ETHOS URBAN

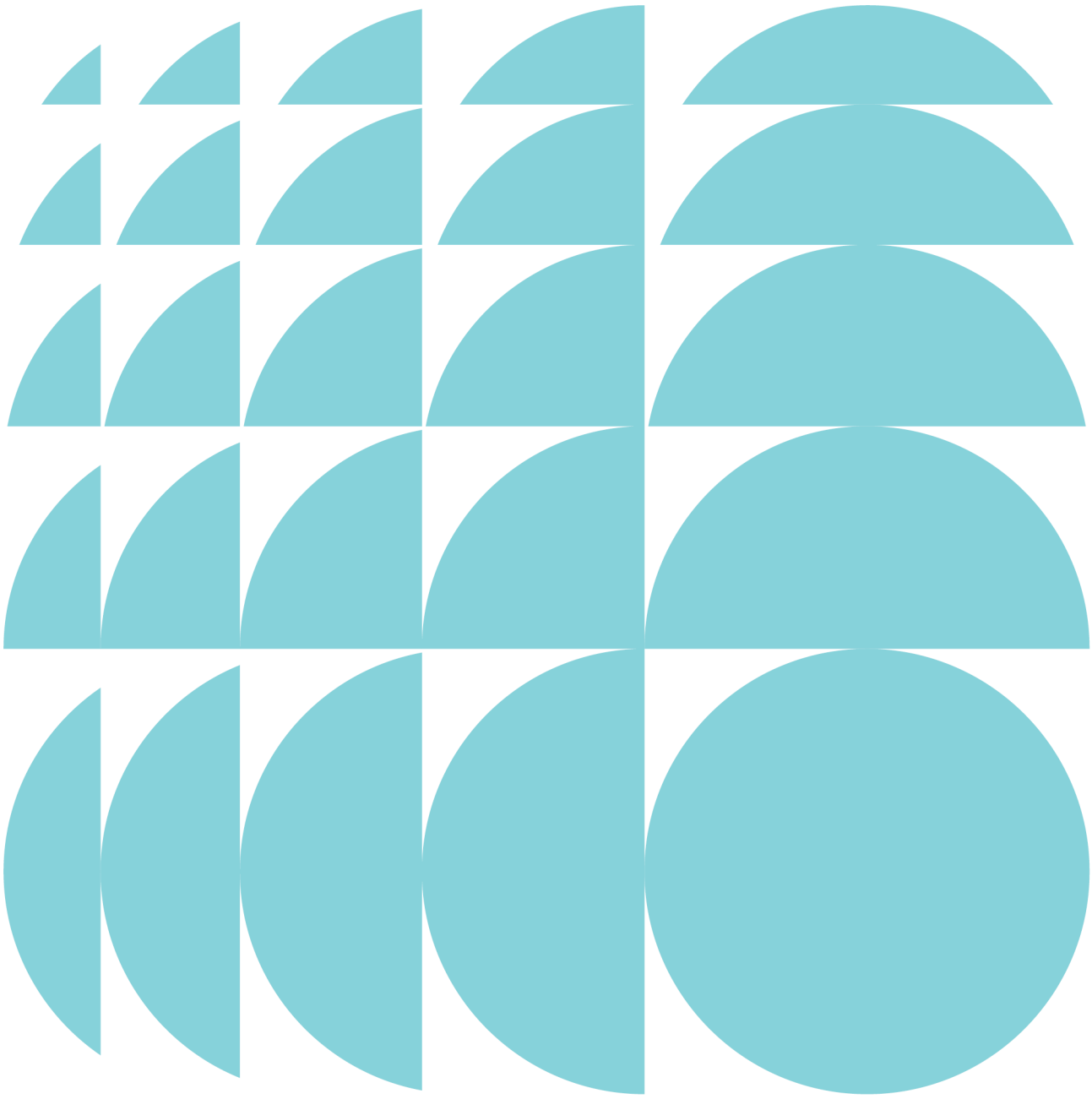
Environmental Impact Statement

New Liverpool Primary School
18 Forbes Street, Liverpool

Submitted to NSW Department of Planning, Industry and Environment

On behalf of NSW Department of Education

22 June 2021 | 2190413



CONTACT			
Chris McGillick	Principal	cmcgillick@ethosurban.com	02 9965 96962

This document has been prepared by:		This document has been reviewed by:	
Ella Coleman / Chris McGillick	22 June 2021	Kate Tudehope	22 June 2021

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Ethos Urban Pty Ltd
ABN 13 615 087 931.
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	NSW Department of Education
Applicant address	Level 8, 259 George Street, Sydney
Land to be developed	18 Forbes Street, Liverpool
Proposed development	Construction and operation of the New Liverpool Primary School as described in Section 3.0 of this Environmental Impact Statement
Prepared by	
Name	Chris McGillick
Qualifications	BPlan (Hons)
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 E*nvironmental 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	Chris McGillick
Date	16/06/2021

Executive Summary

Purpose of this Report

This submission to the Department of Planning, Industry and Environment (the Department) comprises an Environmental Impact Statement (EIS) for a Development Application under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). It relates to the development of the New Liverpool Primary School, a new primary school with capacity for 1,280 (including 1200 primary school students and space for 40 support unit and 40 preschool students).

Development for new school, regardless of the Capital Investment Value, is identified in Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP) as State Significant development (SSD) for the purposes of the EP& A Act. As the proposed development is for the purposes of a new school, it is identified as SSD.

A request for the issue of Secretary's Environmental Assessment Requirements (SEARs) was sought on 29 October 2019. Accordingly, the SEARs were issued on 9 January 2020 (SSD-10391). 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.

Overview of the Project

This application seeks approval for the following development:

- Construction of a new 2-3 storey primary school building, including core school facilities, teaching spaces and support units.
- Operation of new primary school for 1,280 including 1,200 students, 40 support unit students and 40 preschool students.
- Associated site landscaping and open space improvements.
- Removal of one dead tree.
- School signage.

The Site

The site is located on the corner of Lachlan Street and Burnside Drive in Liverpool, within the Liverpool Local Government Area (LGA). The site is set to the north of the Liverpool Hospital, to the east of Liverpool Boys' and Liverpool Girls' High School and to the west of the Liverpool rail corridor. The site is owned by the NSW Department of Education and is legally described as Lot 1 in DP 1137425, with an area of approximately 7.5 hectares.

The site is within the Liverpool CBD and is within walking distance of both Liverpool and Warwick Farm train stations.

Planning Context

Section 5.0 of the EIS considers all applicable legislation in detail. The proposal is consistent with the requirements of all relevant State Environmental Planning Policies (SEPPs). The site is zoned SP2 Health Services Facility and Educational Establishment. The proposal is permissible with consent and meets the objectives of the subject zone.

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 School Infrastructures NSW (School Infrastructure) to manage and minimise potential impacts arising from the development.

Consultation

Section 4.0 of the EIS details the consultation that has been undertaken with various project stakeholders including the Government Architect NSW, Sydney Trains, Sydney Water, Transport for NSW, Liverpool Girls and Boys High

Schools, user groups and the public. The outcomes of the consultation process have been considered in the design of the project.

Conclusion and Justification

The EIS addresses the SEARs, and the proposal provides for the development of the New Liverpool Primary School. 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 Public Spaces.

Having regard to biophysical, economic, and social considerations, including the principles of ecologically sustainable development, the carrying out of the project is justified 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 consistent with the relevant planning controls for the site.
- The development will provide a significant new piece of social and educational infrastructure, providing a new school with permanent teaching spaces to accommodate 1,200 primary school students, as well as 40 support unit students and 40 preschool children. The provision of new educational facilities will support and strengthen the availability of educational facilities in the region.
- The area and shape of the site allows for the provision of new teaching and educational 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 ecologically sustainable development as defined by Schedule 2(7)(4) of the *Environmental Planning and Assessment Regulation 2000.*
- The proposed development is anticipated to create 98 full-time equivalent positions at the school which will have additional social benefits for the region in terms of providing additional employment in a growing locality.
- Given the growing population of the region, the proposed development is anticipated to have positive social outcomes in ensuring that local residents have access to high quality educational facilities.
- The development will not have a significant impact on any threatened flora or fauna species.
- Transport impacts associated with the proposed development can be appropriately managed and active transport will be promoted and encouraged.

1.0 Introduction

This EIS is submitted to the Department pursuant to Part 4 of the EP&A Act in support of an application for SSD for the development of a new primary school in Liverpool.

Development for new schools, regardless of the Capital Investment Value, is identified in Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP) as SSD for the purposes of the EP& A Act. As the proposed development is for the purposes of a new school, it is identified as SSD.

The report has been prepared by Ethos Urban for School Infrastructure on behalf of the Department of Education and is based on the Architectural Plans provided by Fitzpatrick and Partners (see **Appendix C**) 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 SEARs 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.

1.1 Overview of Proposed Development

This application seeks approval for the following development:

- Construction of a new 2-3 storey primary school building, including core school facilities, teaching spaces and support units.
- Operation of new primary school for 1,280 including 1,200 students, 40 support unit students and 40 preschool students.
- Associated site landscaping and open space improvements.
- Removal of one dead tree.
- School signage.

Figure 1 Aerial view

Source: Fitzpatrick and Partners

1.2 Background to the Development

The Liverpool CBD and wider Liverpool region is undergoing substantial transformation as one of Western Sydney's fastest growing districts, with substantial economic drivers such as the Liverpool CBD, Badgerys Creek Aerotropolis, Liverpool Hospital, Liverpool Innovation Precinct and various university campuses. As a result, there are strong economic drivers and an increased supply of residential dwellings in the Liverpool CBD, driving demand for school places for both primary and secondary school children.

Two high schools are currently located on the same block as the proposed primary school (Liverpool Boys' and Liverpool Girls' High School), which have total capacity of approximately 1,500 students. These schools were both established in 1954-1955 and share a large portion of open space and sports fields.

It is proposed that the development is located on a portion of this open space, separated from the two existing high schools. The development of this primary school provides the opportunity to meet the growing demand for education, as well as developing a strong identity and sense of place within the Liverpool Schools precinct.

It is noted that the existing high schools, as well as the new primary school, will achieve the required amount of unencumbered play space in accordance with the Educational Facilities Standards and Guidelines.

1.2.1 School Infrastructure Works

A range of works and infrastructure improvements are occurring across the existing Liverpool Boys and Girls High School under a separate application via Part 5 of the EP&A Act under *State Environmental Planning Policy (Infrastructure) 2007* (Infrastructure SEPP) and exempt development under *State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017* (Education SEPP). The works being undertaken include:

- New at-grade car park for 33 vehicles.
- Construction of a new playing field and associated earthworks/landscaping and drainage.
- Construction of a storage shed.
- Fencing.
- Construction of a workers compound.
- Amendments to inground services and connections.
- Tree removal.
- Installation of a new pad mount kiosk and substation and connections.

The delineation of these works is shown at **Figure 2** below.

1.2.2 Other Applications

Other works associated with the facilitation of the New Liverpool Primary School are proposed to be delivered by a separate project and application via Part 5 of the EP&A Act as Development without Consent under the Infrastructure SEPP. The works include:

- A new roundabout on Burnside Drive.
- Road widening of Burnside Drive and associated road works (including on street parking and kiss and drop).
- Tree removal.
- Relocation of existing street lighting and associated electricity infrastructure works.

The separate application will be carried out by School Infrastructure under Part 5 of the EP&A Act (See **Section 5.0**). A mitigation measure is provided in **Section 7.0** requiring these works to be completed prior to the school being operational.

The delineation of these works is shown at **Figure 2** below.

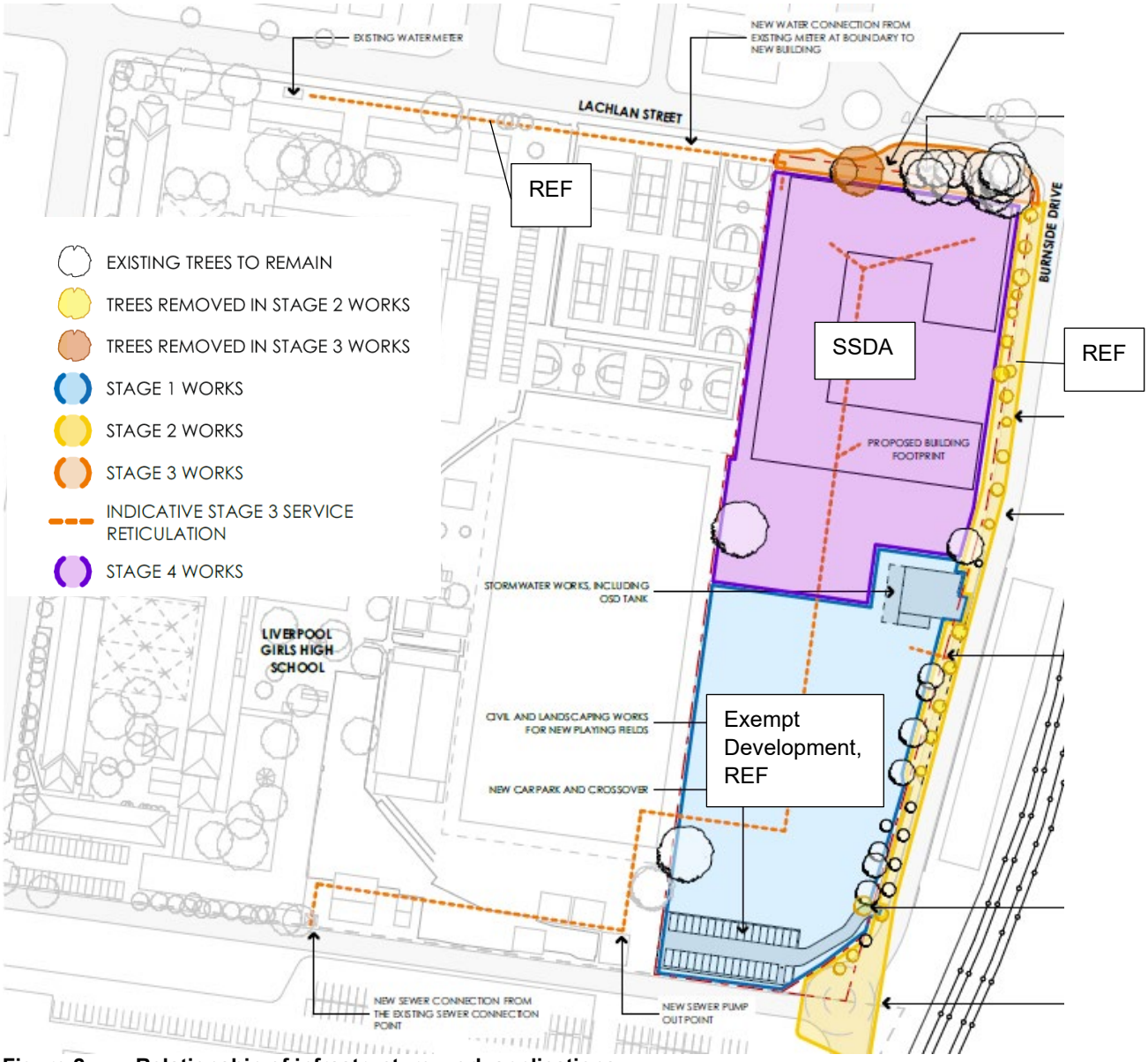

Figure 2 Relationship of infrastructure work applications

Source: Fitzpatrick and Partners

1.2.3 Liverpool Innovation Precinct

Liverpool has been identified as a 'Collaboration Area' and a 'Health and Education Precinct' in the Greater Sydney Commission's South West District Plan. In 2016, the Liverpool Innovation Precinct was formed comprising key stakeholders and decision makers with representatives across business, health, education, transport and local council. The purpose of the Liverpool Innovation Precinct (LIP) includes:

- Generating awareness of the work of the LIP amongst government, business, private investment and the general public;
- Changing the nature of the CBD;
- Providing a catalyst to create jobs;
- Identifying opportunities for sharing, collaboration, and partnerships between precinct partners; and
- Influencing future investment in infrastructure and social services.

A masterplan was prepared by the LIP in 2018, which has taken into account the wider Liverpool precinct and the role of the Hospital, schools and university campuses in the future within the precinct. With the Liverpool school precinct's proximity to the Liverpool CBD, major transport hubs and education facilities, the precinct surrounding the Hospital is strongly positioned to develop complimentary industries in health, education, and research. The

development of the masterplan for the New Liverpool Primary School has also addressed the future development of the surrounding precinct, allowing the new primary school to better integrate with future education, research, and commercial development within the Liverpool City CBD. The Liverpool Innovation Precinct Master Plan is shown in **Figure 3** below.

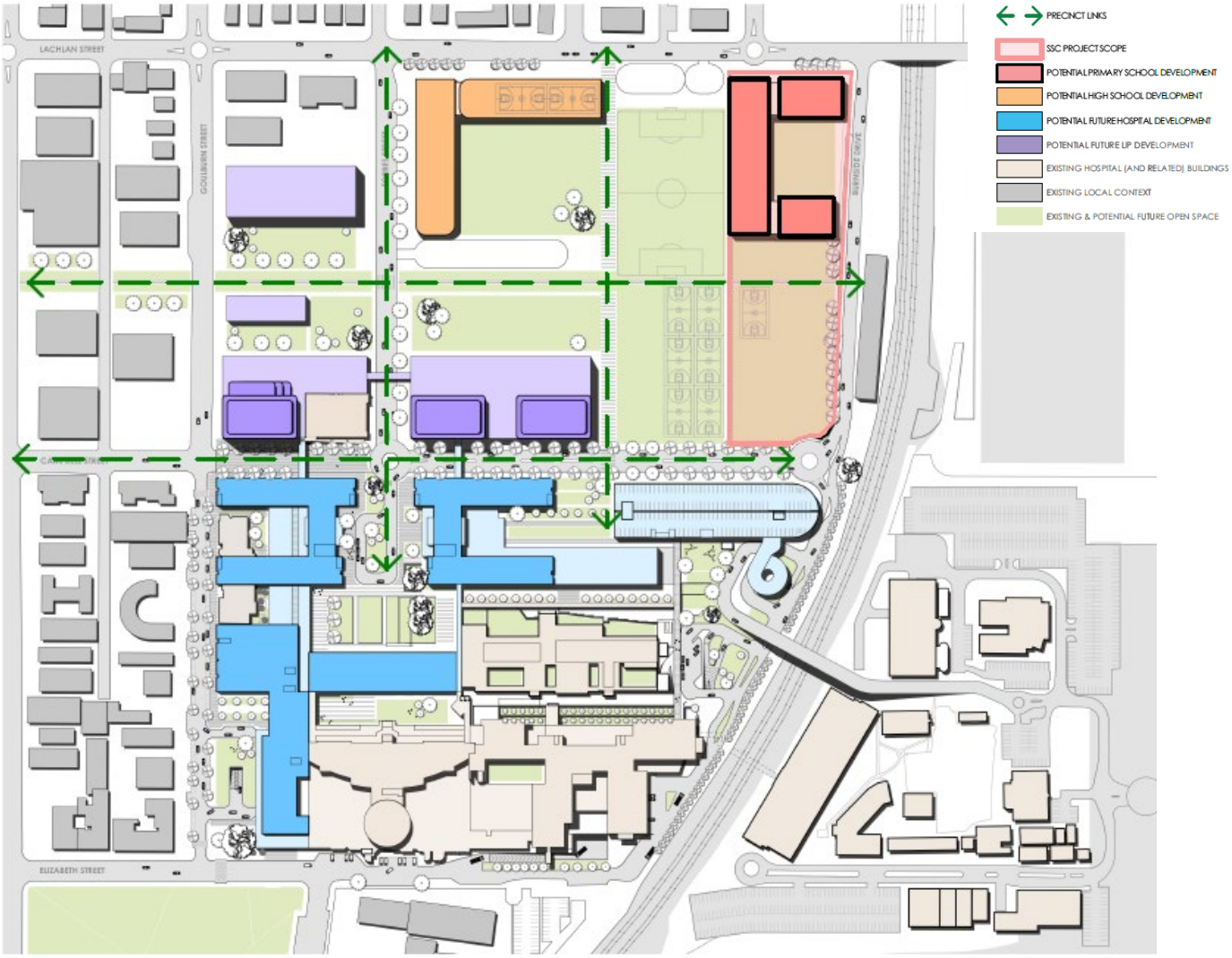

Figure 3 Liverpool Innovation Precinct Master Plan and Land Use Strategy with SSD Scope added (2018)

Source: Fitzpatrick and Partners

1.3 Objectives of the Development

The objectives of the New Liverpool Primary School (NLPS) development are to:

- Meet the growth in demand in an effective and sustainable manner.
- Advance the capability of the schools in the precinct to provide authentic and personalised learning pathways from early childhood to life after school.
- Improve the learning environment for teachers and students through the provision of contemporary facilities which are fit for future focused learning and experiences.
- Maximise the opportunities provided by the Liverpool Innovation Precinct to create new horizons for students and improve their pathways into knowledge-based careers with the future economy of Liverpool and beyond.
- Enable the school to become a central place in the community and provide a focal point for the community by acting as a hub and conduit for services that will support their education and overall health and wellbeing.

- Enable greater efficiency in the use of human and physical resources through collaborative use of assets and partnerships.

1.4 Analysis of Alternatives

Strategic need for the proposal

The Liverpool CBD and wider Liverpool region is undergoing substantial transformation as one of Western Sydney's fastest growing districts with substantial economic divers such as the Liverpool CBD, Badgerys Creek Aerotropolis, Liverpool Hospital, Liverpool Innovation Precinct and various university campuses. As a result, there are strong economic drivers and an increased supply of residential dwellings in the Liverpool CBD driving demand for school places at both primary and secondary school.

Liverpool has one of the fastest growing school age populations, growing at twice the growth rate of NSW as a whole, and primary school demand is expected to exceed capacity in the near future. Further to this, existing school infrastructure in the area is below average quality, and in some areas, does not meet the requirements of the *Educational Facilities Standards and Guidelines* General Education Principles. Therefore, there is an opportunity to provide high quality, state of the art educational facilities in the Liverpool region, to meet the growing demand for primary schools.

1.4.1 Alternative Options

Three options are available to School Infrastructure in responding to the identified need for the development of the NLPS.

Option 1 – Do Nothing

Under the 'do nothing' scenario, the existing schools' catchment would need to continue to provide services to cater for the increasing education needs of the region. This would not adequately respond to population growth, changing education needs and would potentially lead to a decline in education outcomes. Not undertaking the work would be an inappropriate outcome for a project of this nature, which will facilitate the development of much need education infrastructure in the region.

Option 2 – Alternative Designs

School Infrastructure and Fitzpatrick and Partners have explored a number of different options for managing the increased growth of education needs and infrastructure response within the site. Four design options were considered (see **Figure 4** to **Figure 7**) to respond to the siting of the NLPS in relation to the two high schools on the site and open space requirements.

The designs were assessed against key site planning parameters, as well as important issues identified by the Project Reference Group and School Infrastructure, and feedback from the State Design Review Panel (Government Architect NSW). These considerations included retaining the existing open space and playing fields, direct public access to shared facilities, creating a direct and welcoming entry and creating building separation between the high schools and primary school.

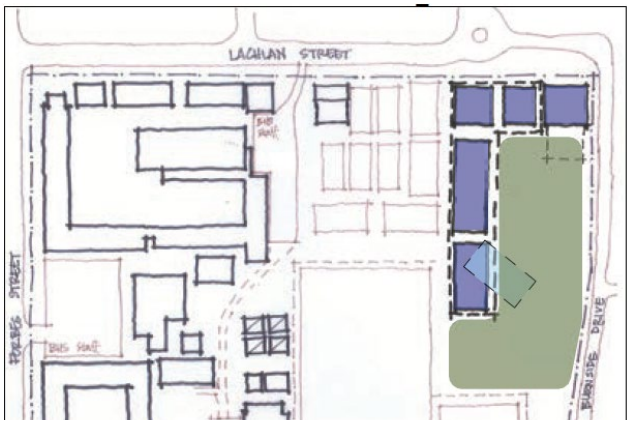

Figure 4 Option A

Source: Fitzpatrick and Partners:

Figure 5 Option B

Source: Fitzpatrick and Partners

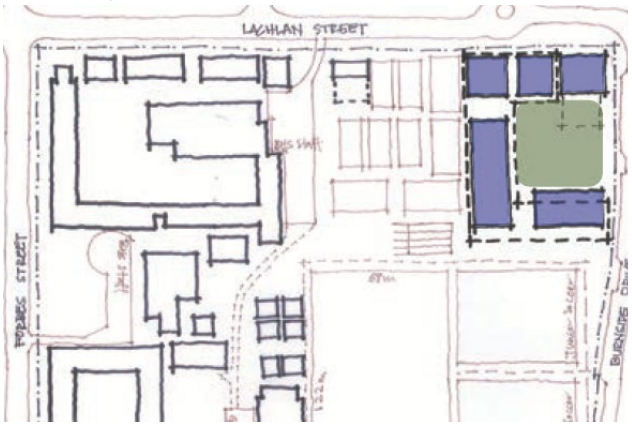

Figure 6 Option C

Source: Fitzpatrick and Partners

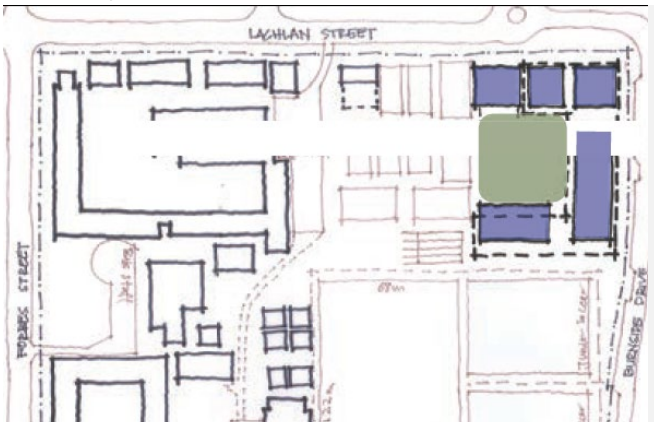

Figure 7 Option D

Source: Fitzpatrick and Partners

Option 3 – The Proposal

The proposed design involves undertaking the proposed development as outlined in this SSD application (as described in **Section 3.0**). This SSD captures the design intent of Option C above and responds to the objectives and key parameters outlined by the Project Reference Group, School Infrastructure and State Design Review Panel. The proposal will facilitate the efficient construction of a high-quality design that responds to the strategic need identified above, whilst protecting the existing amenity for the high schools on the site and responding to the surrounding residential context. Importantly, the proposal supports the growth and expansion of the education precinct in line with School Infrastructure and State Government budget allocation.

The proposal allows for the retention of the high school rugby field, provides a full soccer field to the primary school, improves access to the open spaces on site and allows for adequate separation between the high schools and primary school. It provides a welcoming and safe entry to the school, is orientated to reduce train traffic noise where possible and supports the Design for Manufacture and Assembly education principles to ensure the efficient construction of the school. The proposed site arrangement is shown in **Figure 8**.

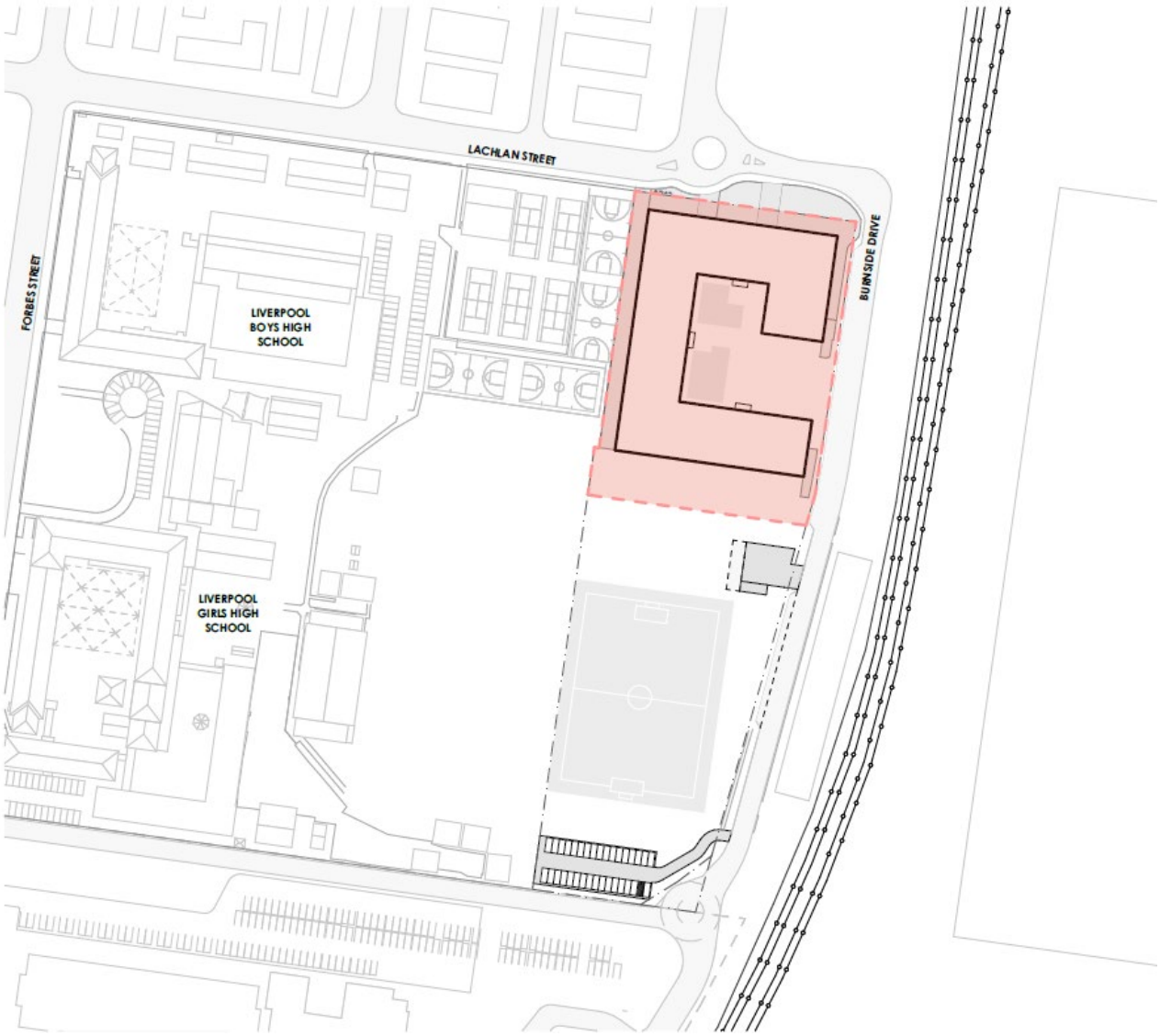

Figure 8 Proposed siting of the NLPS

Source: Fitzpatrick and Partners

1.5 Secretary's Requirements

In accordance with section 4.39 of the EP&A Act, the Secretary of the Department of Planning, Industry and Environment issued the requirements for the preparation of the EIS on 9 January 2020. A copy of the Secretary's Environmental Assessment Requirements (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 address the *Environmental Planning and Assessment Act 1979* and meet the minimum form and content requirements in clauses 6 and 7 of Schedule 2 the Environmental Planning and Assessment Regulation 2000.	Environmental Impact Statement
Where relevant, the assessment of key issues below, and any other significant issues identified in the risk assessment, must include:	Section 5.0 All appendices

Requirement	Location in Environmental Assessment
• adequate baseline data;	
• consideration of the potential cumulative impacts due to other developments in the vicinity (completed, underway or proposed); and	Section 5.13
• measures to avoid, minimise and if necessary offset predicted impacts, including detailed contingency plans for managing any significant risks to the environment.	Section 7.0 All appendices
The EIS must also be accompanied by a report from a qualified quantity surveyor providing: • a detailing calculation of the capital investment value (CIV) (as 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;	See CIV submitted under separate cover
• an estimate of jobs that will be created during the construction and operational phases of the proposed development; and	See CIV submitted under a separate cover
• certification that the information provided is accurate at the date of preparation.	See Statement of Validity

Key Issues	Report / EIS	Technical Study
The EIS must address the following specific matters:	-	-
1. Statutory and Strategic Context Address the statutory provisions applying to the development contained in all relevant environmental planning instruments, including:	-	-
Biodiversity Conservation Act 2016	Section 5.1	Appendix O
State Environmental Planning Policy (State & Regional Development) 2011	Section 5.1	
State Environmental Planning Policy (Infrastructure 2007)	Section 5.1	
State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017	Section 5.1	Appendix H
State Environmental Planning Policy No. 64 – Advertising and Signage	Section 5.1	
State Environmental Planning Policy No. 55 – Remediation of Land	Section 5.1	Appendix Q, Appendix R
Greater Metropolitan Regional Environmental Plan No 2 – Georges River Catchment	Section 5.1	
Draft State Environmental Planning Policy (Remediation of Land)	Section 5.1	Appendix Q, Appendix R
Draft State Environmental Planning Policy (Environment)	Section 5.1	
Liverpool Local Environmental Plan 2008	Section 5.1	
Permissibility Detail the nature and extent of any prohibitions that apply to the development.	Section 5.1	
Development Standards Identify compliance with the development standards applying to the site and provide justification for any contravention of the development standards.	Section 5.1	
Provisions Adequately demonstrate and document in the EIS how each of the provisions in the listed instruments are addressed, including reference to necessary technical documents.	Section 5.1	
2. Policies Address the relevant planning provisions, goals, and strategic planning objectives in the following:	-	-
NSW State Priorities	Section 5.1	
The Greater Sydney Regional Plan, A Metropolis of Three Cities	Section 5.1	
Future Transport Strategy 2056 and supporting plans	Section 5.1	
State Infrastructure Strategy 2018 – 2038 Building the Momentum	Section 5.1	
Sydney's Cycling Future 2013	Section 5.1	

Requirement	Location in Environmental Assessment	
Sydney's Walking Future 2013	Section 5.1	
Sydney's Bus Future 2013	Section 5.1	
Crime Prevention Through Environmental Design (CPTED) Principles	Section 5.1	
Better Places: An integrated design policy for the built environment of New South Wales (Government Architect NSW (GANSW), 2017)	Section 5.1	
Healthy Urban Development Checklist (NSW Health, 2009)	Section 5.1	
Draft Greener Places Policy	Section 5.1	
Western City District Plan; and	Section 5.1	
Liverpool Development Control Plan 2008	Section 5.1	
3. Operation Provide details of the existing and proposed school operations, including staff and student numbers, school hours of operation, and operational details of any proposed before/after school care services and/or community use of school facilities	Section 3.15	
Provide a detailed justification of suitability of the site to accommodate the proposal.	Section 5.16	
Provide details of how the existing schools will continue to operate during construction activities, including proposed mitigation measures.	Section 5.10.4	Appendix M, Appendix G
4. Built Form and Urban Design Address the height, density, bulk and scale, setbacks, and interface of the proposal in relation to the surrounding development, topography, streetscape and any public open spaces.	Section 3.4, Section 5.2	Appendix C, Appendix H
Address design quality and built form, with specific consideration of the overall site layout, streetscape, open spaces, façade, rooftop, massing, setbacks, building articulation, materials, and colours.	Section 3.4, Section 5.2	Appendix C, Appendix H
Provide details of any digital signage boards, including size, location, and finishes.	Section 3.13	Appendix H
Clearly demonstrate how design quality will be achieved in accordance with Schedule 4 Schools – Design Quality Principles of State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017 and the GANSW Design Guide for Schools.	Section 5.1	Appendix H
Detail how services, including but not limited to waste management, loading zones, and mechanical plant are integrated into the design of the development.	Section 3.9, Section 3.10	Appendix H, Appendix G
Provide detailed site and context analysis to justify the proposed site planning and design approach including massing options and preferred strategy for future development.	Section 1.4	Appendix H
Provide a detailed landscape strategy, including: • consideration of equity and amenity of outdoor play spaces, and integration with built form, security, shade, topography, and existing vegetation having regard to the proposed and existing schools on site.	Section 3.6	Appendix E Appendix I
• details of the number of trees to be removed and the number of trees to be planted on the site.	Section 3.7, Section 5.8	Appendix O Appendix I, Appendix E
Provide a visual impact assessment that identifies any potential impacts on the surrounding built environment and landscape including views to and from the site and any adjoining heritage items.	Section 5.3.3	Appendix H
Address CPTED Principles.	Section 5.3.5	Appendix H
Demonstrate good environmental amenity including access to natural daylight and ventilation, acoustic separation, access to landscape and outdoor spaces and future flexibility having regard to the proposed and existing schools on the site.	Section 3.4, Section 3.6, Section 5.2	Appendix H, Appendix K
Demonstrate that Aboriginal culture and heritage is considered and incorporated holistically in the design proposal.	Section 3.6, Section 5.7	Appendix H Appendix X
5. Environmental Amenity Assess amenity impacts on the surrounding locality, including solar access, visual privacy, visual amenity, overshadowing and acoustic impacts.	Section 5.3, Section 5.8	Appendix H Appendix P

Requirement	Location in Environmental Assessment	
Conduct a view analysis to the site from key vantage points and streetscape locations (photomontages or perspectives should be provided showing the building and likely future development).	Section 5.3.3	Appendix H
Include a lighting strategy and measures to reduce spill into the surrounding sensitive receivers.	Section 5.15	Appendix H
Identify any proposed use of the proposed facility outside of school hours (including weekends) and assess any resultant amenity impacts on the immediate locality and proposed mitigation measures.	Section 3.15	-
Detailed outline of the nature and extent of the intensification of use associated with the increased floor space, particularly in relation to the proposed increase in staff and student numbers.	Section 5.0	All appendices
Detail amenity impacts including solar access, acoustic impacts, visual privacy, view loss, overshadowing and wind impacts. A high level of environmental amenity for any surrounding residential land uses must be demonstrated.	Section 5.3	Appendix H
6. Staging Provide details regarding the staging of the proposed development (if any).	No staging of SSD works proposed	No staging of SSD works proposed
7. Transport and Accessibility Include a transport and accessibility impact assessment, which details, but not limited to the following:	Section 5.4	Appendix G
accurate details of the current daily and peak hour vehicle, existing and future public transport networks and pedestrian and cycle movement provided on the road network located adjacent to the proposed development		
details of estimated total daily and peak hour trips generated by the proposal, including vehicle, public transport, pedestrian, and bicycle trips		
the adequacy of existing public transport or any future public transport infrastructure within the vicinity of the site, pedestrian and bicycle networks and associated infrastructure to meet the likely future demand of the proposed development		
measures to integrate the development with the existing/future public transport network		
the impact of trips generated by the development on nearby intersections, with consideration of the cumulative impacts from other approved developments in the vicinity, and the need/associated funding for, and details of, upgrades or road improvement works, if required (Traffic modelling is to be undertaken using SIDRA network modelling for current and future years)		
the identification of infrastructure required to ameliorate any impacts on traffic efficiency and road safety impacts associated with the proposed development, including details on improvements required to affected intersections, additional school bus routes along bus capable roads (i.e. minimum 3.5 m wide travel lanes), additional bus stops or bus bays		
details of travel demand management measures to minimise the impact on general traffic and bus operations, including details of a location-specific sustainable travel plan (Green Travel Plan) and the provision of facilities to increase the non-car mode share for travel to and from the site		
the proposed walking and cycling access arrangements and connections to public transport services		
the proposed access arrangements, including car and bus pick-up/drop-off facilities, and measures to mitigate any associated traffic impacts and impacts on public transport, pedestrian, and bicycle networks, including pedestrian crossings and refuges and speed control devices and zones		
proposed bicycle parking provision, including end of trip facilities, in secure, convenient, accessible areas close to main entries incorporating lighting and passive surveillance		
proposed number of on-site car parking spaces for teaching staff and visitors and corresponding compliance with existing parking codes and justification for the level of car parking provided on-site		

Requirement	Location in Environmental Assessment	
an assessment of the cumulative on-street parking impacts of cars and bus pick-up/drop-off, staff parking and any other parking demands associated with the development		
an assessment of road and pedestrian safety adjacent to the proposed development and the details of required road safety measures and personal safety in line with CPTED		
emergency vehicle access, service vehicle access, delivery and loading arrangements and estimated service vehicle movements (including vehicle type and the likely arrival and departure times)		
an assessment of the proposed bus zone, traffic routes and turning requirements for any vehicles on Burnside Drive		
confirmation of no impact on existing Right of Access easement terms on Burnside Drive		
the preparation of a preliminary Construction Traffic and Pedestrian Management Plan to demonstrate the proposed management of the impact in relation to construction traffic addressing the following: – assessment of cumulative impacts associated with other construction activities (if any) – an assessment of road safety at key intersection and locations subject to heavy vehicle construction traffic movements and high pedestrian activity – details of construction program detailing the anticipated construction duration and highlighting significant and milestone stages and events during the construction process – details of anticipated peak hour and daily construction vehicle movements to and from the site – details of on-site car parking and access arrangements of construction vehicles, construction workers to and from the site, emergency vehicles and service vehicle – details of temporary cycling and pedestrian access during construction – demonstrate how pedestrian and cycle rider movements along footways and cycleways are maintained at all times during construction activities. Should the development require closure to either facility, detail the adequate safety and diversion measures out in place to limit time delay and detour distances – details of any crane locations and road closures – details of any potential impact to the bus network and bus services.		
Relevant Policies and Guidelines: Guide to Traffic Generating Developments (Roads and Maritime Services, 2002)		
EIS Guidelines - Road and Related Facilities (Department of Urban Affairs and Planning (DUAP), 1996)		
Cycling Aspects of Austroads Guides		
NSW Planning Guidelines for Walking and Cycling (Department of Infrastructure, Planning and Natural Resources (DIPNR), 2004)		
Austroads Guide to Traffic Management Part 12: Traffic Impacts of Development		
Standards Australia AS2890.3 (Bicycle Parking Facilities).		
8. Ecologically Sustainable Development (ESD) Detail how ESD principles (as defined in clause 7(4) of Schedule 2 of the Regulation) will be incorporated in the design and ongoing operation phases of the development.	Section 3.11	Appendix K
Include a framework for how the future development will be designed to consider and reflect national best practice sustainable building principles to improve environmental performance and reduce ecological impact. This should be based on a materiality assessment and include waste reduction design measures, future proofing, use of sustainable and low-carbon materials, energy, and water efficient design (including water sensitive urban design) and technology and use of renewable energy.		
Demonstrate how environmental design will be achieved in accordance with the GANSW Environmental Design in Schools Manual.		

Requirement	Location in Environmental Assessment	
Include preliminary consideration of building performance and mitigation of climate change, including consideration of Green Star Performance.	-	Appendix K
Include an assessment against an accredited ESD rating system or an equivalent program of ESD performance. This should include a minimum rating scheme target level.		
Provide a statement regarding how the design of the future development is responsive to the CSIRO projected impacts of climate change, specifically: – hotter days and more frequent heatwave events – extended drought periods – more extreme rainfall events – gustier wind conditions – how these will inform landscape design, material selection and social equity aspects (respite/shelter areas).		
Relevant Policies and Guidelines: NSW and ACT Government Regional Climate Modelling (NARCliM) climate change projections.		
9. Heritage A Statement of Heritage Impact (SOHI) prepared by a suitably qualified heritage consultant in accordance with the guidelines in the NSW Heritage Manual. The SOHI is to address the impacts of the proposal on the heritage significance of the site and adjacent areas and is to identify the following: – all heritage items (state and local) within the vicinity of the site including built heritage, landscapes and archaeology, detailed mapping of these items, and assessment of why the items and site(s) are of heritage significance	Section 5.6	Appendix S Appendix X
– compliance with the relevant Conservation Management Plan	N/A	N/A
– the impacts of the proposal on heritage item(s) including visual impacts, required BCA and DDA works, new fixtures, fittings and finishes, any modified services	Section 5.6	Appendix S Appendix X
– the attempts to avoid and/or mitigate the impact on the heritage significance or cultural heritage values of the site and the surrounding heritage items and		
– justification for any changes to the heritage fabric or landscape elements including any options analysis.		
If the SOHI identifies impact on potential historical archaeology, an historical archaeological assessment should be prepared by a suitably qualified archaeologist in accordance with the heritage guidelines 'Archaeological Assessment' 1996 and 'Assessing Significance for Historical Archaeological Sites and Relics' 2009. This assessment should identify what relics, if any, are likely to be present, assess their significance and consider the impacts from the proposal on this potential archaeological resource. Where harm is likely to occur, it is recommended that the significance of the relics be considered in determining an appropriate mitigation strategy. If harm cannot be avoided in whole or part, an appropriate Research Design and Excavation Methodology should also be prepared to guide any proposed excavations or salvage programme.		
10. Social Impacts Prepare a social impact assessment, which:	Section 5.5	Appendix W
identifies and analyses the potential social impacts of the development, from the points of view of the affected community/ies and other relevant stakeholders, i.e. how they expect to experience the project.		
considers how potential environmental changes in the locality may affect people's: way of life; community; access to and use of infrastructure, services, and facilities; culture; health and wellbeing; surroundings; personal and property rights; decision-making systems; and fears and aspirations, as relevant and considering how different groups may be disproportionately affected.		
assesses the significance of positive, negative, and cumulative social impacts considering likelihood, extent, duration, severity/scale, sensitivity/importance, and level of concern/interest.		

Requirement	Location in Environmental Assessment	
includes mitigation measures for likely negative social impacts, and any proposed enhancement measures.		
details how social impacts will be adaptively monitored and managed over time.		
11. Aboriginal Heritage Identify and describe the Aboriginal cultural heritage values that exist across the site and document these in an Aboriginal Cultural Heritage Assessment Report (ACHAR). This may include the need for surface survey and test excavation.	Section 5.7	Appendix Y
Identify and address the Aboriginal cultural heritage values in accordance with the Guide to investigating, assessing, and reporting on Aboriginal Cultural Heritage in NSW (Office of Environment and Heritage (OEH), 2011) and Code of Practice for Archaeological Investigations of Aboriginal Objects in NSW (OEH, 2010).		
Undertake consultation with Aboriginal people and document in accordance with Aboriginal cultural heritage consultation requirements for proponents 2010 (Department of Environment, Climate Change and Water). The significance of cultural heritage values of Aboriginal people who have a cultural association with the land are to be documented in the ACHAR.		
Identify, assess, and document all impacts on the Aboriginal cultural heritage values in the ACHAR.		
The EIS and the supporting ACHAR must demonstrate attempts to avoid any impact upon cultural heritage values and identify any conservation outcomes. Where impacts are unavoidable, the ACHAR and EIS must outline measures proposed to mitigate impacts. Any objects recorded as part of the assessment must be documented and notified to the Environment, Energy and Science Group of the Department of Planning, Industry and Environment.		
12. Noise and Vibration Identify and provide a quantitative assessment of the main noise and vibration generating sources during demolition, site preparation, bulk excavation, construction. Outline measures to minimise and mitigate the potential noise impacts on surrounding occupiers of land.	Section 5.8	Appendix P
Identify and assess operational noise, including consideration of any public-address system, school bell, mechanical services (e.g. air conditioning plant), use of any school hall for concerts etc. (both during and outside school hours) and any out of hours community use of school facilities, and outline measures to minimise and mitigate the potential noise impacts on surrounding occupiers of land.		
Relevant Policies and Guidelines: NSW Noise Policy for Industry 2017 (NSW Environment Protection Authority (EPA)		
Interim Construction Noise Guideline (Department of Environment and Climate Change, 2009)		
Assessing Vibration: A Technical Guideline 2006 (Department of Environment and Conservation, 2006)		
Development Near Rail Corridors and Busy Roads - Interim Guideline (Department of Planning, 2008)		
Australian Standard 2363:1999 Acoustics - Measurement of noise from helicopter operations.		
13. Contamination Assess and quantify any soil and groundwater contamination and demonstrate that the site is suitable for the proposed use in accordance with SEPP 55.	Section 5.12	Appendix Q Appendix R
Undertake a hazardous materials survey of all existing structures and infrastructure prior to any demolition or site preparation works.		
Relevant Policies and Guidelines: Managing Land Contamination: Planning Guidelines - SEPP 55 Remediation of Land (DUAP, 1998)		
Sampling Design Guidelines (EPA, 1995)		
Guidelines for Consultants Reporting on Contaminated Sites (OEH, 2011)		
National Environment Protection (Assessment of Site Contamination) Measure (National Environment Protection Council, as amended 2013)		

Requirement	Location in Environmental Assessment	
14. Utilities Prepare an Infrastructure Management Plan in consultation with relevant agencies, detailing information on the existing capacity and any augmentation and easement requirements of the development for the provision of utilities including staging of infrastructure.	-	Appendix L
Prepare an Integrated Water Management Plan detailing any proposed alternative water supplies, proposed end uses of potable and non-potable water, and water sensitive urban design.	-	Appendix J
15. Contributions Address Council's 'Section 7.11/7.12 Contribution Plan' and/or details of any Voluntary Planning Agreement, which may be required to be amended because of the proposed development.	Section 3.16	-
16. Drainage Detail measures to minimise operational water quality impacts on surface waters and groundwater.	Section 5.11	Appendix J
Stormwater plans detailing the proposed methods of drainage without impacting on the downstream properties.	Section 5.11	Appendix J
Relevant Policies and Guidelines: Guidelines for developments adjoining land managed by the Office of Environment and Heritage (OEH, 2013).		
17. Flooding Identify flood risk on-site (detailing the most recent flood studies for the project area) and consideration of any relevant provisions of the NSW Floodplain Development Manual (DIPNR, 2005), including the potential effects of climate change, sea level rise and an increase in rainfall intensity. If there is a material flood risk, include design solutions for mitigation.	Section 5.11.2	Appendix J
18. Biodiversity Assessment Biodiversity impacts related to the proposed development are to be assessed in accordance with the Biodiversity Assessment Method and documented in a Biodiversity Development Assessment Report (BDAR). The BDAR must include information in the form detailed in the *Biodiversity Conservation Act 2016* (s6.12), *Biodiversity Conservation Regulation 2017* (s6.8) and Biodiversity Assessment Method.	Section 5.8	Appendix O
The BDAR must document the application of the avoid, minimise, and offset framework including assessing all direct, indirect and prescribed impacts in accordance with the Biodiversity Assessment Method.		
The BDAR must include details of the measures proposed to address the offset obligation as follows: – the total number and classes of biodiversity credits required to be retired for the development/project – the number and classes of like-for-like biodiversity credits proposed to be retired – the number and classes of biodiversity credits proposed to be retired in accordance with the variation rules – any proposal to fund a biodiversity conservation action – any proposal to make a payment to the Biodiversity Conservation Fund.		
If seeking approval to use the variation rules, the BDAR must contain details of the reasonable steps that have been taken to obtain requisite like-for-like biodiversity credits.		
The BDAR must be submitted with all spatial data associated with the survey and assessment as per the BAM.		
The BDAR must be prepared by a person accredited in accordance with the Accreditation Scheme for the Application of the Biodiversity Assessment Method Order 2017 under s6.10 of the Biodiversity Conservation Act 2016.		
Where a Biodiversity Assessment Report is not required, engage a suitably qualified person to assess and document the flora and fauna impacts related to the proposal. *Note: Notwithstanding these requirements, the Biodiversity Conservation Act 2016*		

Requirement	Location in Environmental Assessment	
requires that State Significant Development Applications be accompanied by a Biodiversity Development Assessment Report unless otherwise specified under the Act.		
19. Aviation Provide a report prepared by a suitably qualified aviation expert that identifies and assesses the potential impacts of the development on the aviation operations of any nearby on shore helicopter landing sites and associated flight paths in accordance with the relevant sections of the National Airports Safeguarding Framework (NASF).	Section 5.15	Appendix CC
Relevant Policies and Guidelines: National Airports Safeguarding Framework		
20. Sediment, Erosion and Dust Controls Detail measures and procedures to minimise and manage the generation and off-site transmission of sediment, dust, and fine particles.	Section 5.11.3	Appendix J
Relevant Policies and Guidelines: Managing Urban Stormwater – Soils & Construction Volume 1 2004 (Landcom)		
Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (EPA)		
Guidelines for developments adjoining land managed by the Office of Environment and Heritage (OEH, 2013)		
21. Waste Identify, quantify, and classify the likely waste streams to be generated during construction and operation and describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste. Identify appropriate servicing arrangements (including but not limited to, waste management, loading zones, mechanical plant) for the site.	Section 5.15	Appendix AA
Relevant Policies and Guidelines: Waste Classification Guidelines (EPA, 2014)		
22. Construction Hours Identify proposed construction hours and provide details of the instances where it is expected that works will be required to be carried out outside the standard construction hours.	Section 3.14	Appendix M
Plans and Documents	**Report**	**Technical Study**
The EIS must include all relevant plans, architectural drawings, diagrams, and relevant documentation required under Schedule 1 of the Regulation. Provide these as part of the EIS rather than as separate documents.	-	-
In addition, the EIS must include the following: A section 10.7(2) and (5) Planning Certificates (previously Section 149(2) and (5) Planning Certificate)	-	Appendix DD
Architectural drawings showing key dimensions, RLs, scale bar and north point, including: – plans, sections, and elevation of the proposal at no less than 1:200 showing indicative furniture layouts and program – illustrated materials schedule including physical or digital samples board with correct proportional representation of materials, nominated colours and finishes – details of proposed signage, including size, location, and finishes – detailed annotated wall sections at 1:20 scale that demonstrate typical cladding, window, and floor details, including materials and general construction quality – site plans and operations statement demonstrating the afterhours and community use strategy	-	Appendix C
Site Survey Plan, showing existing levels, location and height of existing and adjacent structures / buildings and site boundaries	-	Appendix A
Site Analysis and Context Plans, including: – any future development and expansion zones – open space network – active transport linkages with existing, proposed, and potential footpaths and bicycle paths and public transport links	-	Appendix C

Requirement	Location in Environmental Assessment	
– precinct scale plans showing the relationship of the proposed development to any proposed development on surrounding land		
Cross sectional drawings showing ground surface, rail tracks, sub soil profile, and structural design of the proposed primary school with sub ground support adjacent to the rail corridor (land, assets, and easements)	-	Appendix J
Sediment and Erosion Control Plan	-	Appendix J
Shadow Diagrams	-	Appendix H
View analysis, photomontages, and architectural renders, including from those from public vantage points	-	Appendix H
Landscape architectural drawings showing key dimensions, RLs, scale bar and north point, including: – integrated landscape plans at appropriate scale, with detail of new and retained planting, shade structures, materials and finishes proposed, including articulation of playground spaces – plan identifying significant trees, trees to be removed and trees to be retained or transplanted	-	Appendix E
Design report to demonstrate how design quality will be achieved in accordance with the above Key Issues including: – architectural design statement – diagrams, structure plan, illustrations, and drawings to clarify the design intent of the proposal – detailed site and context analysis – analysis of options considered to justify the proposed site planning and design approach – visual impact assessment identifying potential impacts on the surrounding built environment and adjoining heritage items – summary of feedback provided by GANSW and NSW State Design Review Panel (SDRP) (where applicable) and responses to this advice – summary report of consultation with the community and response to any feedback provided	-	Appendix H
Geotechnical and Structural Report	-	Appendix T Appendix BB
Accessibility Report	-	Appendix N
Arborist Report	Section 5.8	-
Schedule of materials and finishes.	-	Appendix H
Consultation		
During the preparation of the EIS, you must consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups, special interest groups, including local Aboriginal land councils and registered Aboriginal stakeholders, and affected landowners. In particular, you must consult with: – Liverpool City Council – GA NSW – Sydney Trains – Transport for NSW (TfNSW) – Transport for NSW (Roads and Maritime Services) (TfNSW RMS). Consultation should commence as soon as practicable to agree the scope of investigation. 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 4.0	Appendix F

2.0 Site Analysis

2.1 Site Location and Context

The site is located within the Liverpool Central Business District (CBD), at 18 Forbes Street, Liverpool, within the Liverpool LGA. It is approximately 27km south west of the Sydney CBD and approximately 700 metres north-east of the centre of the Liverpool CBD core.

The site is within proximity to transport services and key road links including Liverpool Train Station (approximately 700m to the south), Warwick Farm Train Station (approximately 500m to the north), the Hume Highway to the north and the M5 South Western Motorway to the south. It is located directly north of the Liverpool Hospital Campus, which adjoins the site to the south.

The site is immediately west of the T2/T3/T5 corridor that connects Liverpool and Warwick Farm railway stations with Inner West, Parramatta, Richmond and Sydney CBD. The site's locational context is shown at **Figure 9**.

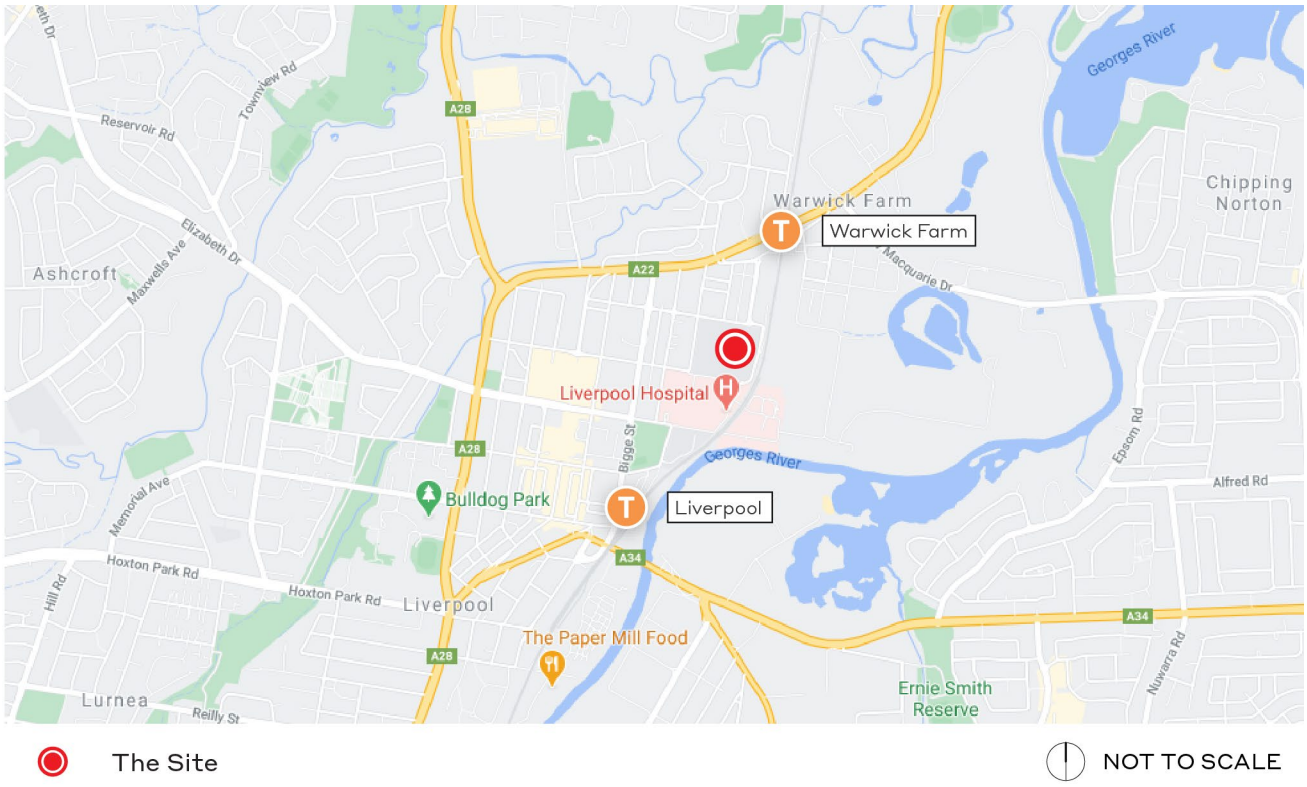

Figure 9 Locational Context

Source: Google Maps / Ethos Urban

2.2 Site Description

The proposed NLPS is located on a large block of land, which is partially occupied by the two high schools being the Liverpool Boys and Liverpool Girls High Schools. The NLPS will be located in the north-east portion of this block, to the east of the existing sports and tennis courts. There are no built structures at the location of the NLPS.

The broader site is made up of one (1) lot that is legally described as Lot 1 in DP 1137425. It has an area of approximately 7.5ha, whilst the NLPS area is approximately 19,000m^2, or 1.9ha. The land is owned by the Department of Education. It is roughly rectangular in shape. A survey plan is located at **Appendix A**. An aerial photo of the site is shown at **Figure 10**.

The location of the NLPS has two primary frontages, Lachlan Street to the north and Burnside Drive to the east. Liverpool Boys High School and Liverpool Girls High School front Forbes Street to the west and the site abuts Liverpool Hospital immediately to the south.

Figure 10 Aerial photograph of the site

Source: Nearmap and Ethos Urban

2.2.1 Existing Development

The existing development on the wider schools' block comprises the two high schools in the western portion of the site and facilities associated with these schools. Liverpool Girls High School in the south-west of the site consists of three, two-storey buildings. Ancillary at grade car parking is provided to the east of Liverpool Girls High School.

In the north-west of the site, Liverpool Boys High School comprises approximately four two-storey buildings, with adjacent at-grade carparking and various sports courts located to the east. In the eastern portion of the site, at present, a large oval and grassed open space is provided.

Both schools have open space and playgrounds adjacent to the buildings, whilst the eastern open space is shared between the schools. The existing development on the site is shown at **Figure 15**.

Figure 11 The site is currently a sports field

Source: Ethos Urban

Figure 12 Vegetation along the eastern boundary

Source: Ethos Urban

Figure 13 Liverpool Girls High School

Source: Ethos Urban

Figure 14 Liverpool Boys High School

Source: Ethos Urban

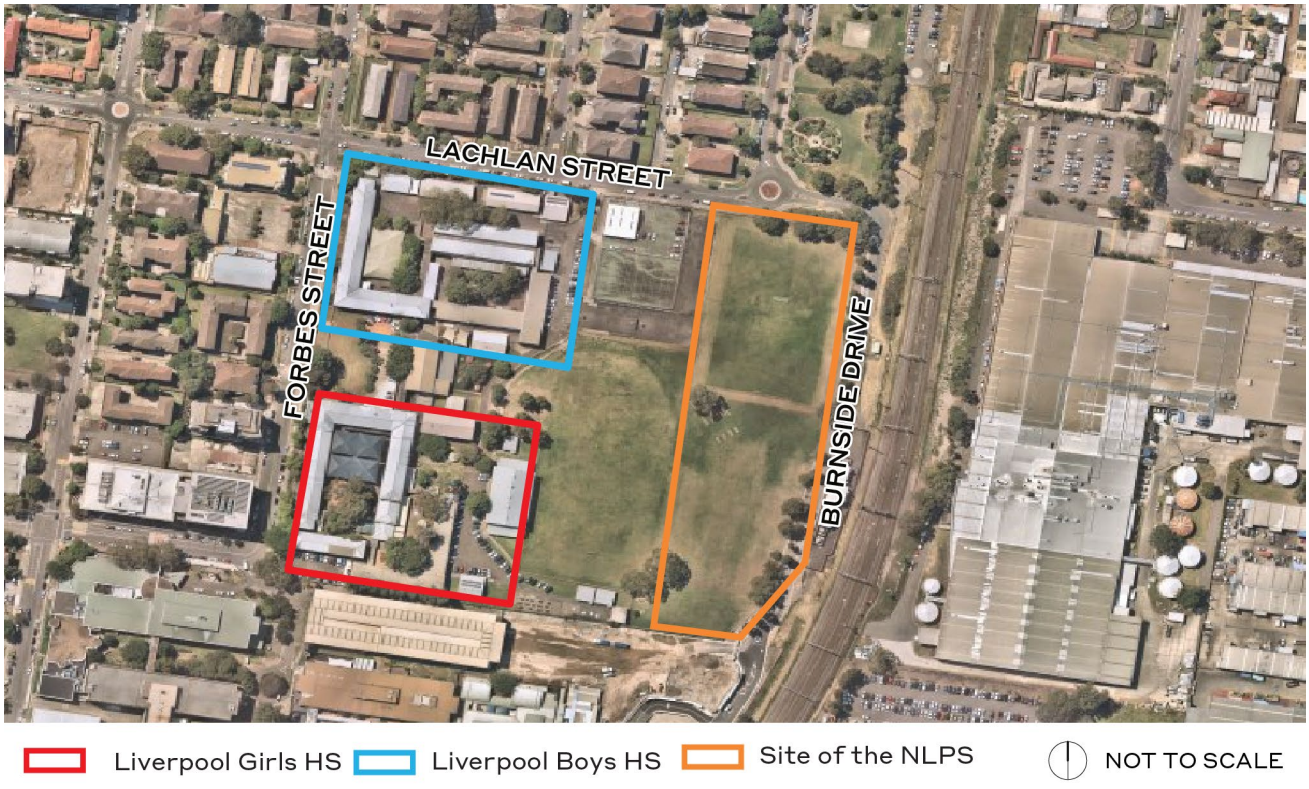

Figure 15 Existing development on the site

Source: Ethos Urban and Nearmap

2.2.2 Vegetation

The location of the NLPS consists predominantly of maintained exotic grassland used as sports fields. Rows of planted native trees are located on the eastern and northern boundaries of the site.

The Biodiversity Development Assessment Report (see **Appendix O**) confirms that there is no naturally occurring or remnant native vegetation within the SSD development site, and the vegetation present is a mix of planted native and non-native plants, typical of a twentieth century public school ground. This vegetation is shown at **Figure 11**-**Figure 12**.

2.2.3 Flooding

The site is subject to mainstream flooding from Georges River, which is located to the south-east of the site, and overland flooding from the CBD catchment to the south and west of the site. The site is located within both the Georges River and CBD Overland Flow Probable Maximum Flood (PMF) level, however, is outside the 1% Annual Exceedance Probability (AEP) extent for both Georges River and the CBD.

2.2.4 Heritage

The site is not listed as an item of heritage significance under any Environmental Planning Instruments, nor is it located within a heritage conservation area. The site is located to the north of the Bigge Park Conservation Area and is located adjacent to the streets within the heritage listed street layout known as the Plan of Town of Liverpool.

An Archaeological Assessment (**Appendix X**) which found there is medium archaeological potential for the occupation of the site which occurred between 1830 and 1947. This occupation included three cottages with outbuildings and potentially wells. These have since been demolished and no evidence could be seen during the site investigation, and therefore there is medium archaeological potential on the site.

2.2.5 Soil and Topography

The north-western portion of the site is generally underlain by 9-14m of filling, silty clay and clayey sand overlying very low strength to low strength shale which continued t depths of about 10-16m below the surface level. Groundwater levels measured on the site sloped downwards from the north western corner at RL 2.5m to RL 1.8m.

2.3 Surrounding Development

The site is surrounded by the following development (refer to **Figure 16** to **Figure 19** for images):

- **To the north**: a medium density residential area is located to the north of the site, comprising of mostly three-four storey apartment buildings of various age and style. Hart Park is also located to the north of the site, which includes picnic areas and a playground. Beyond this is Warwick Farm Train Station.
- **To the south**: directly adjacent to the south of the site is Liverpool Health Precinct, which spans both sides of the railway line. A recent SSD application (SSD-10389) was approved for the Liverpool Health Precinct, including the construction and operation of an integrated services building and associated refurbishment works. Beyond the hospital is the Georges River and Liverpool Train Station.
- **To the east**: immediately to the east of the site is the railway line, which includes services to the Inner West and Leppington, Cumberland, and Bankstown. Across the railway line is an industrial area.
- **To the west**: the Liverpool Boys and Girls High Schools are located in the western portion of the site. Medium density residential is located further to the west, with a mix of older and newer residential apartments. Further services ancillary to the hospital are also located to the west, such as pathology and medical centres. Beyond this is the Liverpool Town Centre, including Westfield Liverpool.

Figure 16 Residential development to the north

Source: Ethos Urban

Figure 17 Liverpool Hospital to the south of the site

Source: Ethos Urban

Figure 18 Rail line and industrial area to the east

Source: Ethos Urban

Figure 19 Liverpool Boys and Girls High Schools

Source: Ethos Urban

2.4 New Liverpool Public School Intake Area

The SINSW intake area for the new school is bounded by Hume Highway north and west, Moore Street/Bigge Park to the south and Georges River/Railway Corridor/Hospital Land to the east. This intake area will mean that most students will be within 800m of the school. The catchment is shown at **Figure 20**.

Figure 20 Catchment of NLPS

3.0 Description of the Development

This chapter of the report provides a detailed description of the proposed development. Architectural drawings prepared by Fitzpatrick and Partners are included at **Appendix C**. This application seeks approval for the development of a new primary school at Liverpool to accommodate a maximum of 1,280 students, including 40 support unit students and 40 preschool students. Specifically, consent is sought for the following:

- Construction of a new 2-3 storey primary school building, including core school facilities, teaching spaces and support units.
- Operation of new primary school for 1,280 including 1,200 students, 40 support unit students and 40 preschool students.
- Associated site landscaping and open space improvements.
- Removal of one dead tree.
- School signage.

Photomontages of the proposed development are shown at **Figure 21** and **Figure 22**.

Figure 21 Photomontage of the main school entry from Burnside Drive

Source: Fitzpatrick and Partners

Figure 22 Photomontage of the proposed Lachlan Street entry

Source: Fitzpatrick and Partners

3.1 Development/Urban Design Principles

A set of development and urban design principles have been prepared by Fitzpatrick and Partners to guide development at the site. The principles have considered the Design Quality Principles of the Education SEPP and the requirements of the Department of Education's *Educational Facilities Standards and Guidelines*. The planning and design principles adopted for the proposed development of the site are as follows:

- **Student focused**: Provide secure and safe spaces for students to collaborate and prosper.
- **Education focused**: Well-designed learning communities allow for both traditional and contemporary pedagogies.
- **Community focused design**: Design for inclusiveness by providing community accessible facilities.
- **Minimise disruption**: Minimise where possible disruption to surrounding operations through the use of modular design and off-site fabrication.
- **Value for Investment**: Maximise return on investment through efficiency in design and clear prioritisation of project objectives.
- **Responsive design**: The design of the school should be durable and responsive for longevity and future generational needs.
- **Considered landscape approach**: A landscape that provides a variety of spaces for play, social interaction, outdoor learning, and connection to nature.
- **Indigenous overlay**: Engage with the local community to establish design strategies that both celebrate and welcome First Nations People.

3.2 Numerical Overview

The key numeric development information is summarised in **Table 2**.

Table 2 Key development information

Component	Proposal
Site area (Lot 1 in DP 1137425)	75,000m^2
Area of NLPS location	19,865m^2
Existing GFA	18,400m^2
Proposed GFA	8,180m^2
Total GFA	26,580m^2
FSR	0.35:1
Unencumbered play area	• Primary School: 12,000m^2 • Support unit: 400m^2 • Preschool: 400m^2
Amount of open space per student	10.7m^2 per student
Maximum Height	14.8 metres
Boundary Setbacks • North • South • East • West.	 • North: 6 metres • South: N/A • East: 5.5 metres – 6 meres • West: 6 metres
Car spaces	33 parking spaces (provided under a separate application – See **Section 1.2**)
Kiss and drop spaces	25 kiss and drop spaces (provided under a separate application – see **Section 1.2**
Number of staff	98 FTE
Number of students	1,200
Number of preschool students	40
Number of support students	40
Core hours of operation (school)	9:00am-3:10pm
Core hours of operation (childcare centre)	7:00am-6:00pm
Out of School Care Hours	6:30am-9:00am, 3:10am-6:30pm, Monday – Friday

3.3 Site Preparation, Infrastructure and Earthworks

Minor site preparation including earthworks, stormwater and utilities connections to existing infrastructure is proposed under this application. An assessment of this is discussed at **Section 5.11**.

3.4 Built Form

The school is part two, part three storeys, and will accommodate classrooms and ancillary space for 1,280 students, including a preschool and special programs unit, as well as an administration unit, school hall and ancillary storage areas. The school has been designed to be able to be delivered under the *Design for Manufacture and Assembly* process championed by School Infrastructure, meaning much of the built form can be constructed offsite and erected onsite in complete components.

Building Height

The proposed new building is part two, part three storeys in height, with a maximum building height of 14.8 metres. The height of the new building responds to the surrounding development which generally comprises 3-4 storey residential flat buildings. The school hall and associated store building located on the corner of Lachlan Street and Burnside Drive has the lowest heights of the proposed development, at only two storeys.

The remainder of the school building is 14.8 metres in height, or three storeys, which complies with the maximum building height under the *Liverpool Local Environmental Plan 2008*. Elevations of the proposed school building are shown at **Figure 23**.

Figure 23 Northern Elevation (top) and Eastern Elevation (bottom)

Source: Fitzpatrick and Partners

Bulk and Scale

The proposed school building is arranged in a C shape, with the majority of the building bulk running north-south along the western boundary of the NLPS site, providing clear delineation between the primary school and high school developments. The two-three storey height has been chosen to respond to the surrounding residential context, and the building has been broken down through the incorporation of vertical modulation of the façade. Further, the scheme is compliant with the *Liverpool Local Environmental Plan 2008* and Liverpool Development Control Plan 2008, therefore it appropriately responds with the existing and future desired character of the area.

Building Setbacks

The site setbacks have been established to allow 5.5 metres – 6 metres to the boundary, which, when added to the existing road reserve provides a generous public domain to Lachlan Avenue and Burnside Drive. The 6 metre setback to the high school playing fields to the west allows for significant separation from the high school and does not cause encroachment on their existing open space.

External Materials and Finishes

The building is comprised of brick, fibre cement panels and metal sunshades in warm hues, complimenting the native landscape and surrounding buildings. The selection is warm and textural, whilst also providing a robust and durable material palette. An indicative photomontage of the building façade and associated materials is shown at **Figure 24**.

Figure 24 Proposed materiality of façade

Source: Fitzpatrick and Partners

Proposed Uses

The following key spaces are provided for in the school:

- Covered Outdoor Learning Space (COLA).
- Community and shared facilities.
- Canteen.
- Library.
- Administration and staff rooms.
- Teaching and learning areas (home bases/classrooms).
- Special programs unit.
- Support unit.

Home base units are the core teaching and learning environment for a primary school. They are designed to be adaptable learning environments that can support a range of teaching strategies that direct explicit instruction, to facilitation of inquiry and authentic project and problem-based learning. They are configured to support a variety of seating plans from individual to large groups. A total of 44 home bases are proposed across the three levels of the school building, which form the core primary school teaching areas of the school. An additional 4 special program rooms and 4 support unit home bases are also provided.

The administration block is proposed to be located on the Ground Floor of the north-western corner of the NLPS site, whilst the staff room will be located above the administration block on Level 1, adjacent to the library. The school hall is also located on the northern boundary of the site, with the COLA located to the south of the school hall.

The main arm and southern wing of the school across the Ground Floor, Level 1 and 2 contains the home bases and associated classroom circulation space, bathrooms, and storage areas to support the use of the home bases. An example of the general arrangement of the site is shown at **Figure 25**.

Figure 25 Indicative arrangement of the proposed school, Ground Floor (left), Level 1 (right)

Source: Fitzpatrick and Partners

3.5 Preschool

The south eastern portion of the Ground Floor is proposed to be used as a centre-based childcare (preschool) with capacity of up to 40 children aged between 3-5 years old. The preschool comprises two internal playrooms, preparation areas and staff rooms, and a COLA on the southern side of the school building. A total of 400m^2 of unencumbered outdoor play area is provided, resulting in 10m^2 per child. The design of the preschool has been undertaken in accordance with the *Education and Care Services National Regulations* and the *NSW Child Care Planning Guidelines*. The proposed arrangement of the preschool is shown at **Figure 26**.

Figure 26 Proposed arrangement of the preschool, with outdoor COLA provided.

Source: Fitzpatrick and Partners

3.6 Landscaping and Public Domain

A Landscape Report has been prepared by Spackman Mossop Michaels and is provided at **Appendix I**. The proposed landscape design seeks to provide a variety of places for play, social interaction, and outdoor learning. There is also a focus on maximising vegetation for connection to nature and shade provision, which is particularly important in western Sydney. The key elements in the landscape plan are as follows:

- **Entrance from Lachlan Street**: This area seeks to facilitate a welcoming entrance to the school whilst protecting existing trees. Some low maintenance planted spaces will be accommodated in this area.
- **Seating/Outdoor Learning Area**: These spaces will accommodate flexible outdoor use, with a mixture of moveable furniture and timber benches and tables. These spaces can be used for outdoor learning and spectating, as well as during lunch times.
- **Nature Play**: This play area amongst the trees with some understory planting will encourage students to connect with nature. This space will include stepping logs, rocks, and seating areas to accommodate different sized groups.
- **Active Play**: This area includes a large, flexible open space with a multi-purpose court, line marking for games, table tennis and a climbing wall. The multipurpose court can also be used for school assemblies and large community gatherings.
- **Kitchen and Bushtucker Garden**: This garden has been incorporated to respond to the Aboriginal context.
- **Cross Site Link**: This through site link allows for access from Burnside Drive to the high school in the west.

- **Structured play**: Provision of play equipment for school students.
- **Outdoor play for support unit and preschool**: These are flexible spaces with associated shade sails that will accommodate a variety of activities corresponding with the support unit and preschool.

The landscape design is shown at **Figure 27** to **Figure 29**.

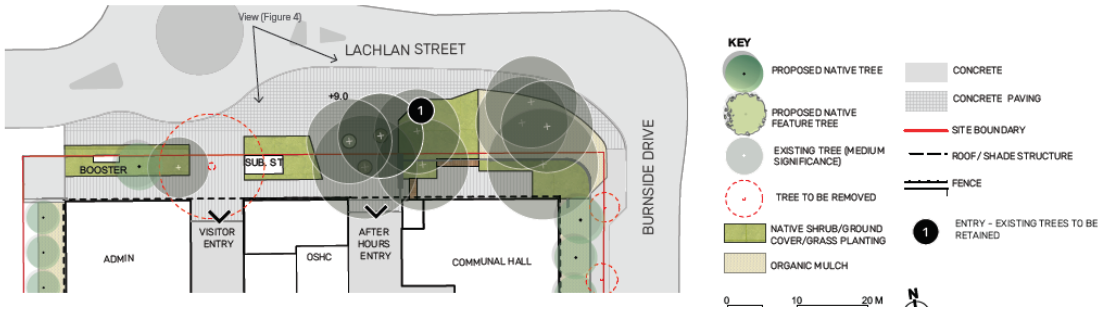

Figure 27 Lachlan Street landscaped entry

Source: Spackman Mossop Michaels

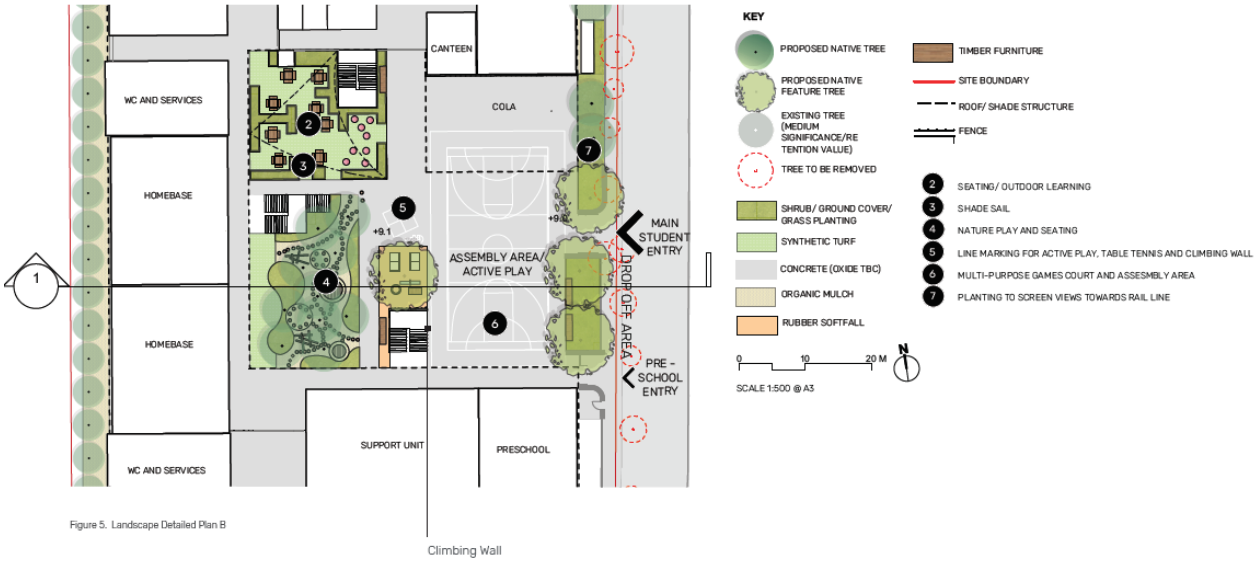

Figure 28 Central landscaped area at the Burnside Drive entrance of the school

Source: Spackman Mossop Michaels

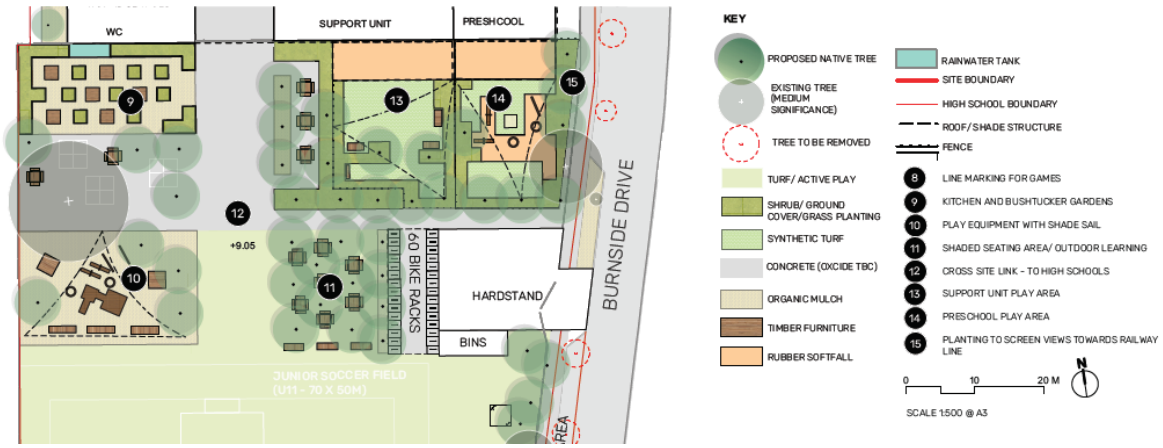

Figure 29 Landscaped areas to the south of the school building

Source: Spackman Mossop Michaels

3.7 Tree Removal and Planting

As part of this SSD application, one tree is to be removed from the location of the NLPS. The tree is identified as being dead with no visible habitat, and therefore needs to be removed. In addition to this, 110 native trees are proposed to be planted across the site, as shown in the figures above. These trees are spread across the school ground, particularly concentrated towards the site boundaries to the east, and to the south of the proposed school.

3.8 Pedestrian Access and Circulation

Pedestrian points of access are shown at **Figure 30**. The main entry for the school is located on the prominent Lachlan Street frontage, whilst an afterhours entry is provided to the east of the main entry on Lachlan Street, providing controlled access to the school hall, canteen, out of school hours care and other shared spaces on Level 1. The main student access is via Burnside Drive, with direct access from the kerbside drop off and pick up (subject to separate approval at **Section 1.2**). Access to the preschool and support unit are also provided from Burnside Drive.

Access through the primary school site to the high school site is also provided from Burnside Drive via a through site link.

Figure 30 Proposed access arrangements

Source: Fitzpatrick and Partners

3.9 Access and Parking

Pick up and drop off

The pick-up and drop-off of students is to occur on Burnside Drive, adjacent to the main student entry. To accommodate this, 25 indented parking bays are to be located along Burnside Drive to accommodate student pick-up/drop-off. Burnside Drive will be widened by approximately 2.5 metres, and a new roundabout will be provided at the southern end of Burnside Drive to accommodate this. It is noted that the delivery of the parking bays, and

associated road widening works on Burnside Drive will be undertaken under a separate approval pathway (see **Section 1.2.2**).

As discussed further in **Section 5.4** and **Appendix G**, the pick-up and drop off arrangements are capable of accommodating the maximum student population.

Service Vehicles

A bin collection area and hardstand will be provided south of the school buildings (under a separate planning approval pathway – see **Section 1.2.2**) on Burnside Drive to facilitate waste collection. This area will be closed-off outside of collection times to discourage parking by other users.

For other servicing, loading and deliveries, the future indented kerbside parking zone on Burnside Drive can be allocated as a loading zone outside of student arrival and departure periods.

Bicycle Parking

130 bicycle spaces in the form of bicycle racks are provided on the southern side of the new primary school building. This space can be used by students, staff and visitors.

Staff members will be able to access amenities, including a shower, to accommodate bicycle travel.

3.10 Building Services

The building services strategy aims to limit the amount of reticulation within the building. The majority of the plant is located within the six amenity pods, which are spread across the three floors. These are stacked above each other in the main north-south arm of the building for ease of access and maintenance.

The main plant includes condenser units in order to meet the requirements for air-conditioning in every space. The plant also incorporates exhaust units, comms rooms, distribution boards, and electrical and mechanical risers. The location of the building services plant is shown in **Figure 31**.

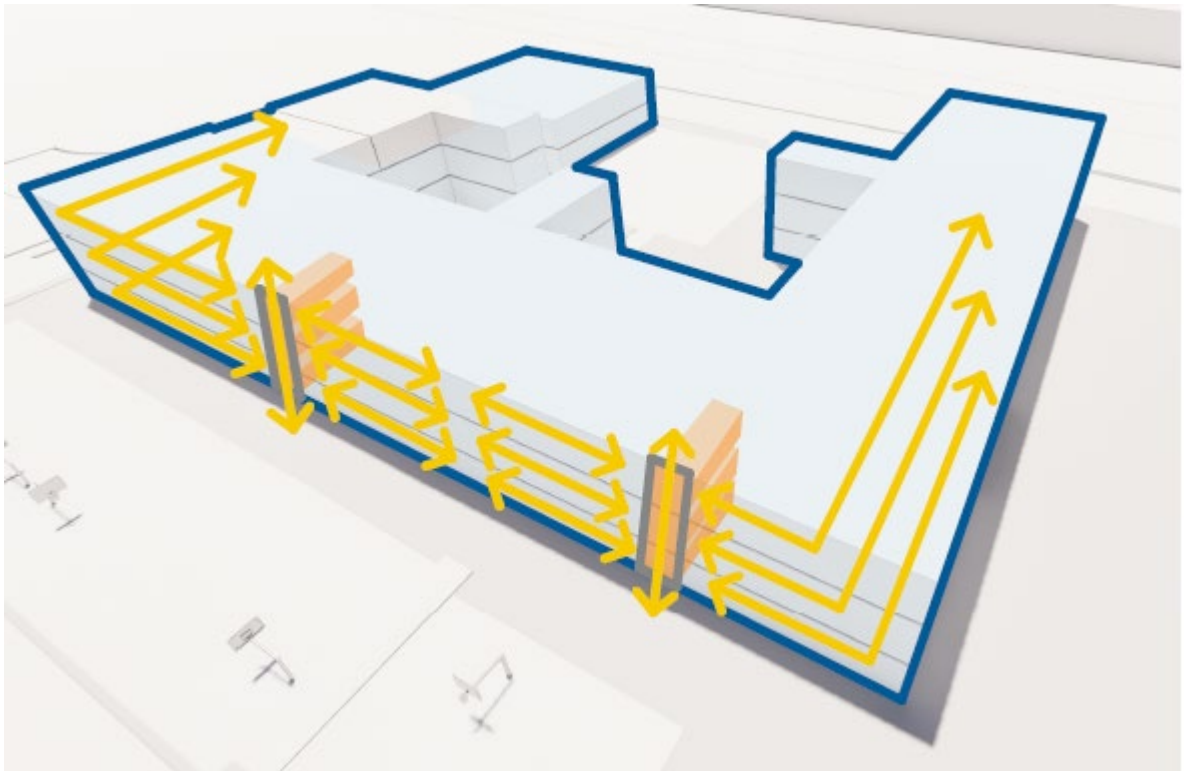

Figure 31 Proposed location of the building plant

Source: Fitzpatrick and Partners

3.11 Environmentally Sustainable Development

The proposed development will be sustainable and has been designed to the Department of Education's EFSG Sustainability Requirements, which are considered to be equivalent to the 4 Star Green Star Rating. This will exceed the requirements of Section J of the National Construction Code and to the Government Architects NSW standards of Environmental Design in Schools, Better Placed Design Guide and EFSG. The key sustainability priorities to support the operation of the school are as follows:

- The promotion of natural daylight.
- High levels of indoor air quality.
- Excellent thermal, visual and acoustic comfort.
- Resource conservation (energy, waste and water).
- The creation of an integrated community resource.

The methods of incorporating these key sustainability principles are discussed further at **Appendix K**.

3.12 Infrastructure and Services

An Infrastructure Management Plan has been prepared by Steensen Varming and is provided at **Appendix L**. The existing and required servicing arrangements are outlined in the following sections.

Electrical

Consultation with Endeavour Energy indicates that the school is to be provided with a new dedicated 1000kVA kiosk substation to satisfy the anticipated maximum demand, which is expected to be in the order of 800-900kVA. Endeavour Energy has confirmed that at this point in time, there is sufficient capacity in the area to accommodate this load. The substation is proposed to be located on the northern site boundary, adjacent to the main vehicle entrance to the school off Lachlan Street. The provision of this substation is being sought under a separate approval pathway – see **Section 1.2.2**).

Communications

A main communications room is proposed on Ground Level that will service the new school. A new incoming telecommunications service will be established to this room and distributed to the rest of the school. The formal application for telecommunication services will be completed separately by the Department of Education's Information Technology Directorate. The area is serviced by the National Broadband Network and a new connection to the school can be established.

Water

Potable water will be provided from a new connection to the existing water meter servicing the existing Liverpool Boys and Girls High Schools, which is located on Lachlan Street. The existing school connection is 50mm. Subject to the new load, amplification of the existing main connection may be required. Water usage reduction measures will be installed such as low flow taps and water meters for monitoring use.

Sewer

There is an existing 450mm Sydney Water sewer main reticulating across the southern boundary of the site. Due to the lack of fall towards the Sydney Water sewer main, it is proposed that the school sewer will drain southwards into a pump out pit, to be pumped to the sewer main south of the site. The existing Liverpool Boys and Girls High Schools also drain via a pump out pit to the sewer main to the south, making a branch connection to the sewer main which extends into the lot. The pump out line from the new pump out pit will connect to the same branch connection. Subject to the new added load, the branch connection may require amplification. The location of the existing sewer and water mains is shown in **Figure 32**.

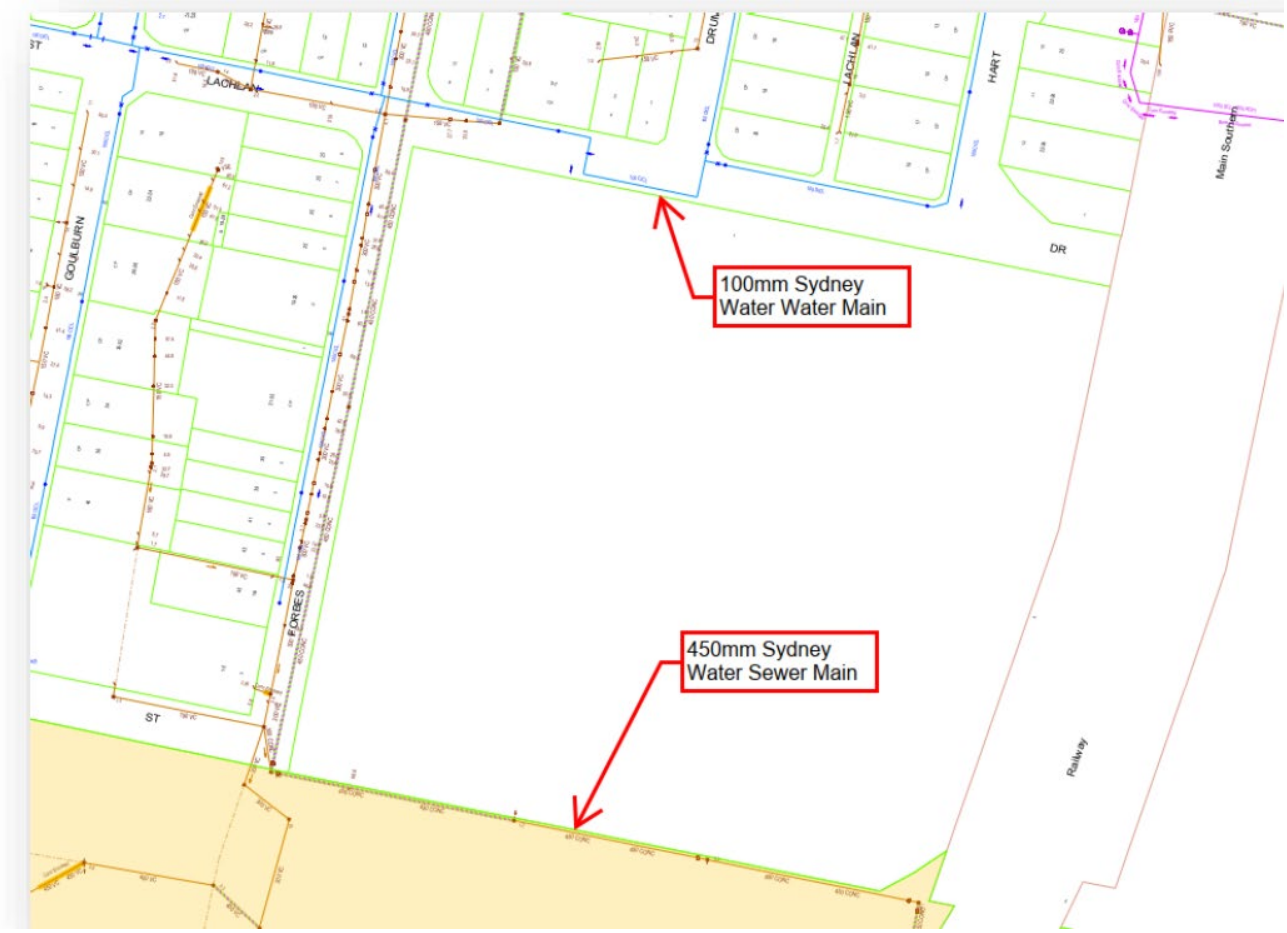

Figure 32 Existing location of the Sydney Water Sewer and Water Mains on the site

Source: Steensen Varming

Gas

The *Educational Facilities Standards and Guidelines* does not anticipate any gas demand for the canteen kitchen. It is unknown at this stage if and how much gas is required for the mechanical plant. There is a 7kPa Jemena Gas

main located on Forbes Street. Should gas be required, a branch connection will be made to the existing Liverpool Boys and Girls High Schools gas meter located on Forbes Street

3.13 Signage

Three signs are proposed to identify the school, as identified in the Design Report at **Appendix H**. This includes a front entry sign on Lachlan Street with the school name and logo, a side entry information sign on the corner of Burnside Drive and Lachlan Street, and a sign on the Burnside Drive entry with the school name and logo. The size and materiality of these signs is outlined in **Table 3**. The location of the proposed signage is shown at **Figure 33**.

Table 3 Summary of proposed signage

Sign	Description/Material	Dimensions (height/width)	Illumination
Front entry sign (1 on map at **Figure 33**)	School name and logo Bushed charcoal metal finish	1,000mm x 3,000mm	Yes
Side entry information signage (2 on map at **Figure 33**)	Parent and community information White brick backing, charcoal powder coated metal plate, white powder coated metal lettering.	8,000mm x 1,200mm	Yes
Side entry drop off signage (3 on map at **Figure 33**)	School name and logo Brushed charcoal, metal finish	4,500mm x 1,200mm	Yes

An assessment of the signs against *State Environmental Planning Policy No 64 – Advertising and Signage* has been undertaken at **Section 5.1**.

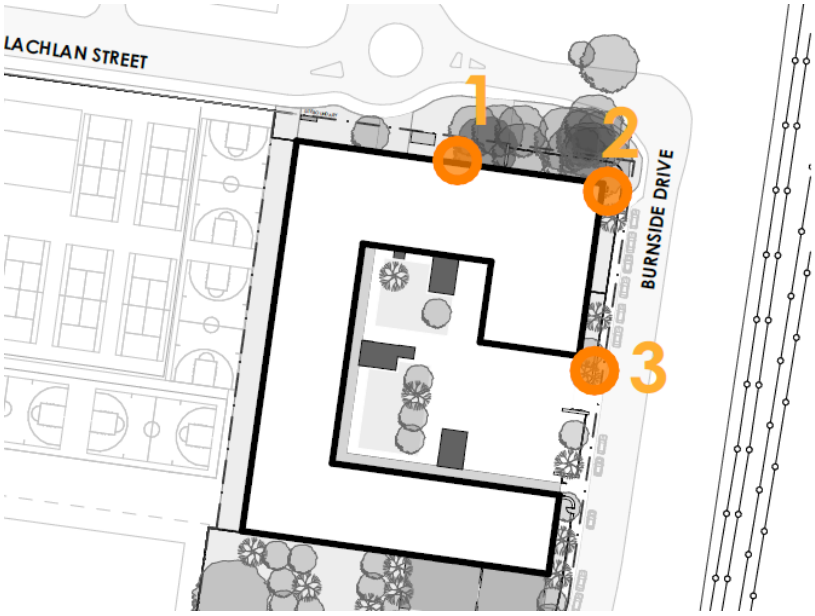

Figure 33 Proposed location of signage

Source: Fitzpatrick and Partners

3.14 Construction

Construction Staging

The SSD works will occur in one stage. It is anticipated that construction will occur over the duration of 10 months, beginning in February 2022, subject to approval.

Construction Hours

Construction will be undertaken in accordance with the Preliminary Construction Management Plan provided at **Appendix M**, which are standard hours (as specified in the NSW Interim Construction Noise Guideline):

- Monday to Friday: 7:00am to 6:00pm
- Saturday: 8:00am to 1:00pm
- Sundays and Public Holidays: No works

Construction Jobs

The proposed development will result in approximately 446 construction jobs.

3.15 Operation

School Operation

The school will operate as per the following hours:

- Core hours: 9:00am-3:10pm Monday-Friday
- OSHC hours: 6:30am-9:00am, 3:10pm-6:30pm Monday-Friday
- Extra-curricular programs: 3:30pm-6:30pm Monday-Friday

Student and Staff Numbers

The proposed development will result in the primary school having a maximum capacity of 1,280 students and 98 staff members. This includes 1,200 primary school students, 40 preschool students and 40 support unit students.

Preschool Operation

The preschool will operate between 7:00am-6:00pm Monday – Friday.

The preschool will have a capacity of 40 students and 4 staff.

Joint Community Use

The school hall and sports fields will be used by local community groups. It is anticipated that these uses will occur several times a week, between 6:00pm-9:00pm.

3.16 Contributions

The site is located within the Liverpool City Centre for the purposes of the Liverpool Contributions Plan 2018. As per section 2.7 of this Contributions Plan, contributions are not required to be paid on development for the purposes of public infrastructure provided by or on behalf of State Government or the Council. As this development is for the purposes of a public primary school on behalf of the Department of Education and School Infrastructure NSW, contributions are not required to be paid.

4.0 Consultation

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

A Consultation Outcomes Report prepared by Ethos Urban is provided at **Appendix F** and provides detail of the consultation undertaken, feedback received, and responses made by the team. Several consultants have undertaken additional consultation with relevant parties during the preparation of their reports.

Community Consultation

A proactive and strategic approach to the communications and stakeholder engagement was undertaken. A variety of communications were used to promote the consultation. These included:

- Letterbox drop to 1,211 surrounding residents, businesses and landowners.
- Newspaper advertisement.
- Project website, including information about community sessions and contact details.
- Project email and phone number for stakeholders to get in touch with queries.
- Drop in community information sessions.
- Seven meetings with Government agencies and special interest groups.

The feedback received generally focused on:

- Traffic.
- Timing.
- Open space.

Throughout this process, School Infrastructure has worked closely with all stakeholders to ensure everyone has been provided with ample opportunity to participate prior to lodgement of the SSDA.

A summary of the issues raised during school and community consultation, and the response to each issue, are provided at **Table 4**.

Table 4 Summary of issues raised and response

Theme	Comment	Team Response
Traffic	Potentially adding 250 additional cars which create stress on the local network	A Transport Assessment has been developed as part of the SSDA which promotes the use of other transport modes and provides a detailed analysis of any additional traffic. This report is provided at **Appendix G**.
	Question on how school drop off and pick up will operate	The school will develop operational measures (such as staged drop-off times) to mitigate traffic impact.
Timing	Question of why the project is not being delivered at the same time as the Liverpool Boys and Girls High Schools upgrade	A decision was made to address the strategic response to demand for the primary school community group and the high school community group separately.
	Questions on timing of delivery	Main works construction associated with the SSD is scheduled to commence January 2022. School opening is January 2023, subject to approval.
Open Space	Concern regarding the lack of open space for the Boys High School.	The new public school will be built on land which is currently surplus to needs. The proposed design solution accommodates the open space needs of the public school and high schools in a compliant matter.
General Feedback	Impressed and supportive of the design	Noted.

Theme	Comment	Team Response
	Acknowledgement of enrolment pressure on the community.	Noted.

NSW Government Architect

A meeting was held with the Government Architect NSW (GANSW) on 3 March 2021 to provide an overview of the project and design detail. GANSW was generally supportive of the masterplan and the development of the project. Given the project has potential to change design outcomes due to the very early contract involvement process, GANSW has requested that the project be presented again in the future. The GANSW feedback has been incorporated throughout the design development, as discussed in the options development at **Section 1.4**.

Liverpool City Council

A Pre-DA meeting was held with Liverpool City Council on Thursday 18 February 2021. The meeting included an overview of the current stratus of the project, the concept design, acoustic assessment, flood levels and traffic and transport assessment. The comments raised, as well as the response incorporated into the design of the proposal is outlined at **Table 5**.

Table 5 Liverpool Council Consultation

Council comment	Team response
Council questioned the potential acoustic issues caused by the railway line with noise bouncing off walls.	The project team responded that this has been considered in the design as the same level of acoustic treatment is needed regardless of the rail line.
Council noted preference for 10.5m PMF level.	The EIS and flood modelling has been based on the Liverpool City Centre PMF and has addressed the matters raised by this PMF. This has been discussed further in **Section 5.11.2**.
Council requested traffic volume modelling is conducted for both options of a roundabout and turn bay traffic solution, including consideration of Hospital use of the road.	GTA Consultant undertook initial testing, which found that both options returned a Level of Service A and that the choice for the roundabout was more guided by kerbside parking capacity and interaction with Health Infrastructure operations, rather than the results of traffic modelling. Therefore, it was not considered necessary to undertake traffic modelling for the two options warranted in this case as the roundabout option operates satisfactorily (Level of Service A) in the future development scenario, even accounting for Hospital traffic intensification.
A new Student Transport Plan will be provided as part of the SSDA.	A new Student Transport Plan has been prepared and is provided at **Appendix U**.
Council enquired about the opportunity for shared community spaces within the design.	The school has been designed in order for community users to use certain parts of the school, such as the hall. These types of uses and the operation of these uses will be refined at a later date.

Sydney Trains

CBRE, School Infrastructure NSW and Ethos Urban met with Sydney Trains on Friday, 19th February 2021 to provide an overview of the project, the concept design, construction and operational traffic. Key comments and feedback from Sydney Trains are outlined below which have all been addressed in the EIS and specialist documentation:

- Sydney Trains requested easement/Sydney Trains assets be shown in the EIS drawings/survey (see **Appendix J**).
- Sydney Trains noted EMF analysis may be required given the proximity to the Sydney Trains substation (see **Appendix EE**).
- Sydney Trains noted the project may need to undertake a rail derailment risk analysis if buildings of over two stories are located within 20m of rail corridor (see **Appendix J**).

ADCO are currently undertaking EMF analysis to confirm whether there are any impacts relating to the Sydney Train substation. It is noted that no buildings are to be located within the 20 metre buffer.

Sydney Water

Members of the project team, including School Infrastructure NSW, CBRE, Warren Smith Consulting Engineers (Hydraulic project managers), Ethos Urban (Planning) and Meinhardt-Bonacci (Civil Design Engineer) met with Sydney Water on Monday 22 February 2021. During the meeting, the project team presented the revised concept design, overall project status, flooding and stormwater solutions and response to SEARs comments. Feedback received in this meeting has been addressed in the Consultation Outcomes Report at **Appendix F** and throughout the EIS.

Transport for NSW and RMS

Members of the project team, including School Infrastructure NSW, CBRE, Ethos Urban, Fitzpatrick + Partners, GTA Consultations and Meinhardt-Bonacci met with Transport for NSW (TfNSW) on Wednesday, 17 February 2021. During the meeting, the project team presented an overview of the project, revised design, traffic and transport options and discussed TfNSW's SEARs response. Key comments and feedback from TfNSW have been incorporated throughout this EIS and is discussed further at **Appendix F**.

Further, a Transport Working Group was established on 7 May 2021 comprising of membership from the project team, Liverpool City Council and Transport for NSW. This group intents on meeting on a regular working basis to continue discussions around Transport considerations. The first meeting held on 7th May 2021 and provided an overview of the project scope, key milestones, proposed transport infrastructure initiatives, proposed active transport initiatives, interface with precinct partners and public transport, and district transport impacts.

Liverpool Girls and Boys High School

On Tuesday, 16th March 2021, members of the project team met with the Principals, Deputy Principal and Business Manager for Liverpool Girls and Boys High Schools. Noting there has been extensive existing engagement to date, this meeting presented updated plans, delivery timing and any other project updates to the School representatives. Key feedback and comments are outlined below:

- Note that ongoing consultation will be required for the relocation of the cricket nets.
- Note that the project team has been liaising with Health Infrastructure on the adjacent road network and a new roundabout will be installed as part of the project to provide access to the school drop off zone on Burnside Drive. This will be delivered through a Review of Environmental Factors on Local Health District Land.

Ingham Institute for Applied Medical Research

On Wednesday, 25th March 2021, members of the project team and SINSW Infrastructure Planning team met with Executive representatives from Ingham Institute, who are key stakeholder within the Liverpool Innovation Precinct and located within close proximity of the new school. This meeting presented schematic design plans which would form the basis for SSDA submission and also provided an update on delivery timing and planning for the potential redevelopment of Liverpool Boys and Girls High School. Key feedback and comments are outlined below:

- Importance of safe pedestrian access links to the school from the city centre.
- Coordination with LHAP to ensure overall construction impacts are managed correctly, in order to minimise any abortive works.
- 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.

NSW Health (Health Infrastructure)

Schools Infrastructure and NSW Health (Health Infrastructure) established a Coordination group early in 2021 and have held 6 meetings since February 2021. This working group is intended to continue ongoing consultation throughout the planning and delivery phases of the project. Items discussed in these meetings include:

- Relationship with the Liverpool Hospital and Academic Precinct (LHAP).
- Investigation of coordination opportunities between LHAP and NLPS in relation to stormwater.
- Discussion of planning pathways.
- The development's impact on Liverpool Hospital.

- Presentation of the traffic and access solutions for NLPS.

5.0 Environmental Assessment

This section of the report assesses and responds to the environmental impacts of the proposed DA. It addresses the matters for consideration set out in the SEARs (see **Section 1.5**). The Mitigation Measures at **Section 7.0** complement the findings of this section.

5.1 Relevant EPIs, Policies and Guidelines

The relevant strategies, environmental planning instruments, policies and guidelines as set out in the SEARs are addressed in **Table 6**.

Table 6 Summary of consistency with relevant Strategies, EPIs, Policies and Guidelines

Instrument/Strategy	Comments
Strategic Plans	
NSW State Priorities	NSW State Priorities are twelve high-level priorities for the State, being: • Creating jobs • Delivering infrastructure • Driving public sector diversity • Improving education results • Improving government services • Improving service levels in hospitals • Keeping our environment clean • Making houses more affordable • Protecting our kids • Reducing domestic violence reoffending • Reducing youth homelessness • Tackling childhood obesity The proposal seeks to develop a new public school and create additional educational capacity in the Liverpool region. The proposal will therefore contribute to the provision of infrastructure, as well as jobs and education, thereby contributing to strengthening the local and regional economy.
The Greater Sydney Regional Plan, A Metropolis of Three Cities	In accordance with the Plan, this proposal will ensure a new, high quality school can be delivered to meet Sydney's growing educational needs. The proposal will take enrolment pressure off the existing schools in the area and ensure that a high-quality educational facility is provided for the future population of the school catchment. The proposal is also consistent with the other, wider goals and directions contained within the Plan, including: • The creation of temporary job opportunities in manufacturing, construction and construction management, and on-going jobs in teaching and administration for the wider Liverpool LGA • Deliver additional educational infrastructure for the catchment that will take enrolment pressure off the existing schools in the region • Take advantage of the additional capacity on an existing school site, providing contemporary facilities to meet future educational standards and provide increased jobs and growth • Deliver a sustainable, well-designed building, that will make a valued contribution to economic growth in Sydney and provide increased learning and employment opportunities.
Future Transport Strategy 2056	The Future Transport Strategy 2056 sets the 40-year vision, directions and outcomes framework for customer mobility in NSW and will guide transport investment over the longer term. This plan aims to place the customer at the centre and with feedback, harness the rapid advancement of technology and innovation across the transport system to transform customer experience, improve communities and boost economic performance (TfNSW 2017). The proposal is consistent with the Strategy by delivering increased educational capacity in Liverpool in a highly accessible location. The proposal does not prevent the objectives of the Strategy from being achieved.
State Infrastructure Strategy 2018 - 2038 Building the Momentum	The proposal is consistent with the State Infrastructure Strategy by:

Instrument/Strategy	Comments	
	• Delivering school infrastructure to keep pace with student numbers • Providing modern, digitally enabled learning environments	
Sydney's Cycling Future 2013	The overarching goal of Sydney's Cycling Future 2013 is to make cycling a safe, convenient and enjoyable transport option for short trips. The document outlines how to support and make bicycle riding a feasible transport option for all customer types. DoE is supportive of students and staff using bikes as a mode of transport. The proposal seeks to support cycling to access the site for both staff and student, whether it be for the first or last portion of their journey, or the entire journey. A dedicated bicycle/scooter storage area is located to on the southern side of the proposed school building.	
Sydney's Walking Future 2013	Sydney's Walking Future prepared by Transport for NSW sets out a strategy to encourage people in Sydney to walk more through actions that will make it a more convenient, better connected and safer mode of transport. The proposal supports walking to access the site for both students and staff. This includes introduction of clearly defined pedestrian entrances to the stie, as well as better walking connections within the site. The school has also been designed to minimise conflict between vehicles, bicycles and pedestrians.	
Sydney's Bus Future 2013	Sydney's Bus Future (2013) outlines the NSW Government's long-term plan to deliver fast and reliable bus services within Sydney to meet current and future customer needs. Bus services are provided on Forbes Street, Goulburn Street and Bigge Street to the west of the site. Therefore, students, teachers and parents will therefore be able to easily access the site via public transport, deterring the need to drive.	
Crime Prevention Through Environmental Design (CPTED) Principles	Refer to **Section 5.3.5** and the Design Report at **Appendix H**.	
Better Placed: An integrated design policy for the built environment of New South Wales	The objectives of Better Placed have been considered and responded to in the proposed design. The Architectural Design Report provides a detailed explanation of how the design has evolved. Responses to each objective of Better Placed are provided below.	
	Objective 1: Better fit Contextual, local and of its place	The proposal has sought to respond to, and enhance, both the existing context of the school campus the wider context of the site. The proposed school responds to the train line directly to the east of the site and high schools to the west of the proposed primary school. The school has been generously setback from the street to provide passive areas at the front of the school. The siting and design of the building also responds to the neighbouring residential development to the north of the site.
	Objective 2: Better performance Sustainable, adaptable and durable	The proposal incorporates a number of design intentions to improve the sustainability and efficiency of the building. These design choices include: • Incorporating natural ventilation where appropriate. • Provide well insulated external and internal walls to prevent excessive heat gain and loss. • Maximising natural light to internal learning spaces. • Incorporating energy efficient fittings and fixtures. • Utilising rainwater collection for landscape irrigation. • Utilising sustainable, low embodied energy materials where possible. Further discussion is provided at **Section 3.10**.
	Objective 3. Better for community Inclusive, connected and diverse	The proposal incorporates various measures to provide inclusivity and accessibility across the development. The proposal provides clear wayfinding and welcoming entrances to facilitate ease of access and indicate separation between the primary school and high schools. The built form facilitates a range of outdoor play spaces, catering to various student confidence levels and requirements. The site is level,

Instrument/Strategy	Comments	
		mitigating requirement for landscaped or ramped level changes. Further discussion of the accessibility of the design is provided at **Appendix N**.
	Objective 4: Better for people Safe, comfortable and liveable	The design optimises health, safety and security by incorporating CPTED principles across the design (as discussed at **Section 5.3.5**). The ground plane has been designed to limit the interaction between pedestrians and vehicles and after-hours site control has been considered to ensure that use by community groups after hours can be safely accommodated.
	Objective 5: Better working Functional, efficient and fit for purpose	The school has been designed to provide a wide range of educational, community and informal uses. The built form incorporates Design for Manufacture and Assembly principles, allowing for the construction and operation of the building to highly efficient.
	Objective 7: Better look and feel Engaging, inviting and attractive	The proposed school has been designed to respond to the site's surroundings. The modular form is thoughtfully proportioned and balanced to respond to the environmental conditions of the high school, surrounding residential streets and train line to the east. The materiality of the building has been chosen to complement the site and surrounds, as discussed at **Section 3.4**. The Design Report prepared by Fitzpatrick and Partners is included at **Appendix H**, which discusses the design principles informing the design.
Healthy Urban Development Checklist (NSW Health, 2009)	The Healthy Urban Development Checklist has been prepared by NSW Health to assist professionals in the industry in providing advice on urban development to ensure that considerations are made with regard to health effects of urban development on policies and proposals and how they can be improved to provide better health outcomes. The proposed development will include open space for students and substantial tree planting to improve the urban form. Active transport methods will be facilitated through the provision of bicycle parking and end of trip facilities for staff. The proposed development will provide a state-of-the-art facility that allows for an improved urban design outcome.	
Draft Greener Places Policy	The draft Greener Places Policy has been prepared by the GANSW to guide the design, planning and delivery of green infrastructure across NSW. The aim is to create healthier and more liveable cities and towns by improving community access to recreation and exercise, walking and cycling connections and the resilience of urban areas. The proposed development directly aligns with the aims of the draft Greener Places Policy through the introduction of green space and extensive tree planting throughout the primary school campus to create a healthier urban environment. The proposal also utilises the improved pedestrian and cycling connections from Liverpool Hospital and the wider education precinct.	
Western City District Plan	The Western City District Plan sets out the planning priorities and actions to manage growth and change in the Western City District. It is a guide for implementing the Region Plan at a district level and is a bridge between regional and local strategic planning/ The District Plan informs local strategic planning statements, preparation of Local Environmental Plans and assessment Planning Proposals, community strategic plans and policies. Planning Priority W9 specifically refers to the growth and strengthening of the Liverpool 'Metropolitan Cluster'. Liverpool is identified as a 'Collaboration Area' where the key aims include developing jobs around the health and education precinct, in which the site is located. The proposal also helps to address the education needs for the expected 21,072 additional students in Liverpool by 2036.	
State Legislation		
EP&A Act	The proposed development is consistent with the objects of the EP&A Act for the following reasons: • It promotes the social welfare of the community • It allows for the orderly and economic development of land	

<table>
<tr><th>Instrument/Strategy</th><th>Comments</th></tr>
<tr><td></td><td>

It is development for public purposes and will facilitate the delivery of community services.
It is of a high level of design quality as endorsed by the NSW Government Architects.

The proposed development is consistent with Division 4.7 of the EP&A Act, particularly for the following reasons:

the development has been declared to have state significance;
the development is not prohibited by an environmental planning instrument; and
the development has been evaluated and assessed against the relevant heads of consideration under section 4.15(1).

</td></tr>
<tr><td>EP&A Regulations</td><td>
The EIS has addressed the specification criteria within clause 6 and clause 7 of Schedule 2 of the EP&A Regulation. Similarly, the EIS has addressed the principles of ecologically sustainable development through the precautionary principle (and other considerations), which assesses the threats of any serious or irreversible environmental damage (see Section 5.13).

As required by clause 7(1)(d)(v) of Schedule 2, the following additional approvals will be required in order to permit the proposed development to occur.
<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>Biodiversity Conservation Act</td><td>An assessment of the biodiversity is provided at Section 5.8. A Biodiversity Development Application Report is provided at Appendix O.</td></tr>
<tr><td>SEPP (State and Regional Development)</td><td>Under Schedule 1 of the SEPP, development for the purposes of a new school, regardless of the capital investment value is development considered state significant under this SEPP. Therefore, as this application proposes a new school, it qualifies as an SSD.</td></tr>
<tr><td>SEPP (Infrastructure)</td><td>
The aim of this SEPP is to facilitate delivery of infrastructure across the State, including providing for consultation with relevant public authorities about certain development during the assessment process.

Under Clause 87 of the Infrastructure SEPP, development for the purposes of an educational establishment adjacent to a rail corridor must be assessed against the Development Near Rail Corridors and Busy Roads – Interim Guidelines. As the site is located across from the rail corridor, an assessment against these guidelines must be undertaken. This has been discussed further in the Acoustic Report at Appendix P.

The proposed development does not trigger the requirement for any agency referrals under this SEPP.
</td></tr>
<tr><td>SEPP (Educational Establishments and Child Care Facilities)</td><td>Under Clause 35(6) of the Education SEPP, the consent authority must take into consideration (a) the design quality of the development when evaluated in accordance with the design quality principles set out in Schedule 4 and (b) whether the development</td></tr>
</table>

Instrument/Strategy	Comments	
	enables the use of school facilities (including recreational facilities) to be shared with the community. In accordance with Clause 35(6)(a), an Architectural Design Report has been prepared by Fitzpatrick and Partners (**Appendix H**). The design has been guided by the Design Quality Principles. Consultation has been undertaken with the State Design Review Panel to ensure that these design quality principles have been met. Community use of the school facilities in accordance with Clause 35(6)(b) is described in **Section 3.15**. The proposed development includes a preschool (child care facility) that has been designed in accordance with Part 3 of the Education SEPP, the Education and Care Services National Regulation and the NSW Child Care Planning Guidelines. Refer to **Appendix H** for a complete assessment against the relevant design guidelines. A summary of compliance with the relevant clauses of the Part 3 of the Education SEPP is provided below.	
	Clause 22 Centre-based childcare facility – concurrent of Regulatory Authority required for certain development	Indoor and outdoor unencumbered space has been provided in accordance with the National Regulations. Therefore, no concurrence of the Regulatory Authority is required.
	Clause 23 Centre-based chile care facility – matters for consideration by consent authorities	The consent authority is to take into consideration the matters outlined in the NSW Child Care Planning Guidelines. An assessment against the NSW Child Care Planning Guidelines is provided at **Appendix H**.
	Clause 26 Centre-based child care facility -development control plans	Provisions in the Liverpool DCP that relate to operation, demand, proximity to other facilities, as well as any provisions that are contravene the design principles of the Child Care Planning Guidelines or matters for consideration of Part 3 and the regulatory requirements in part 4 do not apply.
SEPP 64 – Advertising and Signage	The proposal includes three signs as described in **Section 3.13**. The proposed signage is consistent with the objectives of SEPP 64 in that it: • Is compatible with the amenity and visual character of the surrounding area. • Is integrated with the architecture of the building and provides effective communication of the school use in appropriate locations. • Will be of a high quality design, materiality and finish that matches the design of the new school building. An assessment against Schedule 1 of SEPP 64 is provided at **Table 7** below.	
SEPP 55 – Remediation of Land	The Site Contamination Assessment (**Appendix Q**) and Supplementary Contamination Assessment (**Appendix R**) prepared by Coffey confirms the site is capable of accommodating the proposed uses. This is discussed further at **Section 5.12**.	
Greater Metropolitan Regional Environmental Plan No 2 – Georges River Catchment	This Regional Environmental Plan (REP) seeks to ensure that development does not impact on the water quality and river flows of the Georges River and to ensure that the environmental quality of the river and tributaries are continually improved where possible. Part three of this REP specifies planning requirements for various development types, including flood control works and stormwater works, both of which are proposed as part of this application. An assessment against these specific matters for consideration is provided below.	
	Flood Control Works	The proposed flood works are in line with the relevant provisions of the Liverpool DCP and seeks to retain the existing conditions of the Georges River.
	Stormwater Management Works	The stormwater management works proposed as part of this application respond to the expected increase in stormwater runoff resultant from the development and seeks to treat this stormwater prior to it entering the wider stormwater system. No negative impacts are expected for the Georges River.
Draft SEPP (Remediation of Land)	An ongoing review of SEPPs by the Department has resulted in the proposed repeal of SEPP 55, retaining some of its elements and adding new provisions to establish a modern approach to the management of contaminated land. In addition to the provisions addressed in SEPP 55 above, new provisions will be added in the new SEPP to:	

Instrument/Strategy	Comments	
	• Require all remediation work that is carried out without development consent to be reviewed and certified by a contaminated land consultant; • Categorise remediation work based on the scale, risk and complexity of the work; and • Require environmental management plans relating to post-remediation management of sites or ongoing operation, maintenance and management of an on-site remediation measures (such as a containment cell) to be provided to Council. The Site Contamination Assessment and Supplementary Contamination Assessment provided at **Appendix Q** and **Appendix R** respectively confirms the site can be made suitable for the proposed development.	
Draft SEPP (Environment)	The site is not identified as being subject to the provisions for waterways, catchments, world heritage and urban bushland under the draft Environment SEPP.	
Local Planning Instruments and Controls		
Liverpool Local Environmental Plan 2008	Clause 2.1 - Zone	The site is zoned SP2 Infrastructure – Health Services Facility and Educational Establishment. Development of a school is permissible with development consent.
	Objectives of the SP2 Zone	The proposal is consistent with the SP2 zone objectives as: • It provides education infrastructure that is a specific use supported by the zone. • The proposed development is compatible with the existing educational facilities in the precinct. • It does not prevent the use of the land for provision of further infrastructure as required within the site.
	Clause 4.3 – Height of Buildings	The maximum building height on the site is 35 metres. The proposed maximum building height is 14.8 metres. The proposed development complies with the height control.
	Clause 4.4 – Floor Space Ratio	The maximum FSR on the site is 2.5:1. The proposed development will result in the site having an overall FSR of 0.35:1. The proposed development therefore complies with the FSR control.
	Clause 5.10 – Heritage	The site is not identified as an item of heritage significance and is not located in any conservation areas. The site is located close to a number of local heritage items, including the local street network identified as 'Plan of Town of Liverpool (early town centre street layout – Hoddle 1827). Works in Lachlan Street do not alter the layout of the street network, and therefore do not alter the heritage significance of the site. A Heritage Impact Statement and Archaeological Assessment has been prepared by Comber Consultants and is included in **Appendix S** and **Appendix X**. Further discussion is provided at **Section 5.6**.
	Key Sites	The site is not identified on the key sites map.
	Land Reservation Acquisition	The site is not identified on the land reservation acquisition map.
	Foreshore Building Line	The site is not identified on the foreshore building line map.
	Environmentally Significant Land	The site is not identified on the environmentally significant land map.
	Clause 7.2 – Sun access in Liverpool City Centre	The proposed development will not impact any of the sun access provisions of this clause.
	Clause 7.5 – Design excellence in Liverpool City Centre	Development involving the construction of a new building or external alterations to an existing building in the Liverpool City Centre is to exhibit design

Instrument/Strategy	Comments	
		excellence, in consideration of Clause 7.5. The proposal exhibits design excellence as: • It is of a high standard of architectural design, with materials, detailing and articulation that are appropriate to the building type and location. The material and treatment of the new school will contribute towards enhancing the character of the wider education site and reaffirm the prominence of the Liverpool Education and Health Precinct. • The proposed school is provided at a scale consistent with the surrounding built form and in keeping with the other educational facilities on the site. • It offers a modern solution with hints of the character of the local landscape and place in the community through its response to the surrounding residential character. • Has a form and external appearance that will provide students and users outdoor spaces of high quality and amenity by: – Creating a series of unique landscaped spaces – Providing areas of open lawn, raised planter beds and seating – Providing a significant increase in tree canopy. • It does not detrimentally impact on identified view corridors. The proposal emphasises the corner of Burnside Drive and Lachlan Street and provides a new high quality building which enhances the setting of surrounding buildings. • Provides a built form that will contribute to the interest and vibrancy of the education precinct. • Has an appropriate bulk and form. • Is capable of addressing potential environmental impacts, such as sustainable design, overshadowing, visual and acoustic privacy and noise. Detailed consideration of the design response and rationale is provided by Fitzpatrick and Partners at **Appendix H**. The proposed development has undergone a number of design iterations and consultation has been undertaken with GA NSW to ensure the proposal meets the requirements of Better Placed NSW and to ensure design excellence is achieved.
	Clause 7.7 – Acid Sulfate Soils	The site is identified as being located on land with Clause 5 Acid Sulfate Soil. This is discussed further at the Geotechnical Report at **Appendix T**. Impacts related to acid sulfate soils can be managed appropriately for the site.
	Clause 7.8 – Flood Planning	The site is identified as a flood planning area. Further discussion of the flood works being implemented as part of this application is included at **Section 5.11.2** and **Appendix J**.
	Clause 7.17 – Airspace Operations	The proposal is not expected to impact on any airspace operations relating to the helicopter operations relating to the Liverpool Hospital site.
Liverpool Development Control Plan 2008	It is noted that development control plans are not a matter for consideration in the assessment of SSDAs by virtue of Clause 11 of SEPP SRD, which states that *'Development Control Plans…do not apply…to State significant development'.*	

Instrument/Strategy	Comments
	Notwithstanding this, the Liverpool DCP provides guidance for development. This guidance has been considered by the relevant consultants where relevant (for example, stormwater engineering requirements).

Table 7 Assessment against Schedule 1, SEPP 64

Schedule 1 Assessment Criteria	Comments	Compliance
Character of the area		
Is the proposal compatible with the existing or desired future character of the area or locality in which it is proposed to be located?	The proposed signage is compatible with the designed character of the local precinct.	Y
Is the proposal consistent with a particular theme for outdoor advertising in the area or locality?	The proposed development is generally consistent with the nature and siting of the building as a public building providing education services. Accordingly, the signage including type is clear and legible in communicating the use of the building for the public.	Y
Special areas		
Does the proposal detract from the amenity or visual quality of any environmentally sensitive areas, heritage areas, natural or other conservation areas, open space areas, waterways, rural landscapes or residential areas?	The proposed signage does not detract from any surrounding areas, including heritage conservation areas. The location is not part of any other environmentally sensitive location.	Y
Views and vistas		
Does the proposal obscure or compromise important views?	The proposed signage is integrated with the proposed building and therefore will not result in any obstruction of views, and the location and content of signage will not otherwise compromise important views within the precinct.	Y
Does the proposal dominate the skyline and reduce the quality of vistas?	The proposed signage is appropriate to the scale of the building and intended use as a building identification sign.	Y
Does the proposal respect the viewing rights of other advertisers?	The proposed signage does not impact upon the viewing rights of other advertisers.	Y
Streetscape, setting or landscape		
Is the scale, proportion and form of the proposal appropriate for the streetscape, setting or landscape?	The scale, proportion and form of the proposed signage is consistent with the setting of the school within the residential and education neighbourhood.	Y
Does the proposal reduce clutter by rationalising and simplifying existing advertising?	The proposed signage contributes to the visual interest of the streetscape by contributing to the identification and recognition of the school.	Y
Does the proposal screen unsightliness?	The proposed signage is integrated with the architecture of the building and will enhance otherwise blank walls.	Y
Does the proposal protrude above buildings, structures or tree canopies in the area or locality?	The proposed signage does not generally protrude above the building.	Y
Does the proposal require ongoing vegetation management?	The proposed signage will not require ongoing vegetation management.	Y
Site and building		
Is the proposal compatible with the scale, proportion and other characteristics of the site or building, or both, on which the proposed signage is to be located?	The proposed signage has been designed to be fully compatible with the building and is compatible with the architecture of the building.	Y
Does the proposal respect important features of the site or building, or both?	The proposed signage has been located in the most architecturally appropriate locations to assist in place identification and wayfinding.	Y
Does the proposal show innovation and imagination in its relationship to the site or building, or both?	The proposed signage has been fully integrated with the building architecture.	Y

Schedule 1 Assessment Criteria	Comments	Compliance
Have any safety devices, platforms, lighting devices or logos been designed as an integral part of the signage or structure on which it is to be displayed?	No safety devices, platforms, lighting devices or logos are incorporated as an integral part of the signage.	Y
Illumination		
Would illumination result in unacceptable glare?	Illumination of signage will not result in unacceptable glare, and the location of the proposed signage will not have an adverse impact on the safety of pedestrians, vehicles or aircraft.	Y
Would illumination affect safety for pedestrians, vehicles or aircraft?		Y
Would illumination detract from the amenity of any residence or other form of accommodation?	The location and orientation of signage is such that it will not impact on nearby residential receivers.	Y
Can the intensity of the illumination be adjusted, if necessary?	The signage will not have adjustable lighting. The illumination of the signage is not significant and therefore a curfew is not necessary.	Y
Is the illumination subject to a curfew?		Y
Safety		
Would the proposal reduce the safety for any public road?	The proposed signage has been located in order to avoid any adverse impacts on public roads, and views to building signage will generally be presented to the primary public entrance.	Y
Would the proposal reduce the safety for pedestrians or bicyclists?	The proposed signage will be located above ground level and will not distract from essential sight lines for pedestrian and cyclists.	Y
Would the proposal reduce the safety for pedestrians, particularly children, by obscuring sightlines from public areas?	The proposed signage will be integrated with the buildings and will not obscure sight lines from public area.	Y

5.1.1 SEPP (Educational Establishments and Child Care Facilities) 2017 – Centre Based Child Care

The Education and Childcare SEPP aims to ensure that once a childcare centre is approved and built it can meet the physical requirements for the subsequent service approval application. The Education and Childcare SEPP absorbs key requirements from the National Quality Framework for Early Childhood Education and Care Facilities into the NSW planning system and supersedes local planning controls that are inconsistent with the National regulations.

Key elements of relevance to the proposal are:

- A requirement to take Part 2, Part 3 and Part 4 of the Childcare Planning Guideline into consideration when assessing development applications; and
- The establishment of grounds on which a development application for a centre based child care centre cannot be refused by the consent authority.

Part 2 contains seven Design Quality Principles that establish the broad design context guide of all new proposals.

Part 3 covers Matters for Consideration that support the Design Quality Principles and must be considered by the consent authority when assessing a DA. Essentially, if a proposal is consistent with the Matters for Consideration, the proposal will satisfy the Design Quality Principles. Part 4 contains the guidance on how to apply the National regulations to development proposals.

Accordingly, **Appendix H** provides an assessment against Part 2, Part 3 and Part 4 of the Child Care Planning Guideline, demonstrating that the proposal is consistent with the Education and Childcare SEPP, the Childcare Planning Guidelines and the National Regulations.

5.2 Built Form and Urban Design

An Architectural Design Report has been prepared by Fitzpatrick and Partners and is included at **Appendix H**. A summary of the design and environmental assessment and proposed mitigation measures are provided below.

5.2.1 Site Layout

The new school has been located in a C-shaped arrangement, with the main bulk of the school running north-south along the oval to the west. The C-shape defines the main entry to the school from Burnside Drive, whilst providing open space and opportunities for casual surveillance of the playground from the classrooms. The proposed arrangement also delineates the separation between the primary school and high schools, with the school orientated to face east away from the high schools in the west of the broader site.

5.2.2 Height, Density, Setbacks, Bulk and Scale

The proposed new building is part two, part three-storeys in height, which is consistent with the surrounding building height, particularly of the Liverpool Boys and Girls High Schools to the west. The maximum building height is 14.8 metres, which is below the maximum building height applicable to the site under the Liverpool LEP.

The height of the existing surrounding streetscape is consistent with the proposed development, with the proportions of the new school respecting the streetscape and context, whilst providing a built form that responds to the needs of the school. The two-storey school hall form facing Lachlan Street responds to the residential form across the road. The form and scale of the building also provides a high level of amenity to teaching spaces, including appropriate solar access, shading, outlook and ESD initiatives.

The proposal has been setback 6 metres from Lachlan Street, 5.5-6 metres from Burnside Drive and 6 metres from the Liverpool Boys High School playing fields/open space to the west. These setbacks recess the built form from the street and provides separation from the other schools on the site. The setbacks also help to reduce the built form when viewed from the adjoining street and residential properties.

The form of the building is broken down through the modularised façade, creating a strong structural grid to provide a simple, vertical form to the three storey facades. The vertical features respond to the various uses within the building. This massing and façade response is in keeping with the surrounding residential fabric.

5.2.3 Education SEPP Design Principles

The proposed design for NLPS considers the existing and future potential of the site, and is informed by the Design Principles identified by the Education SEPP. An assessment against the Design Principles is provided below.

Sustainable, Efficient, Durable

The design proposal for New Liverpool Primary School combines positive environmental, social and economic outcomes, as outlined below:

- The design provides natural ventilation where appropriate for better air circulation.
- The design provides well insulated external and internal walls to prevent excessive heat gain and loss.
- The design maximises natural light to internal learning spaces.
- The proposal will specify energy efficient fittings and fixtures including photovoltaic panels.
- The design allows for rainwater collection for landscape irrigation.
- The design will specify sustainable, low embodied energy materials where possible.

Accessible and Inclusive

The design proposal for New Liverpool Primary School provides good wayfinding and is welcome, accessible and inclusive to people with differing needs and capabilities, as outlined below:

- The proposal provides a strong street address to Lachlan Street and clearly defined main entry point.
- The proposal separates after hours entry to facilitate clear access to out of hours and shared community facilities.

- Kiss & Ride drop off / pick up is located kerb side on Burnside Drive, with clear sight lines from cars to the school gate.
- Support Unit and pre-school have dedicated entries and short term parking adjacent.
- The site is level, mitigating requirement for landscaped or ramped level changes to the ground plane
- The building form facilitates a range of outdoor play spaces, catering to students of various confidence levels from intimate contained play within the courtyard to large open green space to the south.

Health and Safety

The design proposal for New Liverpool Primary School optimises health, safety and security within it's boundaries and the surrounding public domain, while creating a welcoming and accessible environment.

- The design establishes clear site access strategy, open and visible entry for students at the beginning and end of the school day, controlled entry for visitors through the school day via administration with secure entry to specific school areas considered appropriate for after hours community use.
- The building promotes passive supervision by providing clear site lines between external and internal spaces.
- The ground plane planning limits private vehicle requirements on site by engaging with green travel strategies, connecting with safe pedestrian and bicycle routes, and easy connectivity to public transport.
- Landscape Design provides active courtyards and play areas.
- Site planning reduces building footprint to maximise ground plane play areas.
- Building configuration eliminates entrapment or secluded spots to deter anti-social activities.
- The proposal provides adequate night lighting solutions.

Amenity

The design proposal for New Liverpool Primary School delivers pleasant and engaging spaces that are accessible for a wide range of educational, informal and community activities while also considering the amenity of adjacent developments and the local neighbourhood.

- The design identifies and facilitates shared use of school assets for community use out of hours, including the Communal Hall, Special Programmes Rooms, Library and Southern Sports Field with access to adjacent amenities.
- Homebase design considers both traditional and contemporary pedagogies where various teaching modes that can occur throughout the course of the school day.
- The design allows for a range of different internal and external learning spaces.
- The site is adjacent to the south west rail corridor; the building facade will be treated appropriately to mitigate noise impacts.
- The building form prioritises spatial planning to maximise connection of indoor space to nature, both directly with operable windows and spaces for outdoor learning, and indirectly with outlook to green space on all sides.

Whole of Life, Flexible and Adaptive

The design proposal for New Liverpool Primary School considers future needs and takes a whole of life approach underpinned by site wide strategic and spatial planning.

- Internal planning designed for users to easily reconfigure homebase spaces to suit different teaching and learning modes.
- Planning supports modular design and construction methods which support future site developments being interchangeable and reusable.
- Master planning aligns with the vision for the Liverpool Innovation Precinct.
- The architectural and structural design solution seeks to reduce the volume of materials used.
- Materials selection prioritises robust, durable and hard wearing products that are readily available.

Aesthetics

The design proposal for New Liverpool Primary School is designed with good proportions and balanced composition of elements, responding to positive elements from the site and surrounds.

- • The proposal will provide a new multi level school facility that will renew and strengthen the school's presence within its locale.
- Modularisation of the façade establishes a thoughtfully proportioned and balanced design which can respond simplistically to the environmental requirements of each façade aspect.
- Materiality complements the natural and built surrounds.

5.2.4 Outdoor Play Space

The open play areas are designed in accordance with the Department of Education's Educational Facilities Standards and Guidelines (EFSG) requirement of 10m^2 per student overall. The outdoor play space delivered as part of this SSD is outlined in **Table 8**.

Table 8 Unencumbered play space

School type	Number of students	Play area	Area per student
Primary School	1,200	12,000m^2	10m^2
Support Unit	40	400m^2	10m^2
Pre School	40	400m^2	10m^2
Total	**1,280**	**12,800m^2**	**10m^2**

This allocation of open play space does not adversely impact the existing Liverpool Boys and Girls High Schools' open play space requirements. Student capacity for the high schools is up to 2,000 students, and conservative calculations on the available play space for the high schools indicative 23,000m^2 of allocated unencumbered play space. Therefore, the proposal will not impact upon the high schools' access to play space.

5.3 Environmental Amenity

5.3.1 Solar Access and Overshadowing

Shadow diagrams for 21 June (mid-winter) are provided at **Appendix H** and reproduced at **Figure 34** below. The analysis shows that the proposed school will result in some overshadowing across the open space to the south, and to the road reserve to the south-east. There will be no overshadowing of any residential buildings or private open space.

Whilst the building overshadows some of the open space for the future primary school and existing high schools, the remainder of the school playground and sports fields benefit from high levels of sun throughout the day, ensuring that there will always be a variety of open space available for sun or shade, as required.

Figure 34 Shadow diagrams for the proposed school building in mid-winter

Source: Fitzpatrick and Partners

5.3.2 Visual Privacy

There is separation of approximately 20 metre between the proposed school and the nearest residential property. There are no residential buildings directly to the north of the school, and the apartment buildings along Lachlan Street have mostly west and east orientated balconies and living spaces, with minimal views towards the school.

Further, a landscaped setback of 6 metres is proposed along Lachlan Street, to further ameliorate any potential visual privacy impacts that may occur. This landscaped setback will include trees to screen the school and any residents to the north.

Therefore, it is not anticipated that the proposed built form will result in any visual privacy impacts for surrounding residents.

5.3.3 View Loss and Visual Impact

There are no significant view corridors within the vicinity of the site. As discussed above, there are no apartment buildings directly to the north of the school site, and the apartments to the north generally have east and west facing balconies and living spaces. Therefore, it is not anticipated that the proposed school will have any impacts on views.

A View Impact Assessment has been undertaken by Fitzpatrick and Partners at **Appendix H**, an excerpt of which is shown at **Figure 35**. This assessment confirms the following:

- The external exposure of the school to the public and private domain is limited to surrounding streetscapes.
- The proposed development would not create any significant negative visual effects in relation to the character or composition of public or private domain views.
- The proposed built form is unlikely to create any significant view loss in public and private domain views.
- The proposed development is compatible with the immediate and wider visual context which includes education and residential buildings of a similar height, bulk and scale.

In light of the above, the proposal has an acceptable visual impact without the implementation of any mitigation measures. Due to the commensurate height, bulk and scale of the proposed new school building, there will be no adverse impacts on views within, from or to the local area.

Figure 35 Proposed visual impact facing south towards the site.

Source: Fitzpatrick and Partners

5.3.4 Wind

The proposed new school building is of a scale that is commensurate with the surrounding buildings on the site and is not expected to result in any significant impacts on wind environment within or surrounding the school. Extensive landscaping and proposed tree planting throughout the site, along with retention of many trees will help mitigate the impacts of any strong winds.

5.3.5 Crime Prevention Through Environmental Design (CPTED)

The development implements the principles of Crime Prevention Through Environmental Design (CPTED), as identified in the Department of Planning, Industry and Environment's guideline titled Crime Prevention and the Assessment of Development Applications (2001). An assessment against these principles is outlined in **Table 9** below and in the Design Report at **Appendix H**.

Table 9 Consistency with CPTED Principles

Principle	Response
Access Control	Circulation around and through educational facilities needs to be clear in the definition of where people can and cannot go. The use of physical barriers (e.g. fencing, walls and locked doors) and symbolic barriers (e.g. landscaping and changes in level) are important in access control. The following design responses are included to implement access control: • Limiting the number of public entries to the School and securing these, outside of drop off / pick up hours. • Providing a clear main school entry on Lachlan Street for visitors to check in through Reception without need to enter the main school area before gaining permission to access the school. • Providing a clear after-hours entry on Lachlan Street for OHSC and Community Use which limits access to those facilities approved for out of school hours access. • Provision for CCTV monitoring of the main school entry.

Principle	Response
Surveillance	Natural and technical surveillance are important in the case of a school, where surveillance is required from teachers to students and from students to students. The following design responses are included to provide clear surveillance: • The building wraps around a central courtyard space, providing unrestricted sight lines between spaces and minimises blind spots. • Open circulation corridors wrap the internal edge of the building, with visual connection into the courtyard spaces and around the building. • Open stairs provide visual connection from both the building open courtyard. • Centralising the Library on Level 1 provides an equity of access from Homebase areas, minimising distance for students to access. • Providing opportunities for managed out of hours use, both of areas within the built form and the sports field to the south extending the hours of site activation. • Providing lighting to ensure safe use and effective surveillance of the space after hours.
Territorial Reinforcement	Areas that are well-maintained and well-used generate a feeling of “ownership” and thus reduce opportunities for criminal activity. Public areas need to clearly define their intended use and encourage community activity. The following design measures have been implemented to provide territorial reinforcement. • Clearly defining spaces into public, shared and private school use through physical barriers and appropriate wayfinding. • Clearly defining entry points. • Ensuring that circulation patterns are clear and do not allow for accidental access to restricted areas. • Reinforcing public areas by introducing amenities such as seating and other elements of activation attracting desired users of the space therefore deterring undesirable activity. • Appropriate site enclosure strategy using fencing and built form.
Space Management	Areas need to be attractive and well-maintained with regular removal of waste, mowing and removal of graffiti, repair of vandalism and the repair of broken equipment/furniture. This applies to both public and communal “private” areas. The following design measures have been implemented to provide space management: • Management methodologies have an emphasis on damage, graffiti and maintenance management to ensure the facility presents a clean, cared-for environment. • Selection of materials, furniture and fittings will have an emphasis on reducing vandalism to assist in space management. • Gathering spaces are integrated into the design, minimising vandalism. • The palisade fence at the main entry will align with the overhang to reduce the likelihood of loitering outside of school hours.

5.4 Transport and Accessibility

A Transport Assessment (TA) has been prepared by GTA Consultants and is included at **Appendix G**. A summary of the assessment and proposed mitigation measures are provided in the following sections.

5.4.1 Existing Road Network and Hierarchy

The TA outlines the existing road network and road hierarchy surrounding the site of the future school, based on the following road classes:

- Arterial roads – controlled by Transport for NSW, designed to carry vehicles long distance between regional centres.
- Sub-arterial roads – managed by either Council or Transport for SNW under a joint agreement, typical capacity of between 10,000 and 20,000 vehicles per day and required to vary through traffic between specific areas in a sub region or provide connectivity from arterial roads.
- Collector roads – provide connectivity between local sites and the sub-arterial road network, and typically carry between 2,000 and 10,000 vehicles per day.
- Local roads – provide direct access to properties and the collector road system, carrying between 500 and 4,000 vehicles per day.

The surrounding road network is characterised by local and collector roads:

- Forbes Road, to the west of the site, is a local road, carrying around 4,000 vehicles per day. Due to the location of the existing Liverpool Boys and Girls High Schools on the site, Forbes Street is characterised by high pedestrian activity.
- Lachlan Street, to the north of the site, is a local street, and carries approximately 5,000 vehicles per day. Lachlan Street is also characterised by high pedestrian activity.
- Burnside Drive, to the east of the site, is a collector road, and carries approximately 6,000 vehicles per day. This road is partially owned by Health Infrastructure NSW.
- Campbell Street, which runs to the south of the site, is a collector road and carries approximately 4,000 cars per day.

5.4.2 Travel Mode

A base estimate of staff travel mode share has been provided by GTA Consultants based on comparable schools in the region, including Liverpool Primary School and Liverpool West Primary School (**Table 10**). As the NLPS will be a new school, there is no entrenched culture or precedence of providing a high level of car parking for staff members. There is limited on-street parking available, and a proportion of parking may be allocated to car-poolers only, promoting multi-occupancy car trips and discouraging staff from driving private vehicles to the school.

Table 10 Staff travel mode share

Mode	Base Mode Share (based on comparable schools)	Target Mode Share
Private car (driver)	91%	34%
Private car (passenger)	0%	17%
Bus	5%	5%
Train	3%	35%
Walk	1%	5%
Bicycle	0%	4%

Source: GTA Consulting

The student mode share was calculated based on a first principles approach due to limited surveys from other schools. **Table 11** below shows the anticipated mode share upon opening of the school.

Table 11 Student travel mode share

Mode	Target Mode Share
Private car	45%
Bus	2.5%
Walk	50%
Bicycle	2.5%

Source: GTA Consulting

The Student Transport Plan (**Appendix U**) outlines a number of initiatives that will assist in promoting sustainable modes of transport.

5.4.3 Parking

As discussed in **Section 1.2.1**, a staff car park of 33 car spaces is to be provided under a separate planning pathway. The 33 spaces provided reflects the strategy to encourage other forms of transport besides private vehicle travel, particularly as the school is new and there is no precedent of providing large amounts of parking on site.

25 indented parking bays are proposed along Burnside Drive to accommodate student pick-up/drop-off. Burnside Drive will be widened by approximately 2.5 metres, and a new roundabout will be provided at the southern end of Burnside Drive to accommodate this. These works will also be undertaken under a separate approval pathway – See **Section 1.2.1**.

Due to the varying hours of operation, it is anticipated that preschool students, primary school students and out of school hours care children will be dropped off and picked up at different times, which will reduce the traffic impact on these parking bays. A Preliminary Operational Management Plan is provided at **Appendix V**.

5.4.4 Bicycle Parking

130 student bicycle spaces and five staff bicycle spaces are to be provided, in the form of bicycle racks located south of the support building. This is based on surveys of similar primary schools in the area, where bicycle mode-share is near zero. However, it is anticipated that a large proportion of students will live within a 10-minute bicycling catchment, and therefore, can access the site by bicycle. Therefore, the proposed bicycle facilities respond to the potential for greater bicycle uptake, with capacity for further infrastructure available should the number of students and staff bicycling to the school increases.

An accessible toilet with a shower in it is provided in the office on the ground floor. This can be utilised by staff wishing to shower after utilising active transport.

5.4.5 Traffic Generation

As the school is new, the traffic generation expected for the site is based on the following:

- 1001 students in 2023 increasing to 1,280 students by 2033.
- 75 full time equivalent (FTE) staff in 2023, 98 FTE staff in 2033.

The resulting traffic generation is shown in **Table 12**. This table includes the number of vehicles, and vehicle movements, which are caused by the pick-up and drop off activities.

Table 12 Estimated traffic generation

Year	AM Peak	PM Peak
2023	205 vehicles (396 vehicle movements)	191 vehicles (390 vehicle movements)
2033	263 vehicles (508 vehicle movements)	255 vehicles (500 vehicle movements)

Source: GTA Consultants.

Intersection modelling was undertaken using a SIDRA analysis for the surrounding intersections. The results are described in **Table 13**.

Table 13 Comparison of level of service at key intersections pre- and post-development

Case	AM Peak		PM Peak	
	LOS	Average Delay (seconds)	LOS	Average Delay (seconds)
Base scenario				
Goulbourn Street/Campbell Street	A	11	A	11
Lachlan Street/Goulbourn Street	B	15	A	9
Lachlan Street/Forbes Street	B	26	A	13
Lachlan Street/Drummond Street	A	10	A	7
Lachlan Street/Burnside Drive/Hart Street	A	13	A	8
Burnside Drive new roundabout	A	10	A	10
Proposed (2023)				
Goulbourn Street/Campbell Street	A	10	A	10
Lachlan Street/Goulbourn Street	B	20	A	11
Lachlan Street/Forbes Street	F	76	B	21
Lachlan Street/Drummond Street	B	18	A	12

Case	AM Peak		PM Peak	
Lachlan Street/Burnside Drive/Hart Street	B	23	A	9
Burnside Drive new roundabout	A	10	A	10
Proposed (2033)				
Goulbourn Street/Campbell Street	A	10	A	10
Lachlan Street/Goulbourn Street	B	22	A	11
Lachlan Street/Forbes Street	B	15	A	10
Lachlan Street/Drummond Street	B	25	B	15
Lachlan Street/Burnside Drive/Hart Street	D	51	A	9
Burnside Drive new roundabout	A	10	A	10

Source: GTA Consultants

2023 Development Scenario

In the 2023 development scenario, the Lachlan Street/Forbes Street intersection exceeds capacity in the AM peak period, deteriorating to Level of Service (LOS) F. To address the operation of this intersection, a mitigation measure is to restrict the northern approach of Forbes Street to left-in/left-out. This would improve the operation of this intersection to a LOS B whilst resulting in minimal impact on the adjacent Lachlan Street/Drummond Street intersection. A mitigation measures is included at **Section 7.0**.

2033 Development Scenario

In the 2033 development scenario, the Lachlan Street/Burnside Drive/Hart Street roundabout is identified has requiring additional capacity, displaying a LOS D for the northern approach, and operates at a LOS B more generally. By introducing a reduction in car mode share usage at the adjacent high schools and further separating school stat times, the roundabout improves to a LOS A.

Further, it is noted that this modelling does not consider the construction of the Hospital northern link road, a private two-way, two-lane roadway on Health Infrastructure land located along the northern boundary of the Hospital. This has been done intentionally to assess the school traffic impact without reliance on construction of future private road infrastructure by a third party. However, this proposed link would alleviate pressure on the intersections surrounding the school. Ongoing reviews of these intersections and their LOS will be required to ensure that any significant deteriorations in LOS can be mitigated through future traffic interventions.

5.4.6 Loading and Servicing

Waste pick-up will take place to the south of the school buildings, accessed via Burnside Drive to facilitate waste collection. This area will be closed off outside of collection times to discourage parking by other users.

For other servicing, loading and deliveries, the future indented kerbside paring zone on Burnside Drive can be allocated as a loading zone outside of student arrival and departure periods.

5.4.7 Construction Traffic Management

Construction related traffic movements are expected to be approximately 10 heavy vehicles per day, with an expected peak of 20 heavy vehicles during a peak period of two weeks during the delivery of the modular buildings. Further to this, all construction worker vehicles are able to be accommodated on site, and no parking of these vehicles will be permitted on the surrounding residential street network. Given the site's proximity to high frequency train services, workers would be encouraged to use public transport to access the site where practicable.

Workers typically begin and end their workday outside of network peak periods (i.e., 6:30am-3:30pm) and as such are unlikely to have an adverse impact on surrounding road networks.

5.4.8 Student Transport Plan

A Student Transport Plan has been prepared by GTA Consultants and is provided at **Appendix U**. The objectives of the Student Transport Plan are to:

- To proactively identify and meet school travel demand safely, efficiently and sustainably.
- To maximise the use of active and public transport modes to reduce car traffic before and after school day start and end times.
- To increase active travel to and from school in a safe transport environment.
- To enhance connectedness to neighbourhood and community through safe travel to and from school.

Recommended initiatives to be implemented in the detailed Student Transport Plan include:

- Moderate student mode share targets of:
  - 60% walking.
  - 5% cycling.
  - 5% school bus.
  - 30% private vehicle.
- Increasing mode share targets once school has been operating for some time, including targets of:
  - 70% walking.
  - 7.5% cycling.
  - 7.5% school bus.
  - 15% private vehicle.
- Nominate a School Travel Coordinator for the duration of construction and first year of post occupancy of school.
- Transport programs, such as Independent Travel Training and Walk Safely to School Day be implemented by School Principal and supporting resource.

All actions outlined in the Student Transport Assessment are provided at **Section 7.0**.

5.4.9 Pedestrian Assessment

The future school catchment boundary for the NLPS is shown in **Figure 36**, which illustrates the majority of the catchment falls within the surrounding residential areas. Because of this high residential catchment, NLPS is able to achieve a high level of walkability, as discussed in relation to the Student Transport Plan above.

Generally, pedestrian amenity is moderate to high near the school, with a range of crossing facilities, including signalised pedestrian crossings, zebra crossings and refuge islands. All nearby intersections present kerb ramps, bar the western approach of the Lachlan Street/Drummond Street intersection and the northern approach of the Lachlan Street/Hart Street/Burnside Drive roundabout. Existing 30km/h school zones and high pedestrian activity zones are present near the site. The existing pedestrian infrastructure map is shown at **Figure 37**.

Primary pedestrian access is proposed on Burnside Drive, at the eastern frontage of the school, with secondary access provided on Lachlan Street, at the northern frontage of the school. A number of strategies are proposed to improve the walkability for students and parents to and from the school. This includes:

- Widening the existing footpath on Burnside Drive to 2.5 metres (subject to a separate planning approval) to accommodate the increased pedestrian volumes.
- A new school crossing on Lachlan Street between Drummond Street and Lachlan Lane to facilitate pedestrian connectivity across Lachlan Street. A new crossing supervisor will be engaged by the school to operate this new crossing.
- A new pedestrian refuge island on the north approach of the Lachlan Street/Forbes Street intersection to improve the east-west pedestrian movement across this intersection.

- Extension of the existing school zone along the length of Burnside Drive.

All pedestrian facility upgrades are identified to be delivered in **Section 7.0** mitigation measures.

Figure 36 School catchment for NLPS

Source: Nearmap, Ethos Urban

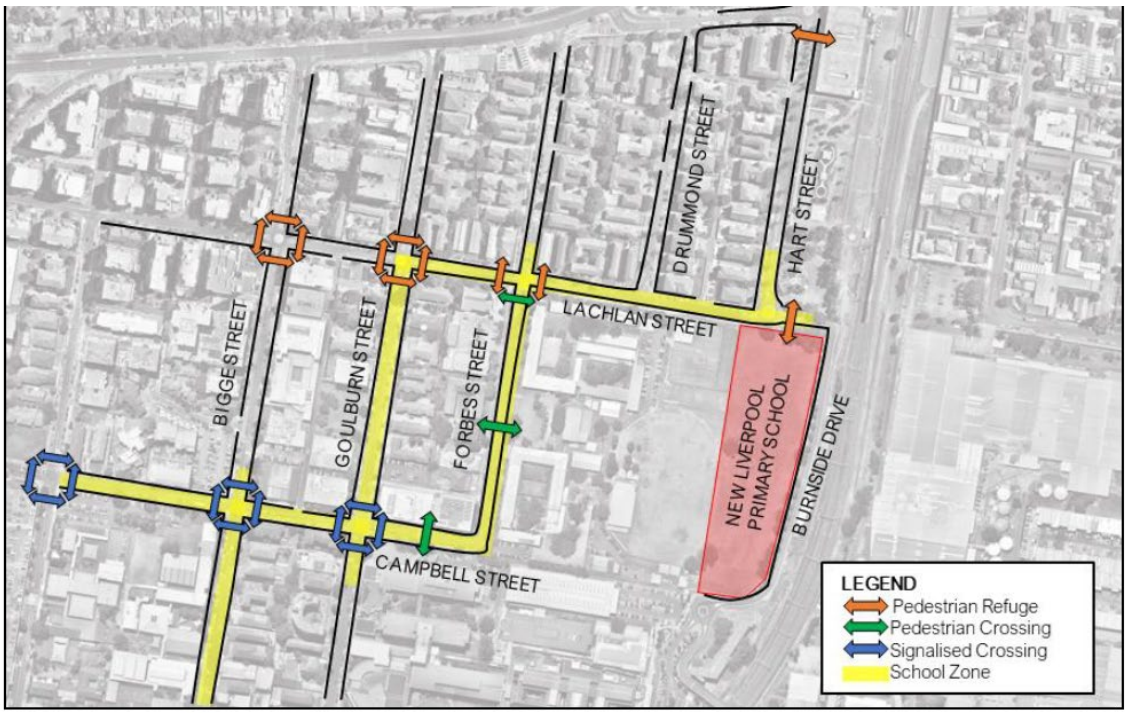

Figure 37 Surrounding pedestrian infrastructure network

Source: GTA Consultants

5.5 Social Impacts

A Social Impact Assessment prepared by Ethos Urban is provided at **Appendix W**. The report has undertaken an assessment of the social impact categories, as defined within the Social Impact Assessment Guideline (DPIE, 2017), with consideration to the issues identified through the baseline analysis. A summary of the assessment mitigation measures is provided below.

Assessment

The most significant social benefits of the proposal relate to:

- Improved access to primary education services due to the delivery of a new primary school facility on the site, in an area with projected rapid population growth.
- Improvements to the way of life and daily routines for students and staff of new Liverpool Public School associated with delivery of high-quality flexible learning and teaching environments in temporary purpose-built spaces.
- Potential improved accessibility of community facilities in Liverpool CBD associated with potential shared community uses on the site, including school hall and sports fields.
- Social benefits associated with delivery of education uses at an accessible location, close to train stations, supporting the strategic policy direction of a “30 minute city”.

Key challenges identified with the proposal relate to:

- Permanent loss of one sports field on the site, currently used by Liverpool Girls High School and Liverpool Boys High School. The proposed development would permanently reduce the amount of open space currently available to students at these schools. However, it is noted that these schools currently have a significant oversupply of open space, and the remaining amount of open space on the site complies with relevant requirements and standards.
- Temporary impacts to surroundings and amenity during the construction phase of NLPS. Changes to amenity may relate to environmental factors such as noise, traffic and parking, vibration, views and air quality. As the site is adjacent to two high schools and close to Liverpool Hospital, there are a number of users within the immediate vicinity of the site who may be sensitive to changes to amenity in this area. The surrounding context of the development (i.e. Liverpool Innovation Precinct) is also undergoing significant redevelopment activity, users of this site may be more sensitive to cumulative impacts to surroundings. These impacts will be managed in accordance with legislation and regulation, through a Construction Management Plan
- Temporary impacts to accessibility and way of life associated with disruption due to the construction phase, such as changes to wayfinding and daily routines for staff, students and their families and Liverpool Girls and Boys High Schools. In addition, the loss of the sportsgrounds will disrupt sporting routines. School-aged children may be more sensitive to changes to routine.

Mitigation Measures

Measures developed to mitigate potential negative social impacts and enhance the benefits of the proposal include:

- Monitoring and management of impacts in collaboration with key stakeholders, to effectively address them if/or when they arise.
- Mitigation of potential construction impacts through compliance with a comprehensive Construction Management Plan, with a communication plan recommended to be developed to ensure all neighbours and relevant parties are informed about the development. Safety for students, staff, visitors and residents is to be effectively managed, through comprehensive security management plans and crime prevention strategies during both the construction and operational phases.

Overall, it is considered that with a range of mitigation measures to manage identified risks in place, the project is anticipated to bring significant public benefits to the local and broader communities.

5.6 Built Heritage and Archaeology

A Statement of Heritage Impact (SOHI) has been prepared by Comber Consultants and is provided at **Appendix S**. A summary of the assessment and proposed mitigation measures is provided below. For a discussion of Aboriginal Cultural Heritage, refer to **Section 5.7** below.

Assessment

The assessment by Comber drawings the following conclusions:

- The site does not contain any heritage items, nor are there any listed structures or buildings within the vicinity or visual catchment of the site. The site does not contain any heritage values.
- The site does contain historical archaeological potential dating to the late 19th century. It will therefore be necessary to undertake an historical archaeological assessment to determine whether evidence of the late 19th century subdivision and cottages could be located on the property.
- The proposal will have no impact on the adjacent heritage item "Early town centre street layout from Hoddle's 1927 Plan of Town of Liverpool" (LEP item 89).

An Archaeological Assessment has been prepared by Comber to investigate the archaeological potential of the site and is included at **Appendix X**. This assessment confirms there is medium archaeological potential, based the historical research and the results of the site inspection. Test excavations to confirm the archaeological significance of the site will be undertaken in late June 2021, following the site being handed over to construction managers ADCO Constructions. This is discussed further at **Appendix FF**.

Mitigation Measures

The SOHI is recommended that an historical archaeological assessment is prepared to assess the impacts of the proposal on potential archaeological features. This has been prepared and is provided at **Appendix X**. The mitigation measures of this report include:

- Archaeological test excavations and salvage should be conducted to establish the presence of evidence of the former occupation.
- Monitoring of areas of archaeological potential which may be impacted upon by the proposed redevelopment should also be undertaken when ground clearance is occurring.

5.7 Aboriginal Heritage

An Aboriginal Cultural Heritage Assessment Report (ACHAR) has been prepared by Comber Consultants and is included at **Appendix Y**. A summary of the assessment proposed mitigation measures is provided below.

Assessment

There are two identified Aboriginal objects, one of which is within the area proposed for the NLPS. The site of the Boys' and Girl's High Schools is registered as an Aboriginal site on the Aboriginal Heritage Information Management System (AHIMS).

Consultation with representatives of the Aboriginal community indicates that the study area is important to the local and broader Aboriginal community. The artefacts predicted to be located on the site will provide evidence of Aboriginal occupation representing their past, providing a direct link to their ancestors. The study area has the potential to contain evidence of Aboriginal occupation which contributes to an understanding of the history of the pre- and post-contact history of the Darug community. The study area has the potential to yield further information about the nature of Aboriginal occupation and techniques utilised in subsistence activities, and the site has the potential to contain sub-surface archaeological deposits. The current site does not contain aesthetic value, however, after excavation, the object uncovered might meet this criterion. Until the excavation has been completed it is not known if the site contains representative or rarity values.

The proposed works will involve ground disturbance including:

- Clearing and land modification
- Landscaping
- Construction of buildings
- Construction of service infrastructure

As the area is known to contain surface Aboriginal objects and has been assessed as having the potential to contain subsurface Aboriginal archaeological deposits, further measures will be required in order mitigate potential impacts to Aboriginal heritage values.

Mitigation Measures

The following mitigation measures are recommended:

- Aboriginal archaeological test excavation should be undertaken to determine the nature and extent of any subsurface archaeological deposit. This should be undertaken in consultation with the Registered Aboriginal Parties prior to the construction of the primary school and in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*.
- Aboriginal community consultation should continue throughout the archaeological testing and the life of the project.
- Registered Aboriginal Parties have requested that any artefacts uncovered should remain on country and be catalogued and stored onsite and protected by SINSW. The artefacts could be used in an interpretive display. It will be necessary for a Care Agreement to be made between SINSW and the Registered Aboriginal Parties.
- Interpretation of Aboriginal archaeology and history of the site should be undertaken in consultation with the Registered Aboriginal Parties. An interpretation strategy and plan should be developed in consultation with the Registered Aboriginal Parties to guide the interpretation.

5.8 Noise and Vibration

A Noise and Vibration Impact Assessment has been prepared by AECOM and is provided at **Appendix P**. The report assesses the noise and vibration impacts during the construction and operational stages of the project. A summary of the assessment and proposed mitigation measures are described below. Noise emissions were assessed for the key surrounding sensitive receivers, being the high schools and adjoining residential areas.

5.8.1 Construction Noise Impacts

Assessment

Sources of construction noise expected during the construction stage are excepted from various vehicular and tool operation during the site preparation and construction phase. As no below ground/basement levels are proposed, significant excavation and piling will not be required. The noise assessment considered the following potential construction hours (in line with the standard hours proposed):

- Monday to Friday: 7:00am-6:00pm.
- Saturday: 8:00am-1:00pm.
- No work on Sundays or Public Holidays.

Unmitigated noise is expected to exceed the noise management levels for surrounding sensitive receivers, and therefore, appropriate mitigation measures are proposed in order to minimise these impacts.

It is also noted that a minor exceedance of noise criteria is expected during construction for a small number of eastern classrooms at Liverpool Boys High School. However, this exceedance is only by 2dB, which is imperceptible to the human ear, and compliance will be able to be achieved with the closure of the windows for these classrooms. Therefore, this exceedance is considered to be acceptable through the provision of appropriate mitigation measures, in consultation with the School Principal.

Mitigation Measures

A detailed Construction Noise and Vibration Management Plan should be prepared, which details the following:

- Identification of nearby residences and other sensitive land uses
- Description of approved hours of work
- Description and identification of all construction activities, including work areas, equipment and duration
- Description of what work practices (generic and specific) would be applied to minimise noise and vibration
- A complaint handling process
- Noise and vibration monitoring procedures

- Overview of community consultation required for identified high impact works.

5.8.2 Operational Noise Impacts

Assessment

The following assessment is provided for the expected sources of operational noise emissions:

- Building services and plant operation.
- Use of outdoor spaces during breaks, physical education, after school sports and out of school hours care.
- Use of internal spaces, particularly the hall.
- School bell and public address system.

There are no vibrational impacts expected from the operations of the NLPS.

The school's proximity to major roads and the rail corridor is expected to result in noise intrusion into the NLPS development. However, façade attenuation measures can be incorporated to meet the relevant acoustic criteria.

The following mitigation measures are proposed in order to minimise any impacts expected from these operations.

Mitigation Measures

The following mitigation measures are able to be incorporated to minimise the acoustic impact of the school on the surrounding sensitive receivers.

- Acoustic louvres to all condenser plant rooms. Acoustic louvres are to have the minimum transmission loss outlined in the Acoustic Report at **Appendix P**.
- Internally lined ductwork comprising minimum 2 metres straight duct and one bend to be applied to each condenser unit discharge. Internal lining to be minimum 50 mm thick.
- External plant room walls and roofs, with the exception of acoustic louvred area, to have a minimum Rw 40 acoustic performance
- Incorporation of building envelope design and materiality that reduces noise impacts.
- Consider PA speaker location and direction, and operational choices of the PA system, including volume and the amount of speakers.

5.9 Biodiversity

A Biodiversity Development Assessment Report has been prepared by Ecological Australia and is provided at **Appendix O**. As there is only one dead tree, with no identified habitat, being removed as part of this SSD scope, the development does not result in any impacts to biodiversity. Further, no biodiversity credits are required to be paid.

The Arboricutural Report provided at **Appendix Z** identifies the tree to be removed and provides measures to protect the retained trees. All trees being retained on site are to be protected as per this Arboricultural Report and the Preliminary Construction Management Plan at **Appendix M**, with appropriate fencing, mulching and signage to be incorporated prior to the commencement of works.

5.10 Construction Management

A Preliminary Construction Management Plan (CMP) has been prepared by ADCO and is included at **Appendix M**. The CMP outlines the key principles and considerations for the management of the construction program, as outlined below.

5.10.1 Environmental Management

The contractor will be responsible for managing and mitigating the following items (refer to **Appendix M** for further detail regarding requirements of the contractor):

- **Noise and vibration**: The main contractor is required to monitor noise on site to ensure compliance with the relevant criteria is met. The contractor should incorporate the recommendations of the Acoustic Assessment provided at **Appendix P** in their detailed Noise Management Plan.
- **Erosion and Sediment Control:** To be managed and maintained by the contractor in accordance with the provide Erosion and Sediment Control Plan at **Appendix J**.
- **Dust**: Mitigation of dust will be managed by the main contractor, who will assess the need for measures to prevent racking of soil onto roadways outside of the site and provide if deemed necessary. Activities with potential to create dust omissions are to be controlled and suitable equipment is utilised to mitigate and release of dust.

5.10.2 Construction Waste Management

Construction waste management has been outlined in the Waste Management Plan (**Appendix AA**) and the Preliminary Construction Management Plan (**Appendix M**). As there are no structures currently on the site, there is not a significant amount of demolition waste expected to be generated. General construction waste will be collected and placed in bins within the materials handling zone. This bin will then be transported to a sorting facility to be segregated into a recyclable waste stream. Site cleaning will occur daily as part of the overall site housekeeping.

The project will achieve a recycling target of 85% by weight of all construction waste, except for hazardous spoil.

A detailed Construction Waste Management Plan will be prepared once a construction contractor has been appointed.

5.10.3 Traffic Management

Preliminary traffic control measures are outlined in the Traffic and Accessibility Impact Report (**Appendix G**) and the Preliminary Construction Management Plan (**Appendix M**). A summary of the proposed arrangements is provided as follows:

- **Site access**: Construction access is proposed at two locations, being from Lachlan Street and Burnside Drive. All vehicles will enter and leave the site in a forward direction and will be accepted directly onto the site to reduce the impact on the surrounding road network. Major deliveries will be restricted from the school peak drop off and pick-up times to avoid 8:00am-9:30am and 2:30pm-4:00pm. The proposed access arrangement is shown at **Figure 38**.
- **Parking**: It is expected that a maximum of 50 construction workers will be located on the site during peak construction time. Because of the size of the workforce, all construction worker vehicles can be accommodated on site. Construction workers will not be permitted to park on the surrounding streets. In the event that additional parking is required outside of the site compound, an overflow car park will be provided.

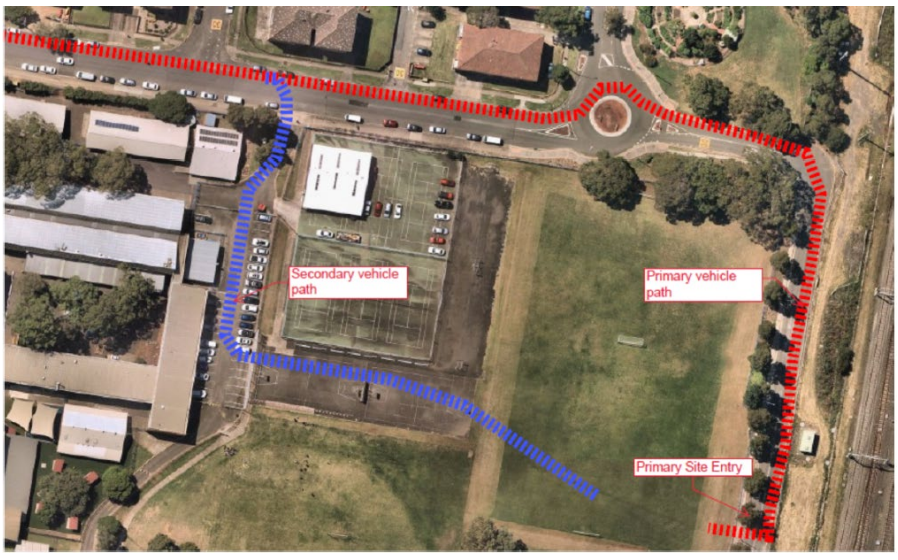

Figure 38 Proposed construction site entries.

Source: ADCO

5.10.4 Management of Existing High Schools

The proposed works will not have any impact on the existing operation of the Liverpool Boys' and Girls' High School to the west of the NLPS site. As discussed above, the access arrangements will primarily be via Burnside Drive, reducing the interactions that the construction process will have on the high schools. Further, as much of the construction of the buildings will occur offsite, noise and vibration impacts can be minimised. The acoustic impacts of the development on the existing high schools are discussed further at **Section 5.8**.

5.11 Stormwater, Drainage, Flooding and Sediment and Erosion Control

A Civil Design Report has been prepared by Meinhardt/Bonacci and is provided at **Appendix J**. The report includes a description and assessment of the proposed stormwater, drainage, flooding, and sediment/erosion control measures to be implemented in the proposed development.

5.11.1 Stormwater and Drainage

An on-site stormwater detention tank (OSD) is required to limit the stormwater flows post development. An OSD tank of approximately 75m^3 is required to ensure post-development flows are equivalent or less than pre-development flows. Water quality treatments including Enviropods and stormwater filter cartridges within the OSD tank are proposed to treat stormwater in line with the *Liverpool Development Control Plan 2008.* The final location and design of the OSD will be subject to detailed design development.

A major stormwater system is also required for the proposed development in the form of overland flow paths. The overland flow is directed away from the buildings and carparks and towards the public road kerb and gutter to limit the impact on the site and surrounding properties. This is shown in detail in the Civil Plans at **Appendix D**.

5.11.2 Flooding

The site is subject to mainstream flooding from Georges River to the southeast of the site, and overland flooding from the CBD catchment to the south and west of the site. The site is located within the extent of both of these Probable Maximum Flood (PMF) level, but free from hazard during the 1% Annual Exceedance Probability (AEP) extent for both.

The current ground level is approximately two metres lower than the mainstream PMF level, and as a result, it is impractical to have the finished floor level (FFL) of the building higher than the PMF level. If the first floor was raised to the mainstream PMF level, large expanses of blank walls would be visible at ground level, resulting in a poor urban design outcome. Access requirements and compliance with BCA and DDA would also be significant and difficult to incorporate.

Therefore, it is recommended that the FFL at least no lower than 1% AEP flood level plus 500mm freeboard. This results in an FFL at RL9.3, which has been incorporated into the design.

As the peak flood level from the overland flooding from the CBD Catchment occurs during the 1.5-hour storm, this would allow for sufficient time for evacuation. Similarly, the peak mainstream flood level from Georges River occurs during a 48-hour storm, and therefore sufficient time for an evacuation plan to be implemented is possible.

Mitigation Measures

The following mitigation measures offset any risks associated with flooding as a result of the proposed development:

- Provide reliable access for pedestrians during flood events towards the west of the site.
- Ensure high flood compatibility with the building components and structural design of the building.
- Ensure construction of fencing does not obstruct flows.
- Ensure that the development does not make flood levels, flood storage and velocities worse.

5.11.3 Sediment and Erosion Control

Sediment and erosion control plans have been prepared as part of the Civil Report at **Appendix J**. The below mitigation measures are recommended as part of construction

Mitigation Measures

- A sediment fence/hoarding is to be provided around the site.
- Catch drain (or diversion bund) is to be provided diverting external catchment away from the site.
- Temporary access to the site is to have a shaker pad.
- An indicative stockpile area with a sediment fence around it is to be provided during construction. The stockpile must be located out of water flow paths.
- Geotextile inlet pit filters or sandbags are to be placed around existing stormwater pits.
- A water cart is to be incorporated to spray excavated surfaces to reduce dust pollution.
- All disturbed areas are to be stabilised within 14 working days of completion of any earthworks. All disturbed areas are to be protected so that the land is permanently stabilised within six months.
- Sediment removed from any sediment trapping device shall be relocated where further pollution to downslope lands and waterways cannot occur.
- Water shall be prevented from entering the permanent drainage system unless it is sediment free.
- Trapped sediment shall be removed immediately from areas subject to runoff or concentrated flow.
- Trapped sediment shall be removed where the capacity of sedimentation trapping devices fall below 60%.
- Revegetation schemes are to be adhered to and any grass coverings are kept healthy, including watering and mowing.

5.12 Contamination

A Site Contamination Assessment and Supplementary Contamination Assessment have been prepared by Coffey and are provided at **Appendix Q** and **Appendix R** respectively. These reports found that shallow soil sampling reported elevated arsenic concentrations on the site. All results from the supplementary samples were reported to be less than the health investigation levels for soil criteria in urban areas. As a result, this soil is considered waste and remediation of this soil is not required.

These reports conclude that the site is capable of accommodating the proposed primary school development. Prior to construction, a Construction and Environmental Management Plan should be prepared, which includes an Unexpected Finds Protocol. This will be prepared prior to the commencing of construction.

5.13 Cumulative Impact Assessment

The Liverpool Hospital Redevelopment is the most significant development application in the immediate vicinity of the site. The development (SSD-10389 and SSD-10388) was approved in 2020 for the construction and operation of an Integrated Services Building and associated refurbishment works on the site directly to the south of the proposed NLPS.

The proposed hospital development includes the construction of a new six storey hospital building and refurbishment and expansion of existing buildings on the site, an additional 187 impatient beds and an increase of 368 car parking spaces. The construction of the developments were anticipated to be underway early 2021 and complete by 2026.

Potential interactions between the proposed NLPS and Liverpool Hospital works include:

- Traffic and transport – increased construction and operational traffic movements and construction zones.
- Noise and vibrations – emission from construction equipment.
- Overlapping pick-up/drop-off and shift change for hospital staff.

It is not anticipated that there will be significant averse cumulative impacts because:

- The two projects are in relative isolation to each other, with the exception of the interface at the southern NLPS site boundary.

- Health Infrastructure and School Infrastructure have established governance to ensure collaboration between the two agencies and are coordinating the respective construction program to ensure appropriate phasing for works to integrate the projects.
- Project access sites are in separate locations and the road network includes separate arterial roads, to allow construction traffic to be separated on local streets.
- A large portion of the construction of the school buildings will occur offsite, and therefore, construction needed to be undertaken on the site of the NLPS is reduced.
- The School Transport Plan seeks to achieve high levels of walking, cycling and public transport usage which will assist to reduce the car trips for pick-up and drop-off, as well as staggered bell times to reduce any potential cumulative impacts between the hospital and the school.

There are no other major developments proposed or approved in the vicinity of the site of the NLPS works.

5.14 Ecologically Sustainable Development

The environmental performance of the development has been assessed by using clause 7(4) of Schedule 2 of the EP&A Regulations and the EIS is accompanied by an ESD Statement prepared by Steensen Varming (**Appendix K**). The initiatives and targets relate to the following aspects of the proposed development:

- ESD initiatives outlined by Steensen Varming align with the national best practice sustainable building principles to improve environmental performance and reduce ecological impact.
- The proposal will align with the Green Building Council of Australia's – 'Green Star' framework noting that this is considered the 'national best practice building principle,' by achieving an equivalency to 4 Star Green Star Rating. This is achieved through the EFSG Sustainability Requirements.
- The design measures as discussed in detail by Steensen Varming in the ESD Statement demonstrate the way in which ESD is entrenched into the design proposal. Through the incorporation of these ESD measures, the proposal will be designed in accordance with recognised best practice principles, which are capable of being applied throughout the design and ongoing operation phases of the development.

Furthermore, the proposed development is consistent with the four accepted principles of ESD. The Regulation lists four principles of ecologically sustainable development to be considered in assessing a project. They are:

- The precautionary principle;
- Intergenerational equity;
- Conservation of biological diversity and ecological integrity; and
- Improved valuation and pricing of environmental resources.

Precautionary principle

The precautionary principle is utilised when uncertainty exists about potential environmental impacts. It provides that 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 precautionary principle requires careful evaluation of potential environmental impacts in order to avoid, wherever practicable, serious or irreversible damage to the environment.

This EIS has not identified any serious threat of irreversible damage to the environment and therefore the precautionary principle is not relevant to the proposal.

Intergenerational Equity

Inter-generational equity is concerned with ensuring that the health, diversity, and productivity of the environment are maintained or enhanced for the benefit of future generations. The proposal has been designed to benefit both the existing and future generations by:

- Implementing safeguards and management measures to protect environmental values.
- Facilitating education opportunities including, additional future school capacity, in close proximity to homes and public transport.

- Improving the social infrastructure that will improve educational infrastructure outcomes.

The proposal has integrated short and long-term social, financial, and environmental considerations so that any foreseeable impacts are not left to be addressed by future generations. Issues with potential long-term implications such as waste disposal would be avoided and/or minimised through construction planning and the application of safeguards and management measures described in this EIS and the appended technical reports.

Conservation of biological diversity and ecological integrity

The principle of biological diversity upholds that the conservation of biological diversity and ecological integrity should be a fundamental consideration.
The BDAR provided at **Appendix O** outlines the measures taken to avoid, minimise and mitigate impacts to the vegetation and species habitat present within eh development site and methodologies to minimise impacts during construction of the development. As the only vegetation being removed is one dead tree, with no visible habitat, the existing biological diversity and ecological integrity of the site remains intact and will not be impacted as a result.

Improved valuation, pricing, and incentive mechanisms

The principles of improved valuation and pricing of environmental resources requires consideration of all environmental resources which may be affected by a proposal, including air, water, land and living things. Mitigation measures for avoiding, reusing, recycling, and managing waste during construction and operation would be implemented to ensure resources are used responsibly in the first instance.

Additional measures will be implemented to ensure no environmental resources in the locality are adversely impacted during the construction or operational phases.

5.15 Other Assessment Issues

An assessment of the other impacts of the development has been undertaken by the relevant specialist consultants and are appended to this EIS. A brief description of each other assessment issue is provided in **Table 14** below.

Table 14 Other Assessment Issues

Issue	Consultant	Summary	Reference
Operational Waste	Ricardo	A conservative estimate of the school's waste and recycling generation is approximately 915L of waste and 915L of recycling per school day (including the child care centre). Allowing for a 10% contingency, the estimates would be 1,006L per day each for general waste and recycling. Two 660L mobile bins will be provided for general waste and two 660L mobile bins will be provided for recycling. The bins will be stored in a single consolidated area to the south of the school buildings, adjacent to the proposed hardstand. At least 6sqm of space is proposed to adequately store the bins. Small, localised bins will be provided throughout the school and waste will be transferred to the bin store daily. Collection will occur five times per week by a private contractor. The bin collection vehicle has direct access to the bin room off Burnside Drive via the hardstand area.	**Appendix AA**
Accessibility	Blackett Maguire + Goldsmith	The proposed development has been assessed as being generally in accordance with, and capable of complying with, the relevant requirements of the National Construction Code (NCC/BCA), Volume 1 – 2019 inclusive of Parts D, E and F as it relates to accessibility, Disability (Access to Premises - Buildings) Standards 2010 (Amendment No. 1), the Disability Discrimination Act 1992, and the applicable Australian Standards for access and mobility (i.e. AS 1428 series) as referenced in the NCC and the Premises Standards. Compliance will be demonstrated at Crown Certificate Stage.	**Appendix N**
BCA compliance	Blackett Maguire + Goldsmith	The proposed development has been assessed as being capable of achieving compliance with the Building Code of Australia 2019, Amendment 1, subject to addressing the matters outlined in Appendix N during design development and preparation of Crown Certificate documentation.	**Appendix N**

Issue	Consultant	Summary	Reference
Geotechnical	Douglas Partners	The Geotechnical assessment found that the interpreted subsurface profile was relatively uniform with a variable depth of shallow fill and topsoil, then alluvial clay and sand over shale and laminite. The rock generally increases in strength with depth. For excavations, retaining walls will be required to support the overburden soil and weaker layers of rock. For relatively highly loaded footings, it is recommended that all footings be extended to uniform shale or laminite. Deep piers are likely to be required. The results of the investigation suggest that redevelopment of the site should be feasible from a geotechnical perspective, and design and construction is likely to be possible using conventional techniques. The results of the Geotechnical assessment have informed the structural design of the school and will be further considered as the design is further developed at Crown Certificate stage.	**Appendix T**
Structural	Meinhardt/Bonacci	The design of the building's structural elements has been undertaken and verified to be in accordance with: • National Construction Code 2019 • AS/NZS 1170.0/2002 – Part 0: Structural design actions • AS/NZS 1170.1/2002 – Part 1: Permanent, imposed, and other actions AS/NZS 1170.2/2011 – Part 2: Wind actions • AS/NZS 1170.4/2007– Part 4: Earthquake loads AS3600 – 2018: Concrete structures • AS4100 – 1998: Steel structures • AS1720- 2010: Timber Structures • AS2159 – 1995: Piling • AS/NZS4600 – 2001: Cold-formed steel structures • AS/NZS3828 – Guidelines for the erection of building steelwork	**Appendix BB**
Light Spill	Fitzpatrick + Partners	The school has been designed to minimise light spill impacts through design and management procedures such as building orientation and restricting balcony/courtyard lighting to internal areas of the building footprint. Lighting design will be further developed and all lights will be designed and documented in accordance with AS/NZs1680 and AS/NZs 4282-1997 Control of the obtrusive effects of outdoor lighting.	**Appendix H**
Aviation	AviPro	The NLPS building can be completed within the relevant aviation guidelines, with the inclusion of a number of mitigation measures to ensure that the flight path relating to Liverpool Hospital is not impacted. The assessment prepared by AviPro suggests that a flight path survey should be conducted of the realigned northern flight path, which will include the NLPS area. This will be undertaken during the detailed design phase.	**Appendix CC**
Bushfire	-	The site is not located in or near any bushfire prone land.	-

5.16 Site Suitability

The site is suitable for the proposed development as outlined below:

- It will allow the continuation of educational uses on the site.
- It is consistent with the land zoning (SP2 Health Services Facility and Educational Establishment) and is a commensurate use to the surrounding area, which includes the Liverpool Boys' and Girls' High Schools and Liverpool Hospital campus.
- The environmental impacts associated with the redevelopment can be appropriately mitigated as described throughout **Section 5.0**.
- The school site is within a new intake area which ensures that most students will be within 800m of the school. Active transport infrastructure upgrades and improvements to bus services will support mode share shifts to walking, cycling and bus travel to and from school.

5.17 Public Interest

The proposed development of the NLPS is in the public interest as it:

- Will increase the primary school capacity in the area to respond to immediate and future demand for primary school education places.
- Will provide improved education facilities and access to high quality, extensive outdoor play areas.
- Provides for further engagement with the community through the use of school facilities for community use.
- Will generate 466 construction jobs and 98 operational jobs.

5.18 Economic Impacts

The proposed development of the NLPS will provide the following positive economic impacts:

- The creation of temporary jobs opportunities in manufacturing, construction, and construction management.
- The creation of ongoing jobs in teaching and administration.
- Providing additional educational capacity in inner Sydney that will contribute to higher rates of education and training across the region, strengthening the local and regional economy.

6.0 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 the development of the new school 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 39 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 39 Risk Assessment Matrix

				Risk Assessment		
Item	**Phase**	**Potential Environmental Impact**	**Proposed Mitigation Measures and / or Comment**	**Significance of Impact**	**Manageability of Impact**	**Residual Impact**
Transport and Access	C / O	• Increase in construction traffic in local roads • Increase in traffic and parking on local roads during operation • Overlapping pick up and drop off/hospital shift change	• A Preliminary Construction Traffic Management Plan has been prepared detailing measures to minimise any adverse impacts arising from construction traffic. • The proximity to public transport, expected proximity of the majority of the of the student catchment and measures outlined in the School Transport Plan will minimise expected parking and traffic impacts during operation.	C = 1 O = 3	C = 1 O = 1	C = 2 (low) O = 4 (low/medium)
Visual and Built Form	O	• Visual impact of the development when viewed from the public domain.	• Measures and design choices have been implemented to reduce the visual impact of the development when viewed from nearby residential development and the public domain.	O = 1	O = 1	O = 2 (low)
Noise and Vibration	C / O	• Increase in noise and vibration levels during construction • Increase in noise levels during operation.	• The proposed development will implement a Construction Noise and Vibration Management Plan which details specific measures to ameliorate any potential noise or vibration impacts to surrounding sensitive receivers. • Given that the site partially already operates as a high school, any potential noise impacts are considered to be manageable in the context of the overall development. Appropriate operational measures, as well as design features can reduce any impacts resultant from operational noise.	C = 2 O = 2	C = 1 O = 1	C = 3 (low) O = 3 (low)
Flooding	O	• Increase in risk associated with locating a school within a known floodway.	• The building RL is set at a compliant floor level of RL9.3, which allows for reasonable access into the building, as well as adequate amount of time to respond to flood dangers. The Georges River PMF is expected to take approximately 48 hours to reach any risk for the site, whilst the CBD Overland Flow will take approximately 1.5 hours. This is an adequate amount of time to implement the flood evacuation plan.	O = 3	O = 2	O = 5 (low/medium)

C = Construction
O = Operation

7.0 Mitigation Measures

The collective measures required to mitigate the impacts associated with the proposed works are detailed in **Table 15** below. These measures have been derived from the previous assessment in **Section 5.0** and those detailed in appended consultants' reports.

Table 15 Mitigation Measures

Mitigation Measures
Aboriginal Heritage The following mitigation measures are proposed by Comber in the ACHAR at **Appendix X**. • Aboriginal archaeological test excavations should be undertaken to determine the nature and extent of any subsurface archaeological deposit. This should be undertaken in consultation with the Registered Aboriginal Parties prior to construction of the NLPS. The testing should be undertaken in accordance with the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales. • Aboriginal community consultation should continue throughout the archaeological testing and the life of the project. • As requested by the Registered Aboriginal Parties, any artefacts uncovered should remain on country and be catalogued and stored onsite and protected by SINSW. The artefacts could be used in an interpretive display. It will be necessary for a Care Agreement to be made between SINSW and the Registered Aboriginal Parties. To apply for a Care Agreement, an 'Application for the transfer of Aboriginal objects for safekeeping' must be signed by SINSW and the Registered Aboriginal Parties and submitted to the Department of Planning, Industry and Environment. • Interpretation of Aboriginal archaeology and history of the site should be undertaken in consultation with the Registered Aboriginal Parties. An interpretation strategy and plan should be developed in consultation with the Registered Aboriginal Parties to guide the interpretation.
Noise and Vibration The following construction noise mitigation measures are proposed: • A detailed Construction Noise and Vibration Management Plan should be prepared, which details the following: – Identification of nearby residences and other sensitive land uses – Description of approved hours of work – Description and identification of all construction activities, including work areas, equipment and duration – Description of what work practices (generic and specific) would be applied to minimise noise and vibration – A complaint handling process – Noise and vibration monitoring procedures – Overview of community consultation required for identified high impact works. The following operational noise mitigation measures are proposed: • Acoustic louvres to all condenser plant rooms. Acoustic louvres are to have the minimum transmission loss outlined in the Acoustic Report at **Appendix P**. • Internally lined ductwork comprising minimum 2 metres straight duct and one bend to be applied to each condenser unit discharge. Internal lining to be minimum 50 mm thick. • External plant room walls and roofs, with the exception of acoustic louvred area, to have a minimum Rw 40 acoustic performance • Incorporation of building envelope design and materiality that reduces noise impacts. Consider PA speaker location and direction, and operational choices of the PA system, including volume and the amount of speakers.
Aviation AviPro suggests the following mitigation measures, as per **Appendix CC**. • A flight path survey should be conducted of the realigned northern flight path. This will include the NLPS building site area. • The mobile crane for the NLPS site will need NVG compatible lighting. • Some additional risk management notification activities including HLS Notification and additional OzRunways information will be required to ensure HEMS operators are fully apprised of the crane hazard in the vicinity of Liverpool Hospital's HLS during the construction phase. • The mobile crane will need to be lowered below RL40.00 during periods of darkness and when the site is not operational.
Flooding Meinhardt/Bonacci recommend the following mitigation measures in relation to flooding: • The FFL of the school is to be set at minimum RL 9.3 • Evacuation – provide reliable access for pedestrians during flood events towards west of the site (Liverpool Boys High School area).

Mitigation Measures

- Building components – ensure the flood compatibility of the building components.
- Structural soundness – ensure the resilience of the structure to withstand forces of flood water, debris, and buoyancy.
- Flood effects – ensure the non-worsening of flood levels, flood storage, velocities etc.
- Car parking and driveway access – maintain the freeboard for surface level car parks and the inundation of basement carparks.
- - Management and design – ensure compliance with the DCP
- - Fencing – include construction of fencing to not obstruct flows.

Construction Traffic Management

GTA recommends the following mitigation measures, as per **Appendix G**:

- All vehicles will enter and leave site in a forward direction;
- All vehicles will be accepted directly into the site with no vehicles staging on the public roadways;
- Major deliveries will be restricted from the school peak drop off and pick up times, i.e. no movements between 8:00am to 9:30am and 2:30pm to 4:00pm on school days;
- Where achievable, vehicles will be restricted to Medium Rigid.

Operational Traffic Management

The management of traffic is to occur in accordance with the Student Transport Plan, and the following are to be undertaken:

- Implement a right-turn ban for the Forbes Street approaches of the intersection during the AM peak period
- Replacement of refuge islands at Lachlan Street/Forbes Street intersection
- Delivery of off-road cycling infrastructure
- Investigate delivery of the new signalised pedestrian and cyclist crossing at the intersection of Lachlan and Macquarie Street.
- Widening the existing footpath on Burnside Drive to 2.5 metres (subject to a separate planning approval) to accommodate the increased pedestrian volumes.
- A new school crossing on Lachlan Street between Drummond Street and Lachlan Lane to facilitate pedestrian connectivity across Lachlan Street. A new crossing supervisor will be engaged by the school to operate this new crossing.
- A new pedestrian refuge island on the north approach of the Lachlan Street/Forbes Street intersection to improve the east-west pedestrian movement across this intersection.
- Extension of the existing school zone along the length of Burnside Drive.

Heritage

In line with the Statement of Heritage Impact at **Appendix S**:

- The site does contain historical archaeological potential dating to the late 19th century. It will therefore be necessary to undertake an historical archaeological assessment to determine whether evidence of the late 19th century subdivision and cottages could be located on the property.
- If necessary, a methodology should be developed to undertake historical archaeological testing.

In line with the Archaeology Assessment at **Appendix X**:

- Archaeological test excavations and salvage should be conducted to establish the presence of evidence of the former occupation sites highlighted in Figure 20 above.
- Monitoring of areas of archaeological potential which may be impacted upon by the proposed redevelopment should also be undertaken when ground clearance is occurring.

Waste

The Waste Management Plan at **Appendix AA** identifies that a detailed Waste Management Plan should be prepared to:

- Inform the development of a detailed CWMP for the Construction Certificate application, which is to include details regarding disposal and recycling of different materials expected from demolition, construction, and the transport and destinations of these materials.
- Provide guidance that detailed design and fit-out of the building is consistent with best practice standards and plans for waste management, and
- Inform all plans and procedures for operational waste management.

Social Impact

The following mitigation measures are identified by Ethos Urban at **Appendix W**.

- Monitoring and management of impacts in collaboration with key stakeholders, to effectively address them if/or when they arise.
- Mitigation of potential construction impacts through compliance with a comprehensive Construction Management Plan, with a communication plan recommended to be developed to ensure all neighbours and relevant parties are informed about the development. Safety for students, staff, visitors, and residents is to be effectively managed, through comprehensive security management plans and crime prevention strategies during both the construction and operational phases.

Mitigation Measures
Concurrent Works In order to ensure that works being undertaken under separate applications are completed, it is required that a condition of consent be included that requires the works outlined in Section 1.2.2 are complete prior to the school being operational.

8.0 Conclusion and Justification

The Environmental Impact Statement (EIS) has been prepared to consider the environmental, social, and economic impacts of the proposed New Liverpool Primary School. 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, heritage, and construction impacts.

Having regard to biophysical, economic, and social considerations, including the principles of ecologically sustainable development, the carrying out of the project is justified 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 consistent with the relevant planning controls for the site.
- The development will provide a significant new piece of social and educational infrastructure, providing a new school with permanent teaching spaces to accommodate 1,280 students and preschool children. The provision of new educational facilities will support and strengthen the availability of educational facilities in the region.
- The area and shape of the site allows for the provision of new teaching and educational 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 ecologically sustainable development as defined by Schedule 2(7)(4) of the EP&A Regulation 2000.
- The proposed development is anticipated to create 98 full-time equivalent positions at the school. This is anticipated to have additional social benefits for the region in terms of providing additional employment in a growing locality.
- Given the growing population of the region, the proposed development is anticipated to have positive social outcomes in ensuring that local residents have access to high quality educational facilities.
- The development will not have a significant impact on any threatened flora or fauna species.
- Transport and access impacts associated with the proposed development can be appropriately managed and active transport will be promoted and encouraged.

Given the merits described above it is requested that the application be approved.