible areas of the site where soil disturbance is scheduled to occur during the Stage 1 works. Soil sampling was not undertaken beneath the existing buildings.

Potential contamination sources at the site include imported fill material, the use of pesticides and hazardous building materials. Soil samples were collected from 10 sampling points and analysed for contaminants of potential concern. The subsurface conditions at the site generally consisted of relatively shallow fill material directly overlying sandstone bedrock or concrete slabs. A stockpile of fill material was located to the west of the Gymnasium.

The soil analytical results were compared to site assessment criteria (SAC), which were established with reference to relevant guidelines and regulations. The results indicated that lead, polycyclic aromatic hydrocarbons (PAHs) and / or total recoverable hydrocarbons (TRH) were present in concentrations exceeding the human health SAC in 60% of the sample locations. As a conservative measure, all fill material in the proposed development areas is considered to be potentially contaminated and should be treated accordingly.

In response, EIS has prepared a RAP. The objectives of the RAP are to:

- Provide a methodology to remediate and validate the site with regard to the primary contaminants of concern (PCC), being lead, PAHs, and TRH;
- Provide a contingency plan for the remediation works;
- Outline site management procedures to be implemented during remediation work; and
- Provide an unexpected finds protocol to be implemented during the remediation and development works.

The RAP details several options for the removal of contaminated material, however EIS considers that Option 3, which involves the removal of contaminated material to an appropriate facility and reinstatement with clean material, is the best option for remediating the site for the following reasons:

- In most areas of the site, the depth of fill material appears to be relatively shallow. Therefore the total volume of fill material to be disposed is not expected to be excessive;
- The remedial works would generally be able to be conducted in conjunction with the construction works; and
- Removing the contaminated soil from the site would avoid the need to prepare an EMP for the site and the need to provide ongoing management of the contamination.

The RAP goes on to outlined the proposed remediation activities that will be undertake. The proposed remediation strategy includes a validation plan which will demonstrate that the remedial measures described in this RAP have been successful and that the site is suitable for the intended land use.

The recommendations made by EIS have been included in the Mitigation Measures at **Section 10.0**.

7.14.2 Geotechnical

JK Geotechnics have prepared a Geotechnical Investigation (**Appendix P**) to obtain geotechnical information on the topographic, surface drainage and geological conditions of the site and its immediate environs. The 1:100,000 Geological Map of Sydney indicates the site to be underlain by Hawkesbury Sandstone. The subsurface conditions encountered during the fieldwork investigation encountered Hawkesbury Sandstone, overlain by a medium to coarse grained quartz sandstone, very minor shale and laminite lenses.

Based on the results of the site investigations, the report provides general advice on the geotechnical aspects of the proposed civil and structural design. These recommendations relate to earthworks, excavation, impacts on adjacent structures, vibrations and earthquake design.

The recommendations made by JK Geotechnics have been included in the Mitigation Measures at **Section 10.0**.

7.14.3 Acid Sulphate Soils

North Sydney LEP 2013 does not contain any acid sulphate soils mapping, or provisions relating to acid sulphate soils. However, EIS has confirmed that the site is not located in an acid sulphate soil risk area according to the risk maps prepared by the Department of Land and Water Conservation.

7.14.4 Groundwater

The groundwater table was not encountered in any of the investigations, although groundwater seepage was observed along the soil-rock interface and through defects in the rock mass. The maximum borehole depth was 17.83m.

JK Geotechnics has concluded that groundwater seepage is likely to occur from the excavated rock faces but this is not expected to affect regional groundwater behaviour and the volumes likely to occur will be quite low.

7.15 Ecologically Sustainable Development

A Sustainability Report has been prepared by Norman Disney and Young, and is included in **Appendix H**. ESD principles will be incorporated into the design, construction and ongoing operation phases of the development as detailed in **Sections 3.9** and **4.12**.

Loreto Kirribilli is taking a 'best-for-school approach' to the redevelopment of the campus, with a number of site-wide sustainability opportunities proposed for the projects including improved connectivity, emergency efficiently and the introduction of WSUD principles.

The proposed Learning Hub has been benchmarked against the sustainability performance of newly constructed school buildings. The proposed Learning Hub will target the following sustainability performance, however the sustainability framework to be used for the project is yet to be confirmed:

- 5 Star Green Star Design and AsBuilt_v1.1;
- Silver or Gold level Core and Shell Certification; and
- Greater than 20% improvement on NCC Section J (Energy) minimum compliance.

7.15.1 Consistency with the EP&A Regulations

The environmental performance of the development has also been assessed against Clause 7(4) of Schedule 2 of the EP&A Regulations. The proposed development is consistent with the five accepted principles of ESD, as described below.

Precautionary Principle

If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

The proposal is supported by environmental studies and technical reports which conclude that there are no environmental constraints that would preclude the development of the site, subject to appropriate management during the design, construction and operational stages. It is considered that through adherence to the Mitigation Measures outlined in **Section 10.0**, the proposal will not result in negative environmental impacts.

Integration Principle

The integration principle states that decision-making processes should effectively integrate both long-term and short-term economic, environmental and social considerations. The design of the building has been developed to integrate the short and long-term effects of economic, environmental and social considerations in the provision of teaching and educational facilities at the school.

Intergenerational Equity

The principle of intergenerational equity holds that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations. The proposal has been developed to directly benefit current and future generations in that it contributes to the provision of education services for the community without causing significant impact to the environment.

Biological Diversity

Under the biodiversity principle, the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making.

The development site does not contain any threatened or vulnerable species, populations, communities or significant habitats. The construction and ongoing operation of the facility will be managed in accordance with the Mitigation Measures, ensuring no significant indirect impacts on the surrounding environment.

Valuation and Pricing of Environmental Resources

Under this principle, improved valuation, pricing and incentive mechanisms as well as environmental factors should be included in the valuation of assets and services.

The cost of infrastructure and other design measures to ensure an appropriate level of environmental performance has been incorporated into the cost of development. In addition, the level of waste will be appropriately managed during the construction and the operation of the development. These measures have also been incorporated into the cost of development.

7.16 Crime Prevention Through Environmental Design

The principles of Crime Prevention Through Environmental Design (CPTED) have been implemented in the scheme in accordance with the Department of Planning guideline titled *Crime Prevention and the Assessment of Development Applications (2001)* as follows:

Principle 1 – Natural Surveillance

As noted in *Crime Prevention and the Assessment of Development Applications*, good surveillance means that people can see what others are doing. People feel safe in public areas when they can easily see and interact with others. Would-be offenders are often deterred from committing crime in areas with high levels of surveillance.

The proposed development provides adequate surveillance in accordance with this principle. The positioning of the proposed Learning Hub and connectors will provide active surveillance that will enable staff to observe students and any potential offenders.

Furthermore, the provision of windows, roof top terraces and elevated levels within the buildings and connectors will provide visibility of the public domain, main campus entry along Carabella Street and entry to the carpark along Elamang Avenue. This promotes casual surveillance to the school and acts as a risk in the minds of potential perpetrators.

Principle 2 – Access Control

Access controls use physical and symbolic barriers to attract, channel or restrict the movement of pedestrians. As noted in *Crime Prevention and the Assessment of Development Applications*, effective access controls make it clear where people are permitted to go or not go, and makes it difficult for potential offenders to reach and victimise people and damage property. Illegible boundary markers provide excuses for being in restricted areas.

The school will remain open during the day however access by visitors will be controlled via the reception desk located in the Elamang building. The main entrance of the school is located along

Carabella Street which is subject to high vehicular traffic and pedestrian traffic from the surrounding residential dwellings. Access to the school is clearly visible from the adjoining residential buildings and public and private open spaces.

Principle 3 – Territorial Reinforcement

Territorial reinforcement refers to the clear identification of public spaces, and the creation of a sense of community ownership over such spaces. As noted in the *Crime Prevention and the Assessment of Development Applications* people feel comfortable in, and are more likely to visit, places which feel owned and cared for. Well used places also reduce opportunities for crime and increase risk to criminals.

Boundary fencing and landscaping will differentiate public and private areas. The proposed development will include fencing and gates, which will clearly define the school's private space.

Principle 4 – Space Management

Space management refers to providing attractive, well maintained and well used spaces. As noted in *Crime Prevention and the Assessment of Development Applications*, space management strategies include site cleanliness, rapid repair of vandalism and graffiti and the removal of damaged physical elements.

The school will continually be maintained with particular care taken with the buildings, gardens and open space areas to avoid degradation and dilapidation. The continued maintenance and access control and territorial management will ensure that the buildings do not become degraded and will discourage any potential vandalism.

7.17 Development Contributions

The relevant contributions plan for the site is the *North Sydney Section 94 Contributions Plan 2013.*

Whilst the Plan does not contain a list of uses which are automatically excluded from the payment of contributions, it states that (our emphasis):

> *Contributions will be levied on* ***additional residential development and additional commercial development (includes space to be used for hotels - including residential component- medical centres, refreshment rooms, restricted premises, shops, showrooms and take-away food shops****) within North Sydney in accordance with this Plan.*

Whilst this list of uses is not exhaustive, educational establishments do not fit within the definition of commercial development, with educational establishments being a separately defined use. Based on the above, Ethos Urban is of the view that the plan only relates to residential and commercial development.

This view is supported by recent development applications for educational establishments in the North Sydney LGA. It is noted that that neither Monte Sant' Angelo Mercy College nor Wenona School paid contributions under their recent approvals. Similarly, the Department of Planning's assessment report for Sydney Church of England Grammar School's Part 3A Application states that (our emphasis):

North Sydney Section 94 Contributions Plan 2003 applies to all land within the North Sydney LGA. The proposed concept plan and stage 1 project application is for the extension of Shore school campus onto the Graythwaite site. ***Educational establishments are not levied under North Sydney Section 94 Contributions Plan 2003, and consequently the proposal is not subject to any developer contributions.***

Whilst Council's contributions plan changed in 2013, it is understood that the amendments only sought to extend the timeframe to which the plan applies and to reflect changes made to the development contributions system since the *North Sydney Section 94 Contributions Plan 2003* came into effect in 2004. Notably, the amendments to the Contributions Plan do not affect contributions rates or the amount of contributions that will be levied on relevant development consents.

Irrespective of the above, a dispensation is considered appropriate as the proposed development comprises upgrades, alterations and additions to an existing facility and will only result in a very minor increase in students and staff over the 50 year life of the masterplan. As a result, the proposal will not place any additional demand on public services or facilities. The school provides its own sport and open space facilities within its campus (or has arrangements in place to share facilities with other schools in the locality), and the development further enhances the provision of sporting facilities on the site. As the development will not put any additional demand on Council's infrastructure, it is considered reasonable that a dispensation be considered.

7.18 Site Suitability

The site is suitable for the proposed development in that it is already used for a school, with a built form not dissimilar to surrounding development.

The Concept Proposal seeks to increase the school population by up to 100 students and two staff over the life of the masterplan (up to 50 years). This minor increase over an extended period will not result in any adverse impacts on the surrounding neighbourhood, and will support the growing demand for quality education on Sydney's North Shore, in close proximity to existing transport infrastructure.

The site is in close proximity to transport infrastructure, shops and other services, and the built form is in keeping with the existing surrounding development. The design has been amended to ensure impacts on neighbouring properties are mitigated.

The development is suitable for the site as the development:

- Is permissible in the zone;
- Provides a series of development envelopes which provide a framework for the future development of Loreto Kirribilli;
- Involves the construction of a high quality building which replaces an outdated, impractical building and will enhance the quality of development on the site;
- Improves the functionality and accessibility of the site; and
- Considers and minimises impacts on the surrounding locality.

7.19 Public Interest

The proposed redevelopment of the school is in the public interest as it:

- Will provide disabled access to all parts of the school site for the first time;
- Will create additional jobs during construction and operation, and represents an investment in the local economy;
- Has been designed to limit visual impacts when viewed from Carabella Street, and will improve the presentation of the Chapel to Carabella Street;
- Will modernise outdated educational facilities for future generations;
- Is of a high architectural standard, and the built form is compatible with the site's surrounding buildings; and
- Retains and respects the site's heritage significance whilst developing new facilities which are in-keeping with the heritage built form.

8.0 Request to Vary Development Standard

Clause 4.6 (Exceptions to Development Standards) of the North Sydney LEP 2013 allows the consent authority to grant consent for development even though the development contravenes a development standard imposed by the LEP. The clause aims to provide an appropriate degree of flexibility in applying certain development standards to achieve better outcomes for and from development.

The recently gazetted *State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017* (the Education SEPP) also enables development consent to be granted for SSD even though the development would contravene a development standard imposed by the Education SEPP or any other environmental planning instrument under which the consent is granted. Despite the introduction of the SEPP, this Clause 4.6 variation has been prepared to demonstrate that compliance with the development standard would be unreasonable and unnecessary.

Clause 4.6 requires that a consent authority be satisfied of three matters before granting consent to a development that contravenes a development standard:

- That the applicant has adequately demonstrated that compliance with the development standard is unreasonable or unnecessary in the circumstances of the case;
- That the applicant has adequately demonstrated that there are sufficient environmental planning grounds to justify contravening the development standard; and
- That the proposed development will be in the public interest because it is consistent with the objectives of the particular standard and the objectives for development within the zone in which the development is proposed to be carried out.

The consent authority's satisfaction as to those matters must be informed by the objective of providing flexibility in the application of the relevant control.

The Land and Environment Court has established questions to be addressed in variations to development standards lodged under *State Environmental Planning Policy 1 – Development Standards* (SEPP 1) through the judgment of Justice Lloyd, in *Winten Property Group Ltd v North Sydney Council* [2001] 130 LGERA 79 at 89. The test was later rephrased by Chief Justice Preston, in the decision of *Wehbe v Pittwater Council* [2007] NSW LEC 827 (Webbe). An additional principle was established in the recent decision by Commissioner Pearson in *Four2Five Pty Ltd v Ashfield Council* [2015] NSWLEC 1009 (Four2Five) which was upheld by Pain J on appeal.

These tests and considerations can also be applied to the assessment of variations under Clause 4.6 of the LEP and other standard LEP instruments.

Accordingly, this Clause 4.6 variation request is set out using the relevant principles established by the Court.

8.1 Development Standards to be Varied

The development standard that is sought to be varied as part of this application is Clause 4.3 of LEP 2013, relating to *height of buildings*. Under North Sydney LEP 2013 the site has a maximum height limit ranging from 8.5m to 12m (refer to **Figure 44**).

Figure 44 – Extract from LEP 2013 height map

Source: North Sydney Council

8.2 Is the Planning Control in Question a Development Standard

'Development Standards' are defined under Section 4(1) of the EP&A Act as follows:

> *development standards means provisions of an environmental planning instrument or the regulations in relation to the carrying out of development, being provisions by or under which requirements are specified or standards are fixed in respect of any aspect of that development, including, but without limiting the generality of the foregoing, requirements or standards in respect of: ...*
>
> *(c) the character, location, siting, bulk, scale, shape, size, height, density, design or external appearance of a building or work,...*

The maximum building height control under Clause 4.3 of the LEP is clearly and unambiguously a development standard.

8.3 Extent of Variation Sought

Elements of both the Concept Proposal and Stage 1 works exceed the height limits established for the site under Clause 4.3 of North Sydney LEP 2013.

8.3.1 Concept Proposal

The Eastern Precinct envelope has a maximum height of RL 32.90 (14.7m). This represents a variation of 6.2m above the 8.5m height limit which applies to this part of the campus.

The Southern Precinct envelope has a maximum height of RL 38.75 (9.5m). This represents a variation of 1m above the 8.5m height limit which applies to this part of the campus.

8.3.2 Stage 1 Works

The maximum height of the Stage 1 works is the Northern Precinct connector, which has a maximum height of RL 31.00 (14.7m). This represents a variation of 6.2m above the 8.5m height limit which applies to this part of the campus.

The new Learning Hub has a maximum height of RL 37.50 (14.5m). This represents a variation of 2m above the 12m height limit which applies to this part of the campus.

The vertical connector in the Southern Precinct has a maximum height of RL 43.97 (9.8m), exceeding the 8.5m height limit by 1.3m.

As detailed below, the additional height is the result of site specific opportunities and constraints to enhance the functionality of the school, as well as to improve the accessibility of the campus.

8.4 Justification for Contravention of the Development Standard

8.4.1 Public Benefit

Clause 4.6(4)(a)(ii) of the LEP requires that development consent must not be granted for development that contravenes a development standard unless the consent authority is satisfied that the proposed development will be in the public interest because it is consistent with the objectives of the particular standard, and the objectives for development within the zone in which the development is proposed to be carried out.

The proposal is assessed against the objectives for the SP2 Infrastructure and R4 High Density Residential zones, and the height of buildings development standard, in **Table 14**.

Despite the variation to the building height standard, the proposal is considered to be in the public interest as it nevertheless satisfies the objectives of the zone and the development standard.

Consistency with the Objectives of the Zone and Standard

Table 14 demonstrates that the proposed variation to the height standard will still result in a development that achieves the objectives of the height of buildings development standard. The response also considers the appropriateness of the building in the context of the objectives for the SP2 Infrastructure and R4 High Density Residential zones.

Table 14 – Assessment against zone objectives and objectives of the development standard

Objective	Proposal
Clause 2.3 SP2 Infrastructure Zone Objectives	
To provide for infrastructure and related uses	The proposed development will provide for improved education infrastructure, in an area where demand for such facilities is high. The additional height proposed will enable Loreto to optimise the delivery of educational facilities, whilst maintaining the amenity of surrounding properties.
To prevent development that is not compatible with or that may detract from the provision of infrastructure	The proposed development will contribute to the delivery of infrastructure.
Clause 2.3 R4 High Density Residential Zone Objectives	
To provide for the housing needs of the community within a high density residential environment.	The underlying objective or purpose of this objective is not relevant to the development and therefore compliance is unnecessary. The partial zoning of the site for High Density residential uses is an anomaly, and does not reflect

Objective	Proposal
	the school's acquisition of the Marian Centre and B-Block in 2010.
To provide a variety of housing types within a high density residential environment.	Refer to response above.
To enable other land uses that provide facilities or services to meet the day to day needs of residents.	The site is used for the purpose of an educational establishment, which can be said to inherently provide a day-to-day service for residents. The use of the site for a school is in keeping with the existing use of the site, and is a compatible land use within the neighbourhood and within the zone it is situated.
To encourage the development of sites for high density housing if such development does not compromise the amenity of the surrounding area or the natural or cultural heritage of the area.	Refer to response above. The proposed development seeks to continue the existing use of the site.
To ensure that a reasonably high level of residential amenity is achieved and maintained.	The proposed development, including the variation to the height of buildings development standard, will not result in significant adverse amenity impacts.
Clause 4.3 Height of Buildings	
(a) to promote development that conforms to and reflects natural landforms, by stepping development on sloping land to follow the natural gradient	The proposed Learning Hub will step down with the topography of the site from south to north, such that the height of the new building will be 14.5 m above the existing ground level and will follow the natural gradient. The connectors are required to provide equitable access to existing buildings, and so their height is largely dictated by the adjoining buildings they are providing access to. However, where possible, the connectors have also been designed to follow the topography of the land. The building envelopes in the Eastern and Southern Precincts have also been designed to follow the topography of the site, stepping down to the north with the natural fall of the land. The Concept Proposal and Stage 1 works also envisage significant excavation to limit the extent of the building height above ground.
(b) to promote the retention and, if appropriate, sharing of existing views	The Concept Proposal and Stage 1 works have been developed to minimise impacts on existing views, and promote view sharing. When viewed from Carabella Street, the development will be within the height of existing buildings fronting the street, and so will not have any adverse impacts on views from properties to the south of the site. The envelopes in the Eastern and Southern Precincts have been designed to generally match the maximum height of existing buildings within these precincts, and will have a minimal visual impact. With respect to the Learning Hub, the increase in building height over the development standard will have a minimal impact on views from adjoining properties when compared to a compliant (12 metres) building. While the outlook from one apartment to the west of the site will experience some visual impact, these impacts would generally result from a complying envelope. To ameliorate these impacts, the proposed building has been set back from the residential flat building and stepped to protect outlook and amenity. The connector pods are largely located away from the school's boundaries, and so will have limited visual impact. Further, they have been designed as transparent, lightweight structures to minimise their impact as far possible.
(c) to maintain solar access to existing dwellings, public reserves and streets, and to promote solar access for future development	The proposed development will not result in significant overshadowing of any existing dwellings, public reserves or streets, nor compromise solar access for future development. The impact on the residential building to the west of the site at 111 Carabella Street will be negligible.
(d) to maintain privacy for residents of existing dwellings and to promote	The proposed Learning Hub will maintain privacy for residents of existing dwellings through appropriate setback and screening measures incorporated

Objective		Proposal
	privacy for residents of new buildings	into the building's design. The proposed building is an educational establishment and will therefore not house any residents. Privacy measures will be incorporated into the future stages of the development during the detailed design phase, as required.
(e)	to ensure compatibility between development, particularly at zone boundaries	The proposed development will not exceed the building heights currently on the site. The highest point of the site will continue to be the Chapel, and the proposed buildings will be in keeping with the existing heights of the buildings when viewed from Carabella Street. The proposed Learning Hub has a maximum height of 14.5m. The variation in building height will provide a building that is more compatible with adjoining buildings on Carabella Street which have a comparable parapet height. It will also provide a development which is more compatible with the existing development on the Loreto Kirribilli site. The envelopes in the Eastern and Southern Precincts are consistent with the maximum heights of existing buildings within these precincts, and will continue to be compatible with surrounding development.
(f)	to encourage an appropriate scale and density of development that is in accordance with, and promotes the character of, an area	The proposed building is of a scale and density of development that is consistent with the character of the area, and existing development on the School site.

8.4.2 Compliance with the Development Standard is Unnecessary and Unreasonable

Clause 4.6(3)(a) of the LEP requires the departure from the development standard to be justified by demonstrating:

> *that compliance with the development standard is unreasonable or unnecessary in the circumstances of the case, and*

In the decision of *Wehbe*, the Chief Justice expressed the view that there are five different ways in which an objection to a development standard might be shown to be unreasonable or unnecessary and is therefore well founded. Of particular relevance in this instance are the first and fourth ways, as follows:

1. *The objectives of the standard are achieved notwithstanding noncompliance with the standard.*
4. *The development standard has been virtually abandoned or destroyed by the Council's own actions in granting consents departing from the standard and hence compliance with the standard is unnecessary and unreasonable.*

The Objectives of the Standard are Otherwise Achieved

The objectives of the building height standard predominantly set out to ensure that proposed developments have a bulk and scale that is compatible with the surrounding character, to ensure development does not cause unreasonable amenity impacts on surrounding properties and to protect public and private views.

These objectives are satisfied by the proposal despite the numerical variation from the building height standard. The proposed development, including the additional height, will continue to achieve the objectives of the standard for the following reasons:

- The exceedance of the building height control is shown to have a negligible impact on the Carabella Street or Elamang Avenue streetscapes. When viewed from Carabella Street, the proposed building and envelopes have been designed to sit within the maximum height of existing buildings along this street frontage. Similarly, due to the topography along Elamang Avenue, and because the proposed development is within the maximum height of existing buildings on the site, there will be limited impact when the site is viewed from this street.
- The proposal is of a suitable scale given its context, and the scale of existing development on the site and the Kirribilli peninsular. The proposal remains consistent with the scale and character of development in the area.
- The numeric height limit exceedances are generally limited to parts of the campus which are away from the street frontages, limiting impacts on the public domain. Where height exceedances are proposed at the campus boundaries, the development has been designed to limit any visual and overshadowing impacts on adjoining properties.

The Development Standard has been Virtually Abandoned or Destroyed

The heights of existing buildings on the School campus are generally in excess of the 8.5 – 12m height limits which apply to the site under LEP 2013. It is noted that all buildings on the campus pre-date LEP 2013.

On the basis that most buildings on the site already exceed the LEP height standard, and that the Concept Proposal and Stage 1 works are within the height of the existing tallest building on the campus, compliance with the LEP height standards is considered unreasonable and unnecessary.

In summary:

- The highest building on the site is the Chapel which sits at approximately 24.7m above ground level, or RL 52.37. None of the new buildings on the site will be taller than this building.
- The Learning Hub will not exceed the tallest building fronting Carabella Street, being the J-Block at RL 45.22 (10.9m fronting Carabella Street).
- The highest point of the Learning Hub is at 14.5m (RL 37.500) and is a result of sloping topography of the site. The building will not exceed the height of the Marian Centre (RL 43.200) when viewed from Carabella Street.
- The proposed building envelope in the Eastern Precinct is within the maximum height of the existing Mary Ward building which it will replace, with a maximum height of RL 32.90 (14.7m).
- The existing buildings fronting Carabella Street, which pre-date the LEP 2013 development standards, already have a maximum building height of 10.9m (J-Block) and 12.8m (Marian Centre), which excessed the respective 8.5m and 12m development standards which apply to these two buildings.
- The proposed building envelope in the Southern Precinct has a maximum height of RL 38.75 (9.5m). The southern connector has a maximum height of RL 43.97 (9.8m), which is within the maximum height of the tallest building in this part of the campus, being the J-Block at RL 45.22 (10.9m fronting Carabella Street).

8.4.3 There are Sufficient Environmental Planning Grounds to Justify Contravening the Development Standard

Clause 4.6(3)(b) of the LEP requires the departure from the development standard to be justified by demonstrating:

> *that there are sufficient environmental planning grounds to justify contravening the development standard.*

In *Four2Five*, the Court found that the environmental planning grounds advanced by the applicant in a Clause 4.6 variation request must be particular to the circumstances of the proposed development on that site.

There are a number of particular constraints that affect the site which inhibit the development's ability to achieve strict compliance with the building height standard. These are detailed below.

Need to Provide Accessible Connections

Providing accessible connections between existing and proposed buildings on the campus is central to the success of the masterplan.

The proposed connectors, which will provide equitable access to all parts of the campus for the first time, must connect into the existing buildings. Whilst additional allowances are required for lift overruns and walkways, the heights of the connectors are largely dictated by the heights of existing buildings on the campus and the topography of the site. As noted above, the majority of buildings on the campus already exceed the building height standards.

Further, connections are proposed between existing and proposed buildings to improve functionality. For example, the new Learning Hub will connect with the existing Marian Centre at Ground Level, Level 1 and the roof terrace to improve functionality of the Marian Centre. Whilst options were explored to reduce the height of the Learning Hub, the connection with the Marian Centre was lost and the functionality of the development was significantly compromised. Given that the proposed development remains within the maximum height of existing buildings on the campus, and in the absence of any significant adverse amenity impacts, the proposed exceedance of the LEP height standards are considered acceptable.

Need to Maximise Open Space and Respect Significant Buildings

The Loreto Kirribilli campus is constrained by a number of factors, and there is limited open space available on the campus. As a result, most of the existing open space is located on the rooftops of existing buildings. Retaining the site's remaining open space, which is largely centred on the school's main entry and the Elamang building, is a key principle of the school's masterplan.

Whilst lower buildings with larger footprints could be designed, the proposed building form seeks to balance the school's functional requirements with an appropriate built form, and is considered to be an appropriate response to the site's constraints.

Topography of the Site

There is a fall of approximately 16m across the site, and whilst topography is not necessarily a site specific factor that is unique to the Loreto Kirribilli campus, it contributes to the proposed variations to the height of buildings development standards. The design seeks to utilise the

topography by setting buildings into the slope, and the buildings and envelopes have been designed to follow the topography of the site. However, the extent of the fall is such that exceedances of the LEP height standards are difficult to avoid, whilst achieving the other objectives of the development that have been outlined above.

Provisions of the Education SEPP

The Education SEPP came into force on 1 September 2017. The Education SEPP seeks to assist in the efficient delivery of high quality education facilities. To provide the flexibility to accommodate the built form requirements of schools, the Education SEPP enables development consent to be granted for SSD even though the development would contravene a development standard imposed by the Education SEPP or any other environmental planning instrument under which the consent is granted. The Education SEPP also enables new school buildings, including classrooms, halls and offices, of up to 22m in height to be approved as complying development.

In light of these recent changes, and given that the proposed buildings and envelopes are lower than the height of the existing tallest building on the campus and well within the 22m height limit for complying development, it is considered that the proposed variation to the development standard is well founded.

8.5 Secretary's Concurrence

Under Clause 4.6(5) of LEP 2013, the Secretary's concurrence is required prior to any variation being granted. The following section provides a response to those matters set out in Clause 4.6(5) of the LEP which must be considered by the Secretary.

Whether contravention of the development standard raises any matter of significance for State or regional environmental planning

The variation to the building height development standard of LEP 2013 will not raise any matter which could be deemed to have State or Regional significance. The proposed variation will not have any adverse amenity impacts outside of the immediate site area.

The Concept Proposal and Stage 1 works will strengthen the educational offering of Loreto School, which is a significant provider of secondary education in North Sydney and the Lower North Shore. Failure to proceed with the development, as proposed, would limit the development of a piece of State significant educational infrastructure.

The public benefit of maintaining the development standard

Maintaining the development standard would not result in any public benefit in this instance. Reducing the overall height would limit Loreto's ability to provide new education facilities.

Further, strict compliance with height of buildings standards would prevent the provision of equitable access across the campus. This would result in a less than desirable design and amenity outcome.

Finally, the LEP 2013 standards are inconsistent with existing development on the site, and the proposed development will remain within the height of the existing tallest building on the campus. Maintaining the development standards (which do not reflect the height of existing buildings on the site), at the expense of new and improved educational infrastructure, would not result in a public benefit.

Any other matters required to be taken into consideration by the Secretary before granting concurrence

The proposed development will facilitate the orderly and economic development of the Loreto Kirribilli campus for an educational establishment that is deemed to be of State significance, and will make the campus accessible for the first time.

8.6 Summary

Clause 4.3(2) (Height of Buildings) of the LEP applies a maximum height standard to the site which varies between 8.5 – 12m. The development proposes a maximum height of 14.7m. This request under Clause 4.6 of the LEP is submitted to the Department in support of this departure from the building height standard.

There are unique constraints which affect the site, and design requirements which result in a development that exceeds the numerical height limits. These considerations force a design that exceeds the building height standard.

Consistent with the aim of Clause 4.6 to provide an appropriate degree of flexibility in certain circumstances to achieve better outcomes for and from development, a departure from the height standards is considered appropriate in these circumstances.

Despite the numerical non-compliance with the building height standard, the proposed development is considered to satisfy the objectives of the development standard, as well as those of the SP2 Infrastructure and R4 High Density Residential zones, and it will provide environmental benefits particular to the site by providing improved educational facilities and equitable access. On this basis, the Clause 4.6 variation is considered well founded and Department's support for the variation to the height standard is requested.

9.0 Environmental Risk Assessment

The Environmental Risk Assessment (ERA) establishes a residual risk by reviewing the significance of environmental impacts and the ability to manage those impacts. The ERA for Loreto Kirribilli has been adapted from Australian Standard AS4369.1999 Risk Management and Environmental Risk Tools.

In accordance with the SEARs, the ERA addresses the following significant risk issues:

- the adequacy of baseline data;
- the potential cumulative impacts arising from other developments in the vicinity of the Site; and
- measures to avoid, minimise, offset the predicted impacts where necessary involving the preparation of detailed contingency plans for managing any significant risk to the environment.

Figure 45 indicates the significance of environmental impacts and assigns a value between 1 and 10 based on:

- the receiving environment;
- the level of understanding of the type and extent of impacts; and
- the likely community response to the environmental consequence of the project;

The manageability of environmental impact is assigned a value between 1 and 5 based on:

- the complexity of mitigation measures;
- the known level of performance of the safeguards proposed; and
- the opportunity for adaptive management.

The sum of the values assigned provides an indicative ranking of potential residual impacts after the mitigation measures are implemented.

Significance of impact	Manageability of impact				
	5 Complex	4 Substantial	3 Elementary	2 Standard	1 Simple
1 – Low	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)	3 (Low)	2 (Low)
2 – Minor	7 (High/Medium)	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)	3 (Low)
3 – Moderate	8 (High/Medium)	7 (High/Medium)	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)
4 – High	9 (High)	8 (High/Medium)	7 (High/Medium)	6 (Medium)	5 (Low/Medium)
5 – Extreme	10 (High)	9 (High)	8 (High/Medium)	7 (High/Medium)	6 (Medium)

Figure 45 – Risk Assessment Matrix

Table 15 – Environmental Risk Assessment

Item	Phase	Potential Environmental Impact	Proposed Mitigation Measures and / or Comment	Significance of Impact	Manageability of Impact	Residual Impact
Key: C - Construction O - Operation						
Noise and Vibration	C + O	• Increase in noise and vibration levels during construction activities • Increase in noise levels during the operation of the school building	• Implementation of Construction Noise and Vibration Measures which considers the construction methodology and details specific mitigation measures in accordance with the DECCW Interim Construction Noise Guideline. • Appropriate mitigation measures to be implemented to ensure vibration levels will not compromise human comfort or result in building damage. • Appropriate sound minimisation measures to be incorporated within the plant and mechanical areas.	C = 3 O = 1	C = 2 O = 2	C = 5 (low/medium) O = 3 (low)
Traffic and Parking	C + O	• Increase in construction traffic on local roads • Increase in traffic and parking on local roads during operation	• Only a small increase in staff and students is proposed. No additional parking is proposed. • A Construction Traffic Management Plan has been prepared detailing measures to minimise any adverse impacts arising from construction traffic.	C = 3 O = 2	C = 3 O = 1	C = 6 (medium) O = 3 (low)
Heritage	O	• Potential to impact on the site's heritage significance. • Potential for vibration to impact the structural integrity of the site's heritage item.	• The new works have been designed to have a negligible impact on the site's heritage item. • Where there is potential for impacts on the site's heritage significance, the recommendations provided in the Heritage Impact Assessment Statement prepared by GML Heritage will be implemented to avoid any adverse impacts.	O = 1	O = 1	2 (low)
Visual and Built Form	O	• Visual impact of the development when viewed from the public domain. • Visual impact of the development when viewed from surrounding properties.	• The building has been sited and incorporates design mechanisms to reduce height and bulk, within the context of functional requirements and the constraints of the site. • Measures have been incorporated to reduce the visual impact of the development when viewed from 111 Carabella Street. Future stages of development will be designed to mitigate impacts on properties to the east	O = 3	O = 2	5 (low/medium)

Item	Phase	Potential Environmental Impact	Proposed Mitigation Measures and / or Comment	Significance of Impact	Manageability of Impact	Residual Impact
			of the site. • Further changes could significantly compromise the function of the building and the achievement of service delivery objectives.			
Amenity of Adjoining Properties	C + O	• Potential privacy impacts on adjoining properties. • Potential overshadowing of adjoining properties.	• The building has been designed to limit privacy and overlooking of the adjoining property. • The Learning Hub has been designed to minimise overshadowing impacts.	C = 4 O = 4	C = 2 O =1	C = 6 (medium) O =4 (low/medium)
Air and Water Quality	C	• Potential for reduced air and water quality during construction	• A detailed Construction Environmental Management Plan will be developed once a contractor has been appointed to implement measures to ensure that air and water quality are maintained.	C = 2	C = 2	4 (low/medium)

10.0 Mitigation Measures

The collective measures required to mitigate the impacts associated with the proposed works are detailed in **Table 16** below. These measures have been derived from the previous assessment in **Section 6.0** and those detailed in appended consultants' reports.

Table 16 – Mitigation Measures

Mitigation Measures
Traffic and Access During Construction Construction traffic will be managed in accordance with the Construction Traffic Management Plan prepared by McLaren Traffic Engineering dated July 2017.
Construction Impacts A detailed Construction Management Plan (CMP) will be prepared by the appointed contractor prior to the commencement of works. The CMP will establish site management principles generally in accordance with the preliminary Construction Management Plan prepared by APG dated July 2017.
Contamination The recommendations of the Preliminary Stage 2 Environmental Assessment and Remediation Action Plan Environmental Investigation Services and dated September 2017 will be implemented prior to, and during construction.
Geotechnical Conditions The recommendations of the Geotechnical Assessment undertaken by JK Geotechnics and dated July 2017 will be implemented prior to, and during construction.
Environmentally Sustainable Development The development will target a 5 star Green Star Education V1 rating, in accordance with the Sustainability Master Plan prepared by Norman Disney and Young dated July 2017, however the sustainability framework to be used for the project is yet to be confirmed.
Noise and Vibration Measures to mitigate operation and construction noise and vibration will be implemented in accordance with the recommendations of Construction Noise and Vibration Assessment prepared by Renzo Tonin and Associates and dated July 2017.
Tree Removal Trees to be retained will be protected in accordance with the recommendations of the Arboricultural Impact Appraisal and Method Statement prepared by Naturally Trees and dated November 2016.
Aboriginal and European Heritage Works will be undertaken in accordance with the recommendations outlined in the Heritage Impact Assessment Statement and Aboriginal Heritage Due Diligence Report prepared by GML Heritage dated July 2017.

11.0 Conclusion and Justification

This EIS has been prepared to consider the environmental, social and economic impacts of the proposed development at Loreto School, Kirribilli. The EIS has addressed the issues outlined in the SEARs (**Appendix B**) and accords with Schedule 2 of the EP&A Regulation with regards to consideration of relevant environmental planning instruments, built form, social and environmental impacts including traffic, noise, construction impacts and stormwater.

It is considered the project warrants approval for the following reasons:

- The assessment of this proposal has demonstrated that the development will not generate any environmental impacts that cannot be appropriately managed, and is generally consistent with the relevant planning controls for the site, with the exception of height. As detailed in **Section 8.0**, it is considered unreasonable and unnecessary that the height standard be applied to the site.
- The proposal has been designed in consultation with the community to mitigate impacts on neighbours, particularly with respect to views and privacy.
- The development will improve the functionality of the existing school. The area and shape of the campus allows for the provision of new teaching and education facilities that meet the special design requirements for the proposed uses, whilst not resulting in any significant adverse impacts on surrounding uses.
- The proposal is consistent with the principles of ecological sustainable development as defined by Schedule 2(7)(4) of the EP&A Regulation 2000.
- The proposal will result in only a small number of additional students and staff on the site over the 50 year life of the masterplan. As detailed in **Section 7.3**, the additional students and staff will not have any adverse impact on traffic generation or parking.
- The provision of a new and modern teaching and education facility will further support and strengthen the services and facilities provided at the school.

Given the planning merits described above, it is requested that the Minister approve the application.