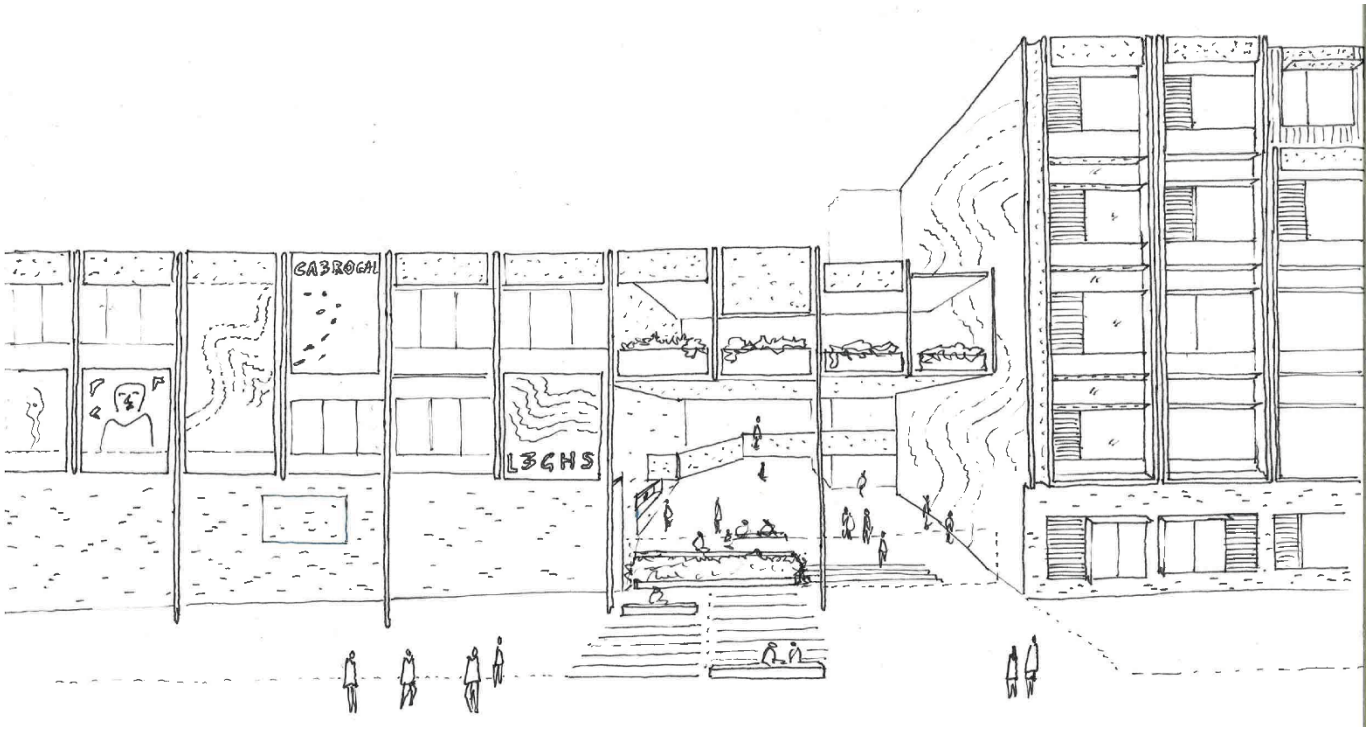
Liverpool Boys And Girls High School Upgrade Project Architectural Design Report

On behalf of the NSW Department of Education

11 June 2025



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1 Executive Summary

1.1 Introduction

This Architectural Design Report has been prepared by NBRS on behalf the NSW Department of Education (the **Applicant**) to assess the potential environmental impacts that could arise from the redevelopment of the Liverpool Boys High School and Liverpool Girls High School, at 18 Forbes Street, Liverpool NSW, 2170 (the **site**).

This report has been prepared to outline the proposed design development, the design considerations that have been addressed and the appropriate mitigation measures that have been integrated.

This report accompanies a Review of Environment Factors that seeks approval for redeveloping the Liverpool Boys and Liverpool Girls High Schools into a single co-educational school, including:

- [redacted]
- Construction and operation of a six-storey school building, including school hall and gymnasium
- Associated parking and building services
- Tree removal
- Associated landscaping and play spaces
- Augmentation of service infrastructure; and
- Associated off-site infrastructure works to support the school, including (but not limited to) services, kiss and drop point and pedestrian crossings.

Refer to the Review of Environmental Factors prepared by Ethos Urban for a full description of works.

1.2 Site Description

The site is located at 18 Forbes Street, Liverpool, within the Liverpool Local Government Area (**LGA**). The site is legally described as Lot 1 DP1137425 and has a total area of approximately 74,973m^2.

The site comprises a broadly rectangular portion of land which currently contains the existing Liverpool Boys High School, Liverpool Girls High School, and the Gulyangarri Public School, which commenced operations in January 2024 and is located to the east of the wider site.

The site's western portion contains Liverpool Boys High School and Liverpool Girls High School. Liverpool Girls High School in the site's southwest comprises of three, two-storey buildings and Liverpool Boys High School in the site's northwest, comprises approximately four, two-storey buildings, with adjacent at-grade carparking and various sports courts.

An aerial image of the site is shown below.

Figure 1. Site Aerial Source: Sydney Images edited by NBRS

1.3 Statement of Significance

Based on the identification of potential issues, and an assessment of the nature and extent of the impacts of the proposed development, it is determined that:

- The extent and nature of potential impacts are low and will not have significant adverse effects on the locality, community and the environment.
- Potential impacts can be appropriately mitigated or managed to ensure that there is minimal effect on the locality, community.

1.4 REF Deliverable Requirement

This section addresses the REF requirements issued for the project. The requirements and the associated responses are outlined in the following table , along with corresponding references to sections within this report.

Table 1. REF Requirements and relevant responses and references

REF Requirement	Y	N	NA	Comments
General Requirements				
Regulatory requirements Does the REF include: an acknowledgement of County?	☐	☒	☐	
details of: the proposed activity?	☒	☐	☐	See Architectural Design Report, Section 1.6 Project Scope Summary
need for the activity?	☒	☐	☐	See Architectural Design Report, Section 2.2.1 Contextual Analysis

alternatives considered, including the do-nothing option?	☐	☒	☐	
relevant planning policies, including relevant indicative layout plans, masterplans, strategic plans or Voluntary Planning Agreements apply to the site?	☒	☐	☐	See Architectural Design Report, Section 2.1 Design Guidelines
how proposal relates to relevant legislation and policies?	☒	☐	☐	See Architectural Design Report, Section 2.3.1 Planning Controls
related approvals required?	☐	☒	☐	
relevant determining authority (i.e. the NSW Department of Education)	☒	☐	☐	See Architectural Design Report, Section 1.1 Introduction
a description of the site (including address and lot/DP) and surrounding environment using text and plans/photos including details the environmental features and planning constraints?	☒	☐	☐	See Architectural Design Report, Section 1.2 Site Description
a description of land / road reserves associated with any off-site works?	☐	☒	☐	
a summary of existing approvals and relevant conditions that apply to the site?	☐	☒	☐	
for existing schools, confirmation that the proposed activity does not contravene a relevant condition of consent?	☐	☒	☐	
an assessment of potential impacts of the proposal?	☐	☒	☐	
a summary of consultation undertaken, responses received and how responses were considered?	☒	☐	☐	See Architectural Design Report, Section 3.6 DRP Comment Responses See Architectural Design Report, Section 4.4 Connecting with Country
a statement certifying that the contents are true and correct?	☐	☐	☒	
a conclusion that the proposal is not likely to significantly affect the environment or threatened species, communities or habitats unless a Species Impact Statement (SIS) (for aquatic biodiversity) or (terrestrial) Biodiversity Development Assessment Report (BDAR) has been prepared?	☐	☒	☐	
a statement that the proposed activity qualifies as development without consent?	☐	☒	☐	
a detailed response to the design quality principles set out in the T&I SEPP?	☐	☒	☐	
a detailed response to the Design for Schools Guide?	☐	☒	☐	

where relevant, a detailed response to any School Design Review Panel comments?	☒	☐	☐	See Architectural Design Report, Section 3.6 DRP Comment Responses
a schedule of mitigation measures that are specific and deliverable?	☒	☐	☐	See Architectural Design Report, Section 7 Mitigation Measures
Has the REF addressed s171 of the EP&A Reg including the environmental factors set out in the October 2024 Addendum for Consideration of environmental factors for health services facilities and schools and s171A (if the site is located in a regulated water catchment)?	☐	☐	☒	
Has the REF been prepared in accordance with the Part 5 Guidelines, including the October 2024 Addendum for Consideration of environmental factors for health services facilities and schools??	☐	☐	☒	
If early engagement has occurred, has the REF summarised the issues raised been summarised and set out how they have been considered?	☐	☐	☒	
Scope Does the REF incorporate the relevant scope, including associated works such as additional infrastructure (i.e. substation, pumping stations, roadworks, stormwater etc.)?	☐	☐	☒	
Landowner's detail and consent If owned by 'education', does the REF note that the land is owned by the Minister for Education and Early Learning rather than the department?	☐	☐	☒	
Has landowner's consent been obtained or has the landowner been notified of the REF? Note: It is the preference Landowner's consent is to be obtained prior to lodgement. However, where this is not possible and for any public domain or road works on council land, the council must be notified of the proposed works prior to lodgement of the REF.	☐	☐	☒	
Title details Has a copy of the following been obtained to inform the REF: the certificates of title(s) for the site that is/are less than six months old?	☐	☐	☒	
the deposited plan?	☒	☐	☐	See Architectural Design Report, Appendix A
any instruments or encumbrances registered over the land?	☐	☒	☐	
a detailed survey plan for the site that is less than 12 months old?	☒	☐	☐	See Architectural Design Report, Appendix A
Easements and encumbrances Do the survey plan, proposed site plan and civil plans: clearly detail existing easements and encumbrances?	☐	☐	☒	

demonstrate that no buildings, works, structures, earthworks, trenches or other activities would contravene or impinge upon any easement or encumbrance over the site unless with written approval of the easement beneficiary?	☐	☐	☒	
Plans Does the REF reasonably depict the proposed activity in figures, plans and/or photomontages including indicative details of: • overall layout? • maximum height and footprint of buildings? • elevational treatment of buildings? tree planting and general landscape treatment?	☒	☐	☐	See Architectural Drawing Package
Attachments				
Does the REF list documents (with revision numbers and dates) that form part of the REF and are relied upon to assess the proposed activity?	☒	☐	☐	
Does the REF list include a list of all mitigation measures in Appendix 1?	☒	☐	☐	
Does the REF reference and list all figures and tables?	☒	☐	☐	
Terminology Does the REF use appropriate terminology for a REF: "activity" instead of "development"?	☒	☐	☐	
"NSW Department of Education" shortened to "the department" instead of "School Infrastructure NSW" or "SINSW"?	☒	☐	☐	
"Proponent" instead of "Applicant"?	☒	☐	☐	
"Mitigation measures" instead of "conditions"?	☒	☐	☐	
Built Form and Urban Design				
If the project has a value over $50M, has it been presented at School Design Review Panel (SDRP)?	☒	☐	☐	See Architectural Design Report, Section 3.6 DRP Comment Responses
If presented to SDRP, have comments from the Panel been: summarised in the REF / Design Report?	☒	☐	☐	See Architectural Design Report, Section 3.6 DRP Comment Responses
appropriately considered, incorporated into the design (where appropriate) and responded to in the REF / Architectural Design Report?	☒	☐	☐	See Architectural Design Report, Section 3.6 DRP Comment Responses
Does the Design Report: explain how the proposed layout, building and facade design appropriately considers and respond to the existing / likely future / preferred character of the streetscape?	☒	☐	☐	See Architectural Design Report, Section 3.6 DRP Comment Responses

address the design quality principles in the T&I SEPP and the design principles set out in the Design Guide for Schools?	☒	☐	☐	See Architectural Design Report, Section 3 Guiding and Key Design Principles
explain how the height of the proposed development is appropriate in consideration of the site context and form of surrounding development?	☒	☐	☐	See Architectural Design Report, Section 5.6.4 Building Height See Architectural Drawings Sheet 0301 and Sheet 0302
Environmental Amenity				
Overshadowing Does the REF:				
include shadow diagrams?	☒	☐	☐	See Architectural Drawing Package Sheet 0217 and Sheet 0218 Shadow Diagrams and Architectural Design Report, Section 5.6.5 Solar Access Analysis
discuss impacts from overshadowing impacts?	☒	☐	☐	See Architectural Design Report, Section 5.6.5 Solar Access Analysis
conclude that the proposal would have no significant impacts?	☒	☐	☐	See Architectural Design Report, Section 5.6.5 Solar Access Analysis
if the proposal results in overshadowing of windows or private open space of residential properties, does the REF demonstrate maintenance of at least two hours of daylight as required by the Apartment Design Guide or otherwise in accordance with the applicable Planning principles?	☐	☐	☒	
Privacy Does the REF consider potential privacy impacts of the proposed works and conclude that these would not be likely to result in significant effects with or without mitigation measures?	☒	☐	☐	See Architectural Design Report, Section 5.6.6 Visual privacy and amenity
Visual impacts Does the REF assess potential visual impacts of the proposed works and conclude that impacts would not be significant with or without mitigation measures?	☒	☐	☐	See Architectural Design Report, Section 5.6.6 Visual privacy and amenity
Visual impacts (view sharing) – private views If the activity has the potential to obstruct existing significant views from private property, does the REF include an assessment of the proposal in accordance with the Tenacity Principles including as assessment of the: • type of views affected; • parts of the property the views are obtained; • extent of the impact; and	☐	☐	☒	

reasonableness of the proposal causing the impact?				
Does the assessment conclude overall, that the proposal would not be likely to result in significant environmental effects?	☒	☐	☐	See Architectural Design Report, Section 5.6.5 Solar Access Analysis See Architectural Design Report, Section 5.6.6 Visual privacy and amenity
Visual impacts (view sharing) – public views If the activity has the potential to obstruct existing significant views from public land, does the REF include an assessment in accordance with the established planning principles (i.e. principles established by the Land and Environment Court in Rose Bay Marina Pty Limited v Woollahra Municipal Council and anor [2013] NSWLEC 1046 (principles of view sharing: the impact on the public domain), including: • an assessment of: o nature and scope of the existing views from public domain; o locations in the public domain from which potentially interrupted view is enjoyed o extent of the obstruction at each relevant location; o intensity of public use of those locations where that enjoyment will be obscured, in whole or in part, by the proposed activity; o whether there is any document that identifies the importance of the view to be assessed; and a quantitative and qualitative evaluation of the impacts?	☐	☐	☒	
Does the REF list any mitigation measures identified in the above assessments and incorporate them into the design where applicable?	☐	☒	☐	
Trees and Landscaping	☐	☐	☐	
Has an Aboricultural Impact Assessment (AIA) been prepared to support the REF which assesses existing trees within the proposed works area, including street trees, and recommends tree protection measures for trees to be retained?	☒	☐	☐	Refer Sheet L-0100 Tree management plan
Does the REF discuss the number, species, pot sizes and height of trees to be removed and trees to be planted?	☒	☐	☐	Refer Sheet L-2000 Plant schedules & L-0100 Tree management Plan
Have any tree protection measures set out in the AIA been incorporated in: • the design; • REF mitigation measures; and	☐	☒	☐	Tree protection measures are outlined through the AIA report. Further protection

the preliminary construction methodology?				measures are detailed prior to Construction.
Staging				
If the project is to be staged, does the REF include preliminary details on how construction and operations will be managed during each stage of the development, including the following for each stage: • operational areas and areas still under construction?	☒	☐	☐	See Architectural Drawing Package Sheet 0221 and Sheet 0222 Staging Plans
• student/staff numbers?	☒	☐	☐	See Architectural Design report Section 6 Staging
• operational and construction access and parking arrangements?	☐	☒	☐	Note: Temporary school is subject to a separate REF.
• open space provision?	☐	☒	☐	Note: Temporary school is subject to a separate REF.
• measures to ensure acceptable amenity for students and staff in areas adjacent to ongoing construction?	☐	☒	☐	Note: Temporary school is subject to a separate REF.
• measures to ensure the safety and security of students and staff?	☐	☒	☐	Note: Temporary school is subject to a separate REF.
Has each relevant technical report (transport and acoustic reports at a minimum) assessed the proposed staging and concluded that it would not be likely to result in significant environmental affects, including cumulative affects?	☐	☐	☒	Note: Temporary school is subject to a separate REF.
Does the REF list any mitigation measures identified as a result of the proposed staging?	☐	☐	☒	Note: Temporary school is subject to a separate REF.
Signs				
Does the REF include: an assessment of the proposed signs against the Chapter 3 Advertising and Signage, under SEPP (Industry and Employment) 2021a site plan and elevations of any proposed signs that clearly depict the location, type, content and appearance of any proposed signs that form part of the REF activity?	☒	☐	☐	Refer to Architectural Design Report Appendix C – Signage Package

1.5 Site Context Summary

The site is a large urban block in the suburb of Liverpool within the Liverpool Health and Academic Precinct. The site is located approximately 25 km south-west of the Sydney central business district (CBD) and approximately 12 km south of the Parramatta CBD. The surrounding context of the site is experiencing significant transformation due to the development of Liverpool Health precinct and the larger context of the Liverpool CBDs rapid housing growth in the demolition of brownfield sites and redevelopment into high rise apartment towers to accommodate its growing population.

Recent and proposed developments, as part of the Liverpool Health and Education Sub Precinct immediately south and east of the site includes the recently constructed Liverpool Hospital Carpark and Gulyangarri Public School. Predominantly 1970s and 1980s medium density 3 – 6 storey residential flats comprise the immediate northern and western context around the site, with Warwick Farm station situated further north of the site. The school masterplan demonstrates comprehensive examination & implementation of urban and master planning opportunities. The design has overcome challenges, reflecting a proactive stance, particularly in response to riverine flood risk and the site's topographical features such as level changes. Placing all school buildings on the perimeter of the site creates a protected play space and adhering to a Flood Risk Management Plan showcases a commitment to safety and compliance with regulatory standards. The landscaped topography, designed to integrate organically with the existing terrain, reflects a thoughtful response to environmental challenges.

1.6 Project Scope Summary

The Liverpool Boys and Girls High School Upgrade Project (Note: The school's name is yet to be confirmed but the project will be referred to as LBGHS hereafter) is situated in Liverpool CBD in the Liverpool LGA and will occupy part of Lot 1 (DP) 1137425, a 7.47 HA site. The school facilities will be designed to SINSW's standard hub layout designs and are registered to achieve 5-star-GBCA Green Star rating.

The school has been designed to deliver facilities consistent with Department of Education Educational Facilities and Standards Guidelines (EFSG) including core facilities such as administration, gym/hall, general learning spaces, support learning spaces, and specialist facilities including additional learning units, a Wood and Metal Technology, Performing Arts, Visual Arts, Food and Textiles, Health and PE and Science. The school will also include a variety of outdoor spaces including sports fields, courts, Covered Outdoor Learning Areas (COLA), and outdoor learning areas.

The following project objectives apply to the Liverpool Boys and Girls High School Upgrade:

- To provide a high-quality learning environment.
- To create welcoming facilities which prioritise the care and well-being of the school community.
- To ensure the school responds to the historical context of the site and the cultural knowledge of the traditional custodians of the land thus providing spaces and design aspects that reflect the cultural context.
- To create agile and responsive places using biophilic design principles, be accessible and welcoming, and respond to the urban fabric of the neighbourhood that will be a source of joy and pride to staff, students, and the local community.
- To consider positioning, massing, bulk, and scale of buildings to respond to the urban and environmental context.
- Design to enable staged construction and operation.

OPERATING HOURS

Based on the existing operation hours of LBHS and LGHS, the table below shows indicative school hours as follows:

ACTIVITIES	OPERATING HOURS – LIVERPOOL BOYS AND GIRLS HIGH SCHOOL
School hours – Use of all school facilities	Between 8:00am and 4:00pm Existing School Times - Monday to Friday • Start - 8.50am • Finish - 3.10pm
Cleaning	Between 5am - 9am / 3pm - 6pm, Monday to Saturday • General assumption is that no loud activities are to take place prior to 7am (mowing/leaf blowing etc.).
Waste Collection	Between 6:00am and 7:30pm, Monday to Friday

2 Project Background

This section of the report highlights the key design processes and considerations that have been completed.

2.1 Design Guidelines

The high school design has been carried out with guidance from the following design standards and guides.

Table 2. Design guidelines that have influenced the high school design.

GUIDE	BRIEF COMMENTS
EFSG – Educational Facilities Standards and Guidelines Author: Department of Education, NSW	This is a mandatory compliance framework for all public-school projects across NSW. Departures to the EFSG must be recorded in detail for the client's approval. Compliance with the EFSG includes the implementation of the Standard Hub Layouts for Secondary Schools. The standard layouts stipulate the planning of all hubs ranging from the administration area, the general learning spaces, and all other specialist learning areas. The EFSG also stipulates a specification guide which at time goes over and above the current NCC.
Better Placed – Environmental Design in Schools Author: Government Architect, NSW	This manual aims to provide a holistic understanding of environmental design with focus on air quality, ventilation, natural lighting, thermal comfort, and acoustic performance for improved wellbeing of teachers and students.
Design Guide for Schools Author: Government Architect, NSW (GANSW)	This Design Guide works as a best practice manual to support the delivery of good school design. The Design Guide aligns with the State Environmental Planning Policy (Education Establishments and Childcare Facilities) 2017 (the Education SEPP), which has now been consolidated within the new State Environmental Planning Policy (Transport and Infrastructure) 2021 (TI SEPP), particularly Chapter 3, Schedule 8 of the TI SEPP, which sets the 7 GANSW design quality principles to be used when designing new schools.
Connecting with Country Framework Author: Government Architect, NSW	The Connecting with Country Framework is for developing connections with Country that can inform the planning, design, and delivery of built environment projects in NSW. The goal is that all NSW built environment projects will be developed with Country-centred approach guided by Aboriginal people, who know that if we care for Country, Country will care for us.

2.2 Key Constraints and Opportunities

2.2.1 Contextual Analysis

Liverpool is in Sydney's Southwest within Liverpool City LGA. It is approximately 25 km from Sydney CBD. The school site is part of a wider Liverpool Innovation Precinct. The 'Reimagining… the Liverpool Health, Education, Research and Innovation Precinct' was launched by Lucy Turnbull AO, Chief Commissioner, Greater Sydney Commission in August 2017.

Liverpool's wider context was rezoned for mixed use in 2018, to drive growth in residential dwellings, open green spaces, schools, and an 18-hour economy. Liverpool is supported by public transport with several regional bus routes and direct train services from Liverpool Station connecting to the key satellite CBD of Parramatta, as well as direct train services to the Sydney CBD.

Liverpool is one of the most multicultural areas in Sydney, with a large percentage of residents born overseas. Significant communities include people of Middle Eastern, South Asian, Southeast Asian, and Pacific Islander heritage. Liverpool has a relatively young population, with a high percentage of children and young adults. The median age is lower than the Sydney average, making education a key focus in the community.

The 2021 Census indicates 114,479 people live in Liverpool postcode 2170 in contrast to 105,451 people recorded in the 2016 census. This significant population increase contributes to the demand for the new high school in Liverpool within the catchment area the following diagram.

Figure 2. Location context (Source: NBRS)

The School Catchment Area

The school catchment area is defined by boundary lines which are subject to adjustment in response to population growth, the evolving development in the neighbouring community and the availability of another public school in the area.

The catchment will indicatively cover the current Liverpool Boys High School and Liverpool Girls High School intake area boundaries. The current catchment boundary, as of 2 September 2024, for the new LBGHS in Liverpool is currently restricted to the postcode 2170.

- Along Camden Valley Hwy to the south
- Along Elizabeth Drive and Hoxton Park Road to the west
- Along Georges River to the east and
- A boundary separating Liverpool Council from Fairfield Council to the north.

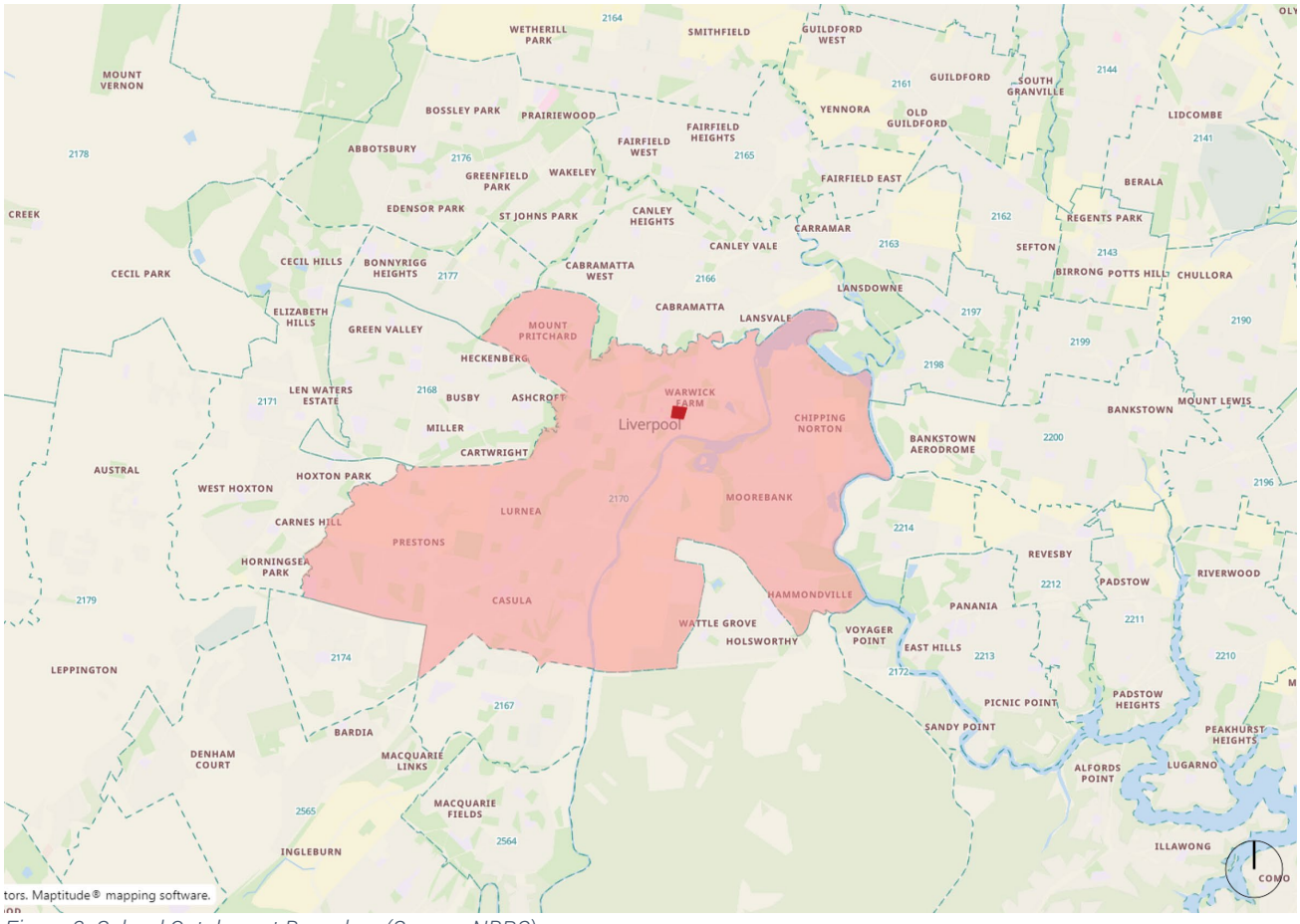


Figure 3. School Catchment Boundary (Source: NBRS)

The site is adjacent to the existing Gulyangarri Public School which opened its doors to students in 2024. Infrastructure within a 1km radius of the high school site includes the Health precinct, parklands, a train station and rail corridor, other educational facilities, low and medium density residential housing and areas zoned for industrial use.

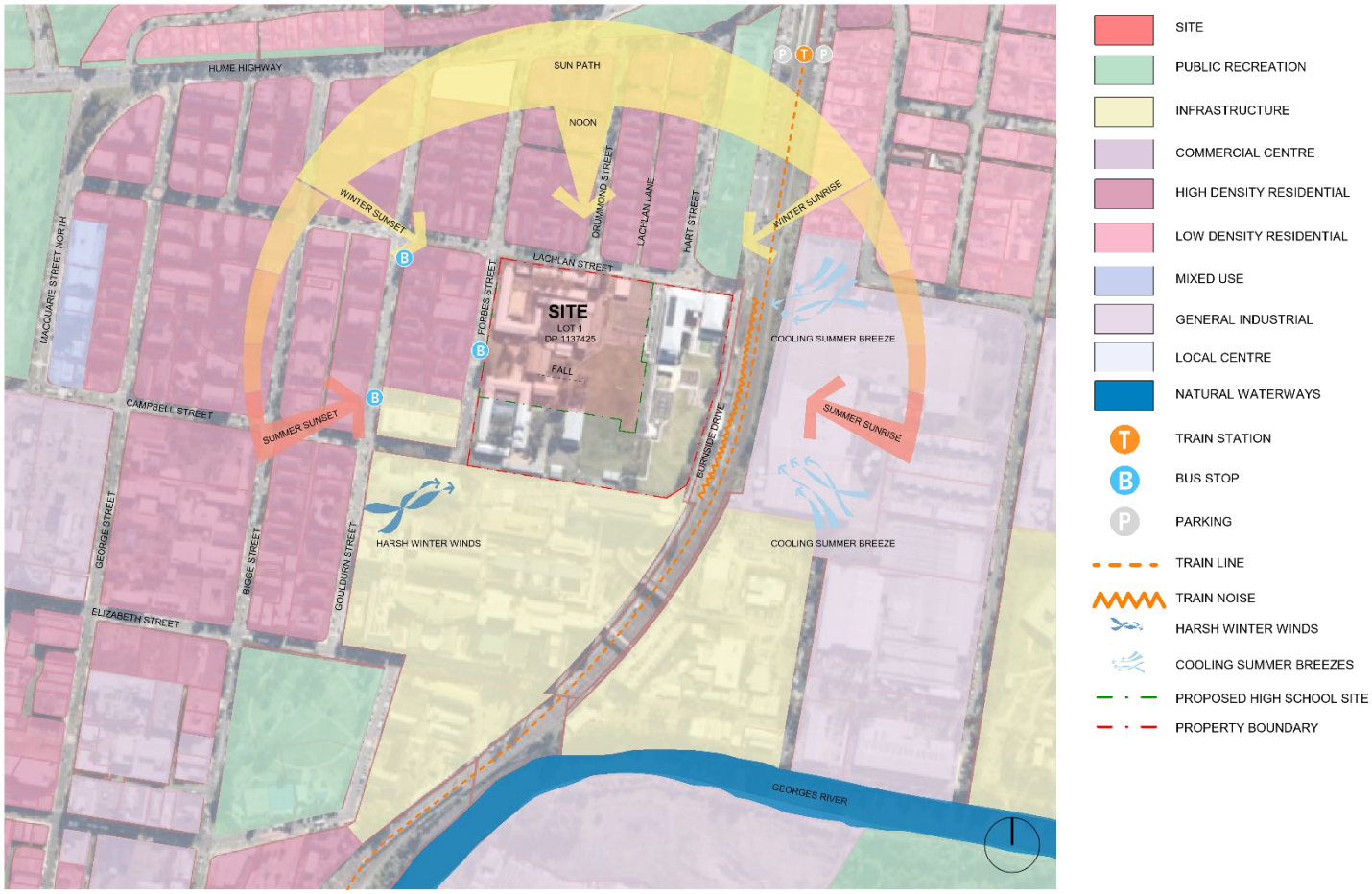


Figure 4. Site Context Diagram (Source: NBRS)

2.2.2 Existing Vegetation

The site is located near a variety of existing urban green spaces and parklands including Bigge park to the southwest, Warwick Farm Racecourse the northeast and Warwick Farm Reserve in the north. The site has been cleared of remnant endemic vegetation. Across the railway corridor, east to the site, is the Georges River.

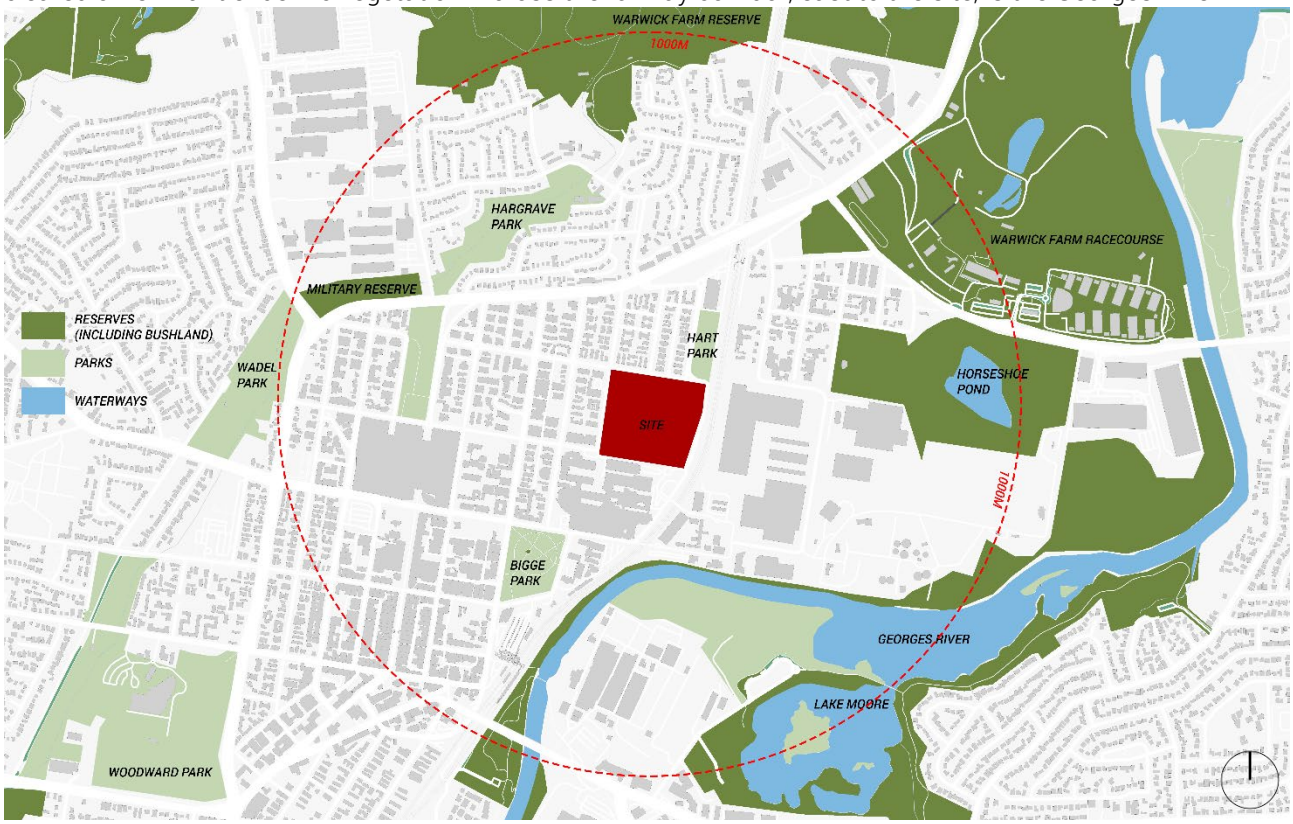


Figure 5. Image: Local Context existing vegetation and green corridors (Source: NBRS)

2.2.3 Waterways and Riparian Zone

The following map has been extracted from the NSW-SES to show the possible highest riverine flood risk on the Georges River only. Located approximately 0.31 km south from the site boundary and 0.4km south of the LBGHS building site, Georges River is the closest major waterway to the high school site. As illustrated in Figures 6 and 7, the site is partially located within a flood affected area.

Other nearby minor waterways include Horseshoe Pond, northeast of the site and Brickmakers Creek, northwest of the site. LBGHS is impacted by Georges River flooding and is affected by a Probable Maximum Flood (PMF). NSW SES has advised to prepare a Flood Emergency Management Plan for the school.

For comprehensive flood risk assessment, refer to the accompanying Flood Emergency Management Plan and Flood Risk Assessment prepared by Woolacotts.

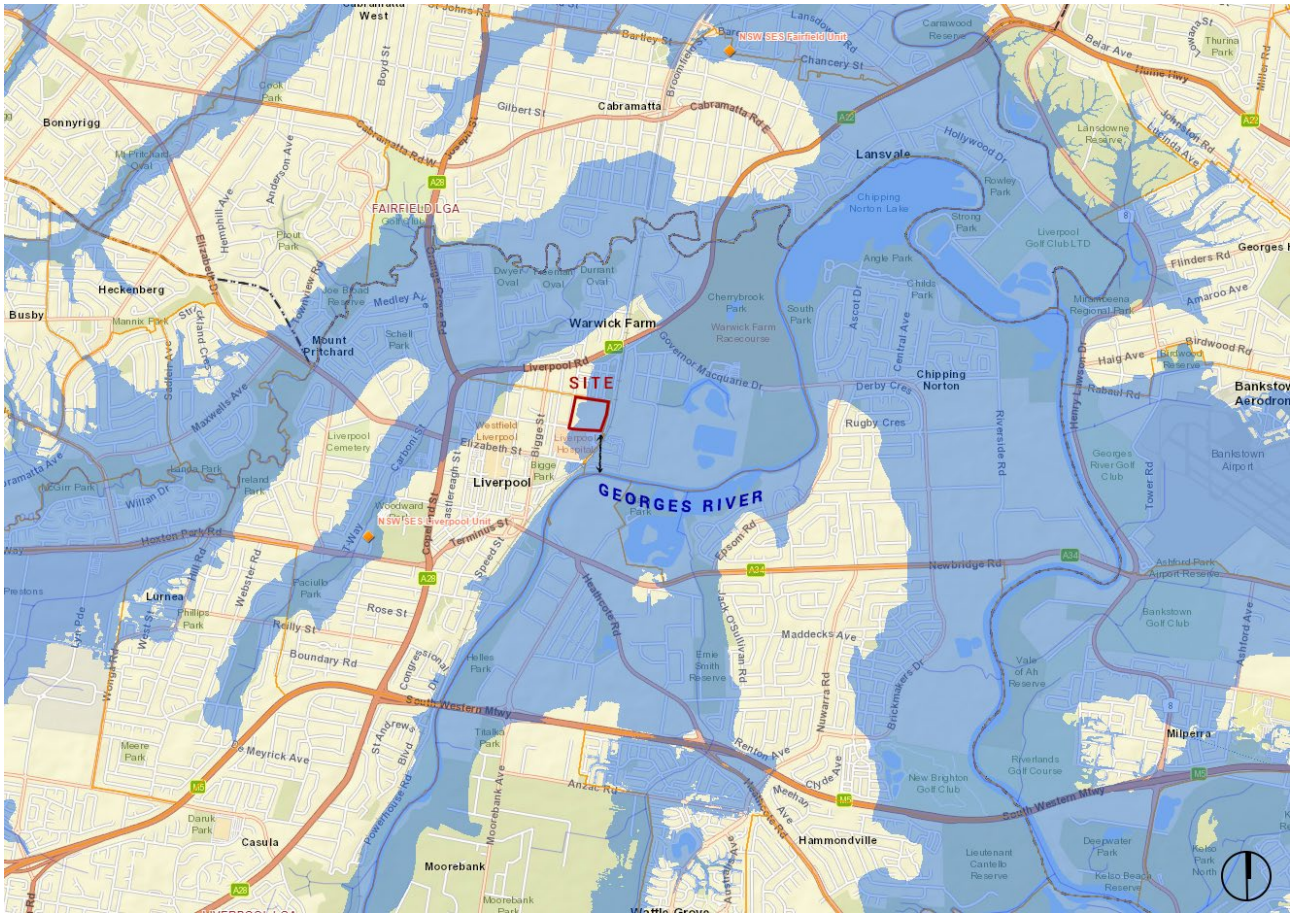


Figure 6 NSW-SES Flood mapping of Georges River (Source: NSW-SES)

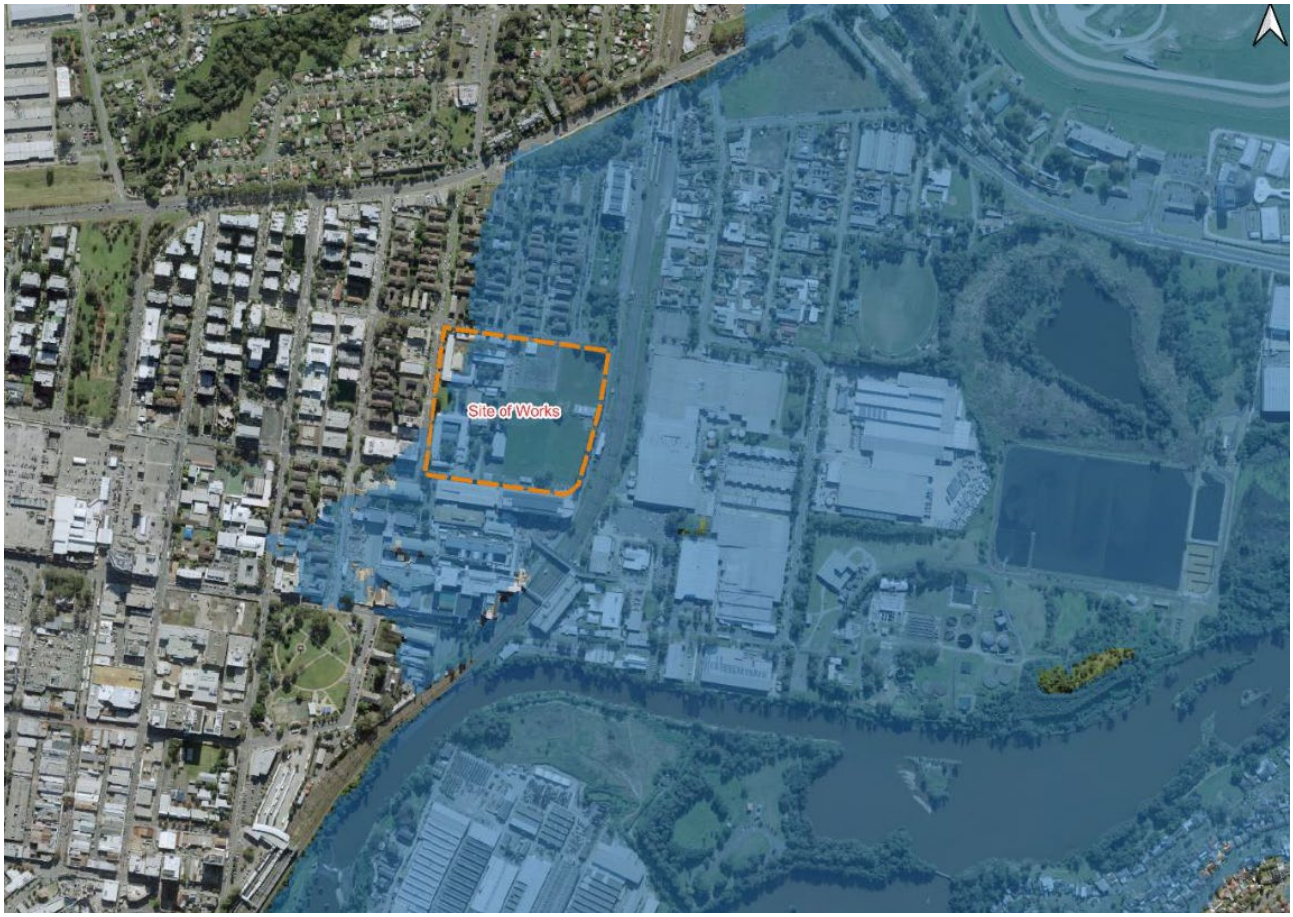


Figure 7. PMF Flood Level (Source: Woolacotts)

2.2.4 Solar, Wind, and Climate

The site is orientated north northeast to Lachlan Street . The dominant wind direction in winter (June-August) is from the southwest and in summer (December-February) is from the easterly direction. In accordance with the National Construction Code's climate zone map (Sept 2019), Liverpool is in Climate zone 6 with mild temperatures which include high diurnal range inland and four distinct seasons. Summer and winter can exceed human comfort range and spring, and autumn are ideal for human comfort. Mild to cool winters have low humidity, and hot to very hot summers have moderate humidity.

Figure 8. Site Analysis (Source: NBRS)

2.2.5 Traffic and Cycleways Network

The following road network diagram and cycle diagram highlights the following existing conditions:

- Liverpool is a major centre for commercial and economic activities and has grown from its founding in 1810. Its road networks are planned as a Hoddle grid.
- The core of the city centre is bounded by Bathurst Street, Campbell Street, Bigge Street, Pirie Street and Terminus Street.
- These streets carry the bulk of through traffic around the city centre to access the major arterials – Newbridge Road, Hoxton Park Road, the Hume Highway, Elizabeth Drive and the Cumberland Highway.
- The broader suburb is flanked by a major motorway, the Hume motorway.
- The site boundary is surrounded on three sides by roads, Lachlan Street to the north, Burnside Drive to the east and Forbes Street to the west and Liverpool Hospital in the south.
- The existing Warwick Farm Train Station is located less than 400m to the northeast of LBGHS. It is part of the T2 Inner West and Leppington service, T3 Bankstown service and T5 Cumberland service on the Sydney Trains Network.
- Connections from the existing bus routes to the high school site have been fully established due to the site being an existing school site
- Cycleways and pedestrian footpaths exist to link LBGHS to wider Liverpool, however the Liverpool Bike Plan 2018-2023 notes that cycling links are limited to the edge of the city centre and there is a need for on/off road paths to the Liverpool CBD.

The following diagrams have been prepared to provide visual reference to depict the existing connection of cycleways & footpaths to the high school site and how the cycle links are being connected in the future at the completion of the precinct-wide developments.

Generally, students & staff are encouraged to cycle, walk, or use public transportation as a more environmentally conscious method of commuting so to reduce the congestion during peak school hours. For further details on proposed sustainable transport strategies, please refer to the accompanying 'School Transport Plan' prepared by TTW. Additionally, this report should be read alongside TTW's 'Transport and Accessibility Impact Assessment' to gain a comprehensive understanding.

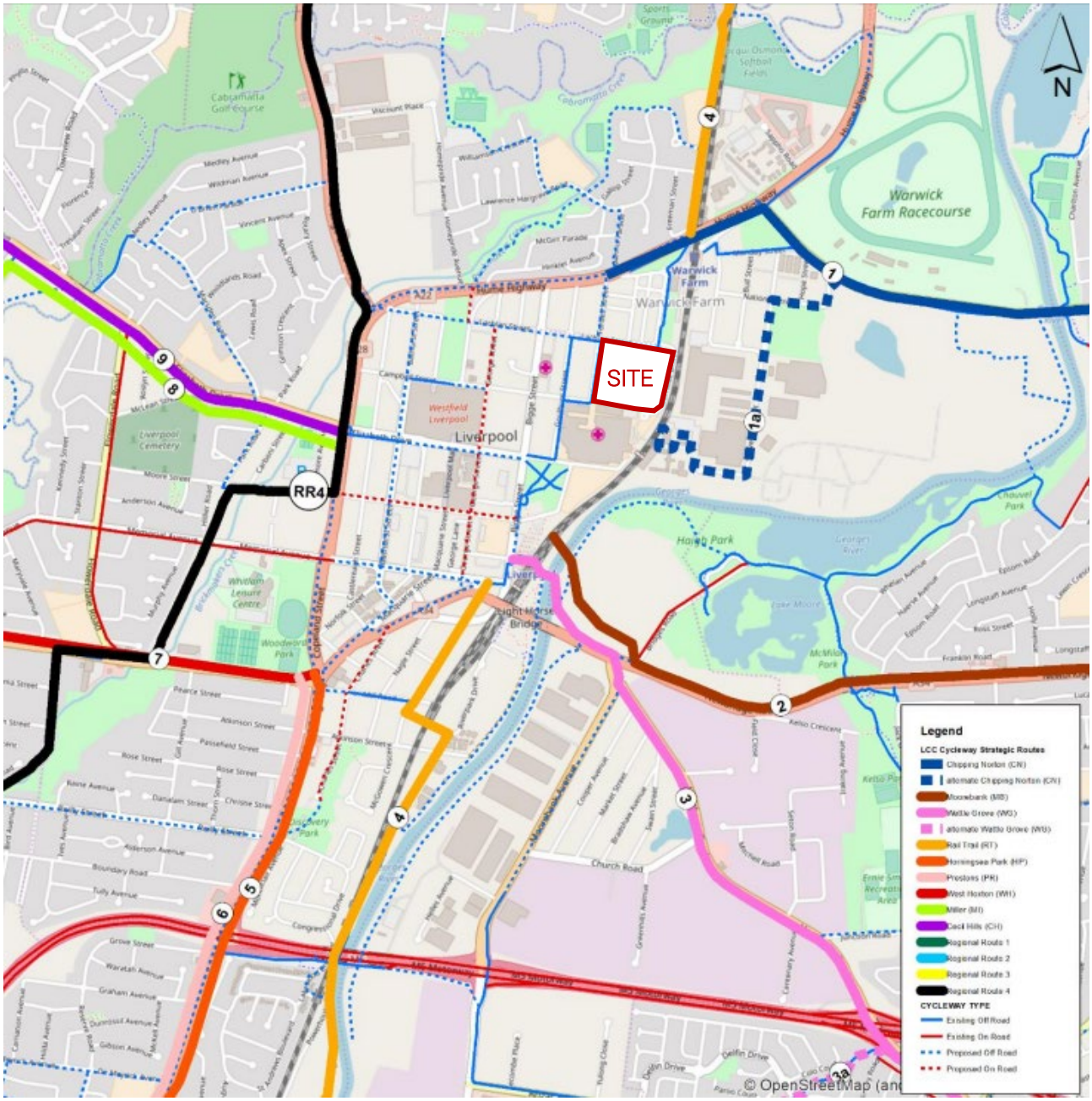


Figure 9. Liverpool CBD Bike Plan (Source: Liverpool City Council)

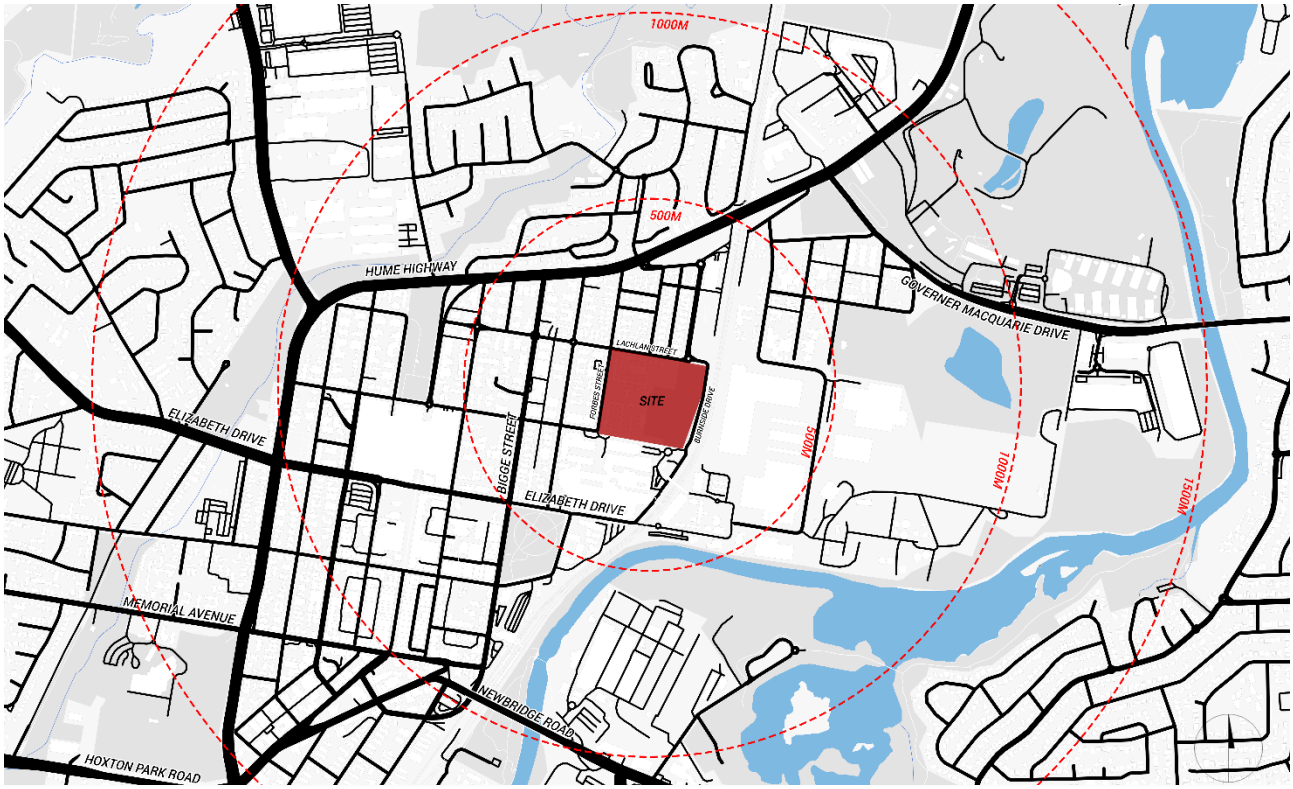


Figure 10. Liverpool Road Networks (Source: NBRS)

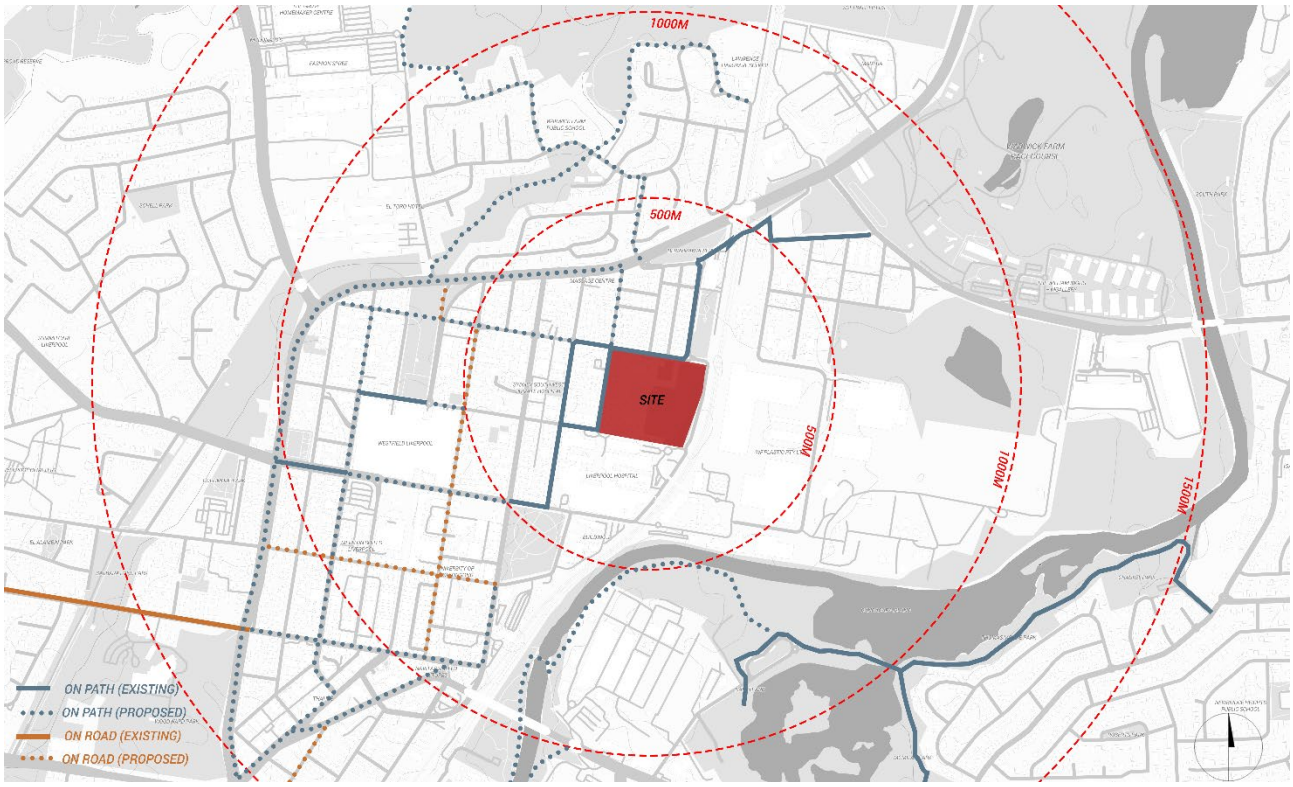


Figure 11 Existing Liverpool cycleways & pedestrian footpath based on Desktop analysis (Source: NBRS)

2.2.6 Existing Topography

The site has an approximate 5m fall from the west boundary at Forbes Street (RL 13.8) to the east boundary at Burnside Drive (RL 8.8). No easements have been identified on the site.

Figure 12. These images, taken from the northeast corner of the existing Liverpool Boys School internal courtyard looking toward the south and southwest, highlight level difference in levels in the LBGHS site.

2.2.7 Existing and Future Context of the Liverpool Health and Academic Precinct

The Liverpool Health and Academic Precinct (LHAP) is a significant hub within the rapidly evolving Liverpool LGA, positioned to become a cornerstone of the Western Sydney Parkland City. The existing context of LHAP is anchored by key institutions such as Liverpool Hospital, Western Sydney University, and TAFE NSW, which form the backbone of the area's health and education services. This precinct is strategically located within the Liverpool city centre, benefiting from its proximity to public transport, major road networks, and the growing commercial presence in the area.

Looking forward, the LHAP is poised for substantial growth and transformation, driven by ongoing urban development initiatives and the broader regional strategy outlined by the Greater Sydney Commission. The precinct is expected to expand its role as a leading centre for health, education, research, and innovation, with planned infrastructure upgrades, new educational facilities such as the LBGHS, and enhanced public spaces. This development aligns with Liverpool's vision to become a major strategic centre, providing increased employment opportunities and serving as a key node within the Western Sydney Aerotropolis.

The immediate surrounding context to the high school site includes the following:

- Recently completed Gulyangarri Public School immediately to the east and sharing a site boundary and fencing.
- Warwick Farm Train Station and south-west rail corridor approximately 40m to the east.
- High density residential zones north and west of the site
- Liverpool Hospital south of the site

Figure 13. Location map with numbers corresponding to where the following images have been taken.

Figure 14. Forbes Street school boundary is secured with a single blue fence. There is a lack of tree canopy cover and pedestrian permeability (No 1. on the location map)

Figure 15. St Raphael's Greek Orthodox Church established in 1967 corner of Forbes Street and Lachlan Street (No 2. on the location map)

Figure 16. Forbes Street Ingham Institute and new residential apartments (No 3. on the location map)

Figure 17. Lachlan Street 1970's/1980's brick walk-up apartments (No. 4 on the location map)

Figure 18 . Lachlan Street 1970's/1980's brick walk-up apartments (No 5. on the location map)

Figure 19 Hart Street Park – Corner of Lachlan Street and Hart Street (No 6. on the location map)

Figure 20. Drummond Street apartment blocks (No 7. on the location map)

Figure 21 Forbes Street New Apartments. (No 8. on the location map)

Figure 22. Lachlan Street (No 9. on the location map)

Figure 23 Forbes Street LBHS School Entrance (No 10. on the location map)

In 2018 Liverpool Council rezoned the Liverpool CBD to foster an 18-hour economy, incentivising new businesses, more residents and new developments.

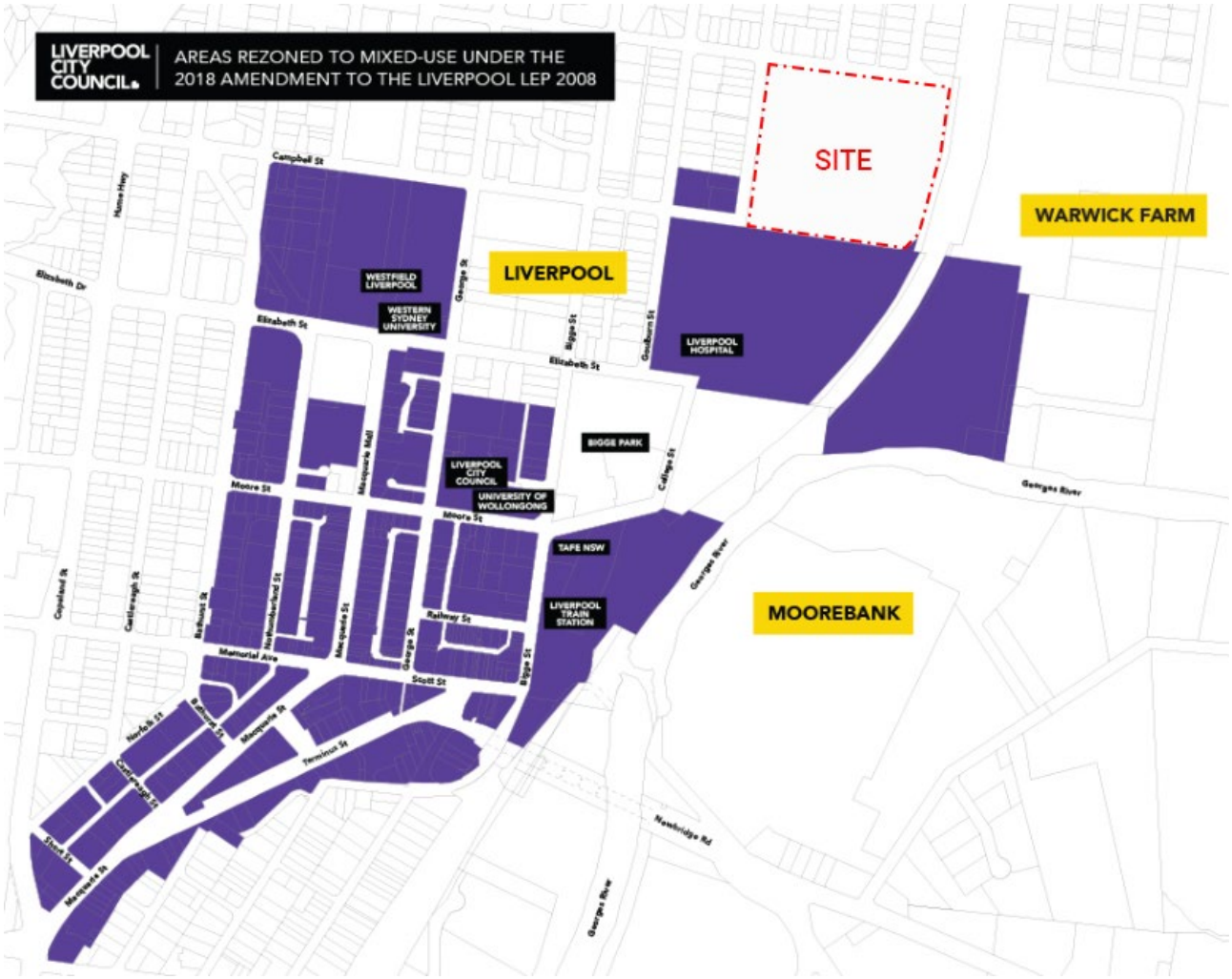


Figure 24. Liverpool Rezoning. Source: Liverpool Council

There are significant future developments that are recently completed, currently under construction or visionary perspective of Liverpool's CBD near the proposed new high school, include:

Response Item 1.Liverpool Council and Liverpool Library on Scott Street
Response Item 2.Liverpool Hospital Carpark on the southern boundary on the school site and accessed from Burnside Drive
Response Item 3.Liverpool Hospital Upgrades adjacent the proposed high school.

Figure 25. Recently built Liverpool Council and Library Civic Centre

Figure 26. Liverpool Hospital Carpark

Figure 27. Liverpool Hospital Redevelopment

Figure 28. Vision for Liverpool CBD

2.2.8 Site Services for Connection

Sewer and Drainage Mains
Stormwater run-off currently appears to discharge to the eastern (and re-routed to the nearest discharge point in Lachlan Street on the primary school northern boundary) and southern boundary.

For further information refer to the Site Based Stormwater Management Plan Liverpool Boys and Girls High School by MEINHARDT

Water Mains
The existing Sydney Water potable water main runs along Forbes Street and Lachlan Street. The connection point is as per hydraulic site plan and is available for connection to service LBGHS. The Sydney Water mains can accommodate the proposed potable water, fire services, and non-potable water demand of LBGHS and the connection to these services will be established at day 1 of school operation.

For further information refer to the Hydraulic REF package by DSC

Gas Mains
There is a low-pressure Jemena gas main line along Forbes Street and a high-pressure gas main line along Campbell Street. No connection to the gas main will be established as LBGHS will be 100% electric powered.

Power Supply
Endeavour Energy's desktop assessment indicates that the existing school is currently supplied from existing pm sub 1366 in Lachlan St. As the existing school is still operating the existing supply is to be retained until the school is demolished.

For further information refer to the Liverpool Boys and Girls High School Upgrade Project Infrastructure Requirements and Utilities Report (Electrical and Telecommunications) by Steensen Varming

NBN Connection
Based on the NBN Co website, the area is serviced by the NBN network and a new connection to the school can be established. The below screenshot is direct from the NBN Co website (https://www.nbnco.com.au/).

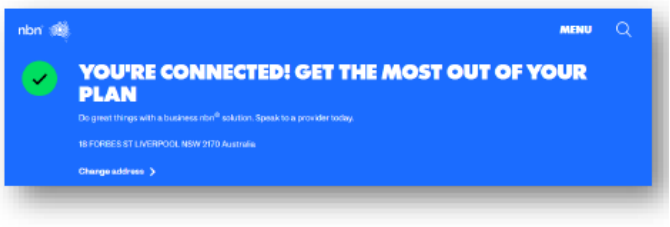


Figure. NBNCo website confirmation of service

For further information refer to the Liverpool Boys and Girls High School Upgrade Project Infrastructure Requirements and Utilities Report (Electrical and Telecommunications) by Steensen Varming

Telstra
Based on the dial before you dig results, there are existing telecommunications services within the vicinity of the school site. There are also existing telecommunications services which run into the existing site to service the existing school. These services will be isolated and demolished as part of the works.
For further information refer to the Liverpool Boys and Girls High School Upgrade Project Infrastructure Requirements and Utilities Report (Electrical and Telecommunications) by Steensen Varming

2.3 Project Constraints

The following section of the report outlines the key project constraints that have been identified throughout the various design stages.

2.3.1 Planning Controls

The main street address is 18 Forbes Street, with primary access from the adjacent Lachlan Street.
Here's a breakdown of the key planning controls that have guided the design of high school site:
Development Plan Framework:

- The development of the new high school falls under the guidelines set by the Liverpool Development Control Plan 2008 (DCP) Part 1 and Part 4
- It sits within the Education and Medical Precinct defined by the South-Western Sydney Area Health Service (Liverpool Hospital) and attendant medical centres and clinics, the Liverpool Private Hospital, public and private schools, and the Liverpool TAFE buildings.
- In accordance with the Liverpool Development Control Plan 2008 (DCP) Part 1 – General Controls and Part 4 - Liverpool City Centre
- The land is zoned SP2 – Infrastructure under the Liverpool LEP 2008
- LEP requirements and property information also include:
    - Height of Buildings – V 35m
    - Floor Space Ratio – U 2.5
    - Minimum Lot Size – U 1000 m^2
    - Flood Risk Category – Low flood risk
    - Classified Road and Rail Noise Impacts – Present
    - Flood Risk Category – Low Flood Risk
    - DCP Boundary – Part 4 Liverpool City Centre
    - Classified Road and Rail Noise Impact – Rail Noise Impact
- In accordance with Liverpool Development Control Plan 2008 (DCP) Part 4.2.7 Street Alignments and Street Setbacks requires a 0m setback on Lachlan Street and Forbes Street.

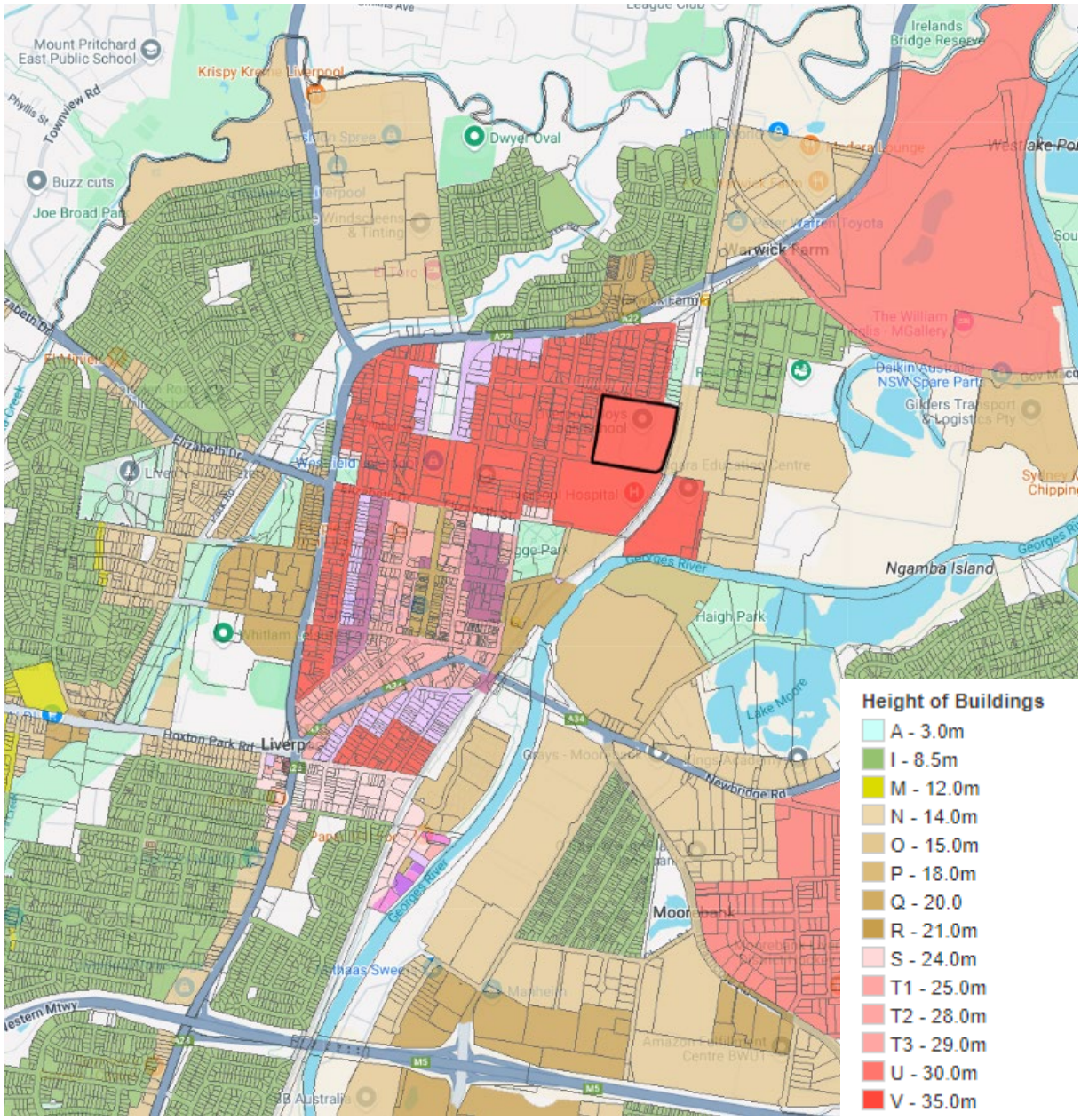


Figure 29. Height of Building Map with the high school site marked 'V' (Source: ePlanning portal Liverpool City Council)

2.3.2 Easements

There are no existing easements on site, but we have a proposed substation with an easement on the southwest corner of the site.

2.3.3 Bushfire Risk

The site is located in an urban context where prior clearance of bushland has removed bush fire risks from the immediate surrounding. The site is not on bushfire prone land as shown below.

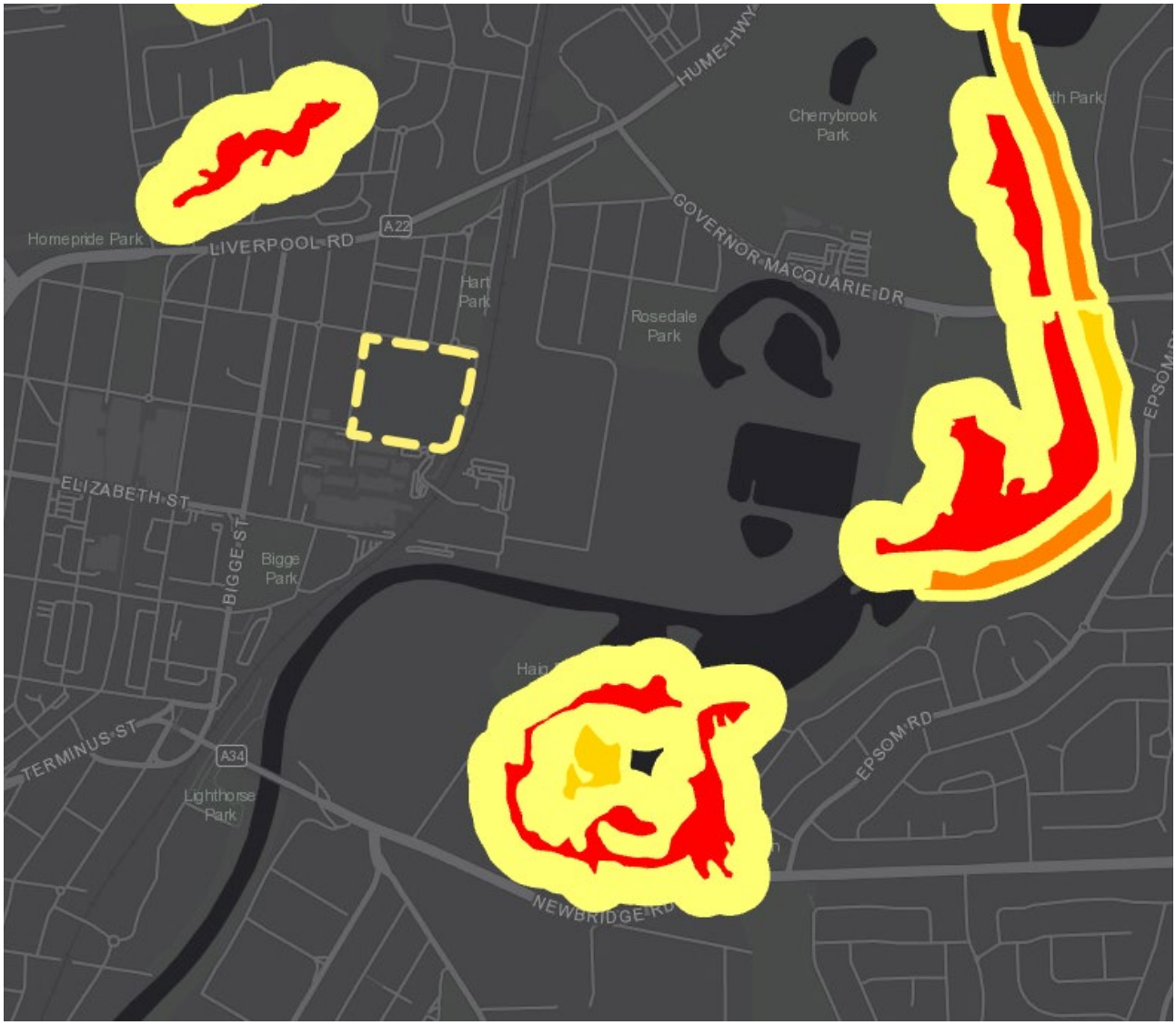


Figure 30. Bushfire Prone Land (Source: NSW Planning Portal).

2.3.4 Railway Noise

The LBGHS site sits adjacent to an existing Rail corridor, east of Burnside Drive. Acoustic Studio undertook testing and concluded, based on the noise levels and setback from the nearest rail line, internal noise level criteria will be achieved with windows open. Therefore, additional acoustic treatment is not required.

For a complete acoustic assessment on LBGHS, refer to the accompanying Noise and Vibration Impact Assessment for Review of Environmental Factors report prepared by Acoustic Studio.

2.4 Project Opportunities

The following section of the report outlines the key project opportunities that have been identified throughout the various design stages.

2.4.1 Outlook Opportunities

The site is situated in a Health and Education precinct that is undergoing development. The views from the site represent the cradle to PhD vision for this precincts future and the opportunities it will afford to students.

Figure 31. Greek Orthodox Church View looking west to Forbes Street from the high school site (Source: NBRS).

Figure 32. View looking east to Gulyangarri Public School from the high school site.

Figure 33. View looking south to Liverpool Hospital carpark (Source: NBRS).

Figure 34. View looking northeast to nature reserve and rail link (Source: NBRS).

2.4.2 Urban and Masterplan Opportunities

The high school masterplan had been designed to balance the competing objectives of (a) maximising the available play space area on the ground plane in accordance with the EFSG, and (b) efficiently and equitably locating programmed spaces.

The architectural design outcomes of the high school's masterplan see the articulation of built form to address the following key urban planning criteria.

- Accessibility and connectivity
- Creating street presence
- The buildings are separated at logical entry points to break up the building massing and provide threshold access points and views into the school site.
- Position of school buildings in responding to the surrounding built context
- Creating variable relief in the façade design.

The high school master planning design process considered the identified physical site constraints to establish the design parameter. The design of LBGHS had been progressed to adopt the following opportunities.

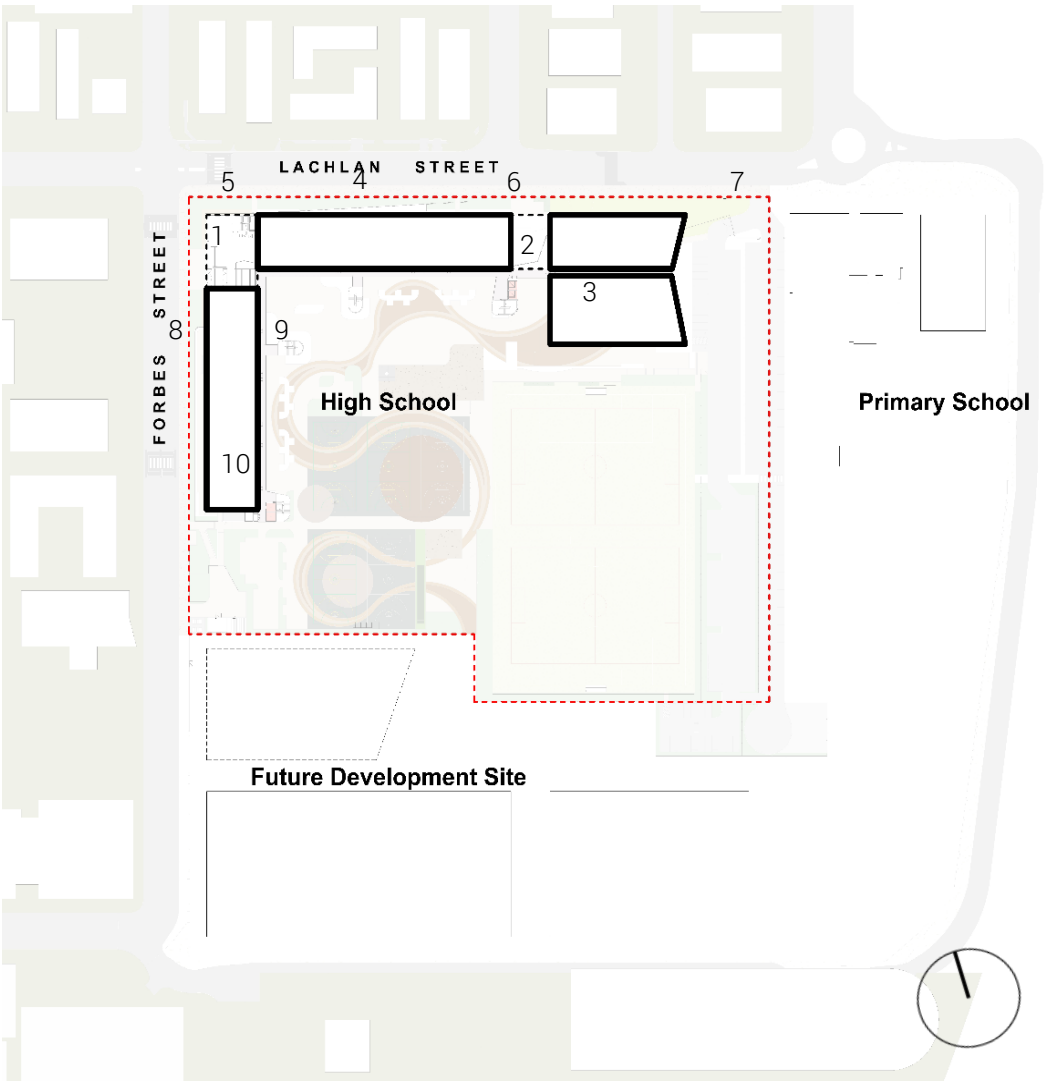


Figure 35. Site opportunity diagram (Source: NBRS)

1. Accessibility and connectivity
   The entrance on Forbes Street ensures safe, equitable access for all users, including students, staff, and the community. The integration of a pedestrian route connecting the street, playing fields, sports courts, and health precinct supports walkability and encourages active transportation, promoting community interaction

2. Connection with community
   Identified access points along the boundary to facilitate community use of the high school hall and playing field whilst maintaining a secondary secure line to the school's teaching spaces and courtyard.

3. Public Realm and Community Integration:
   The design fosters a strong connection between the school and its surrounding community by providing sheltered spaces at the entrance for informal gatherings. Community access to sports facilities, gym, library, and the bistro terrace strengthens the relationship between the school and the public, promoting shared use of resources.

4. Safety and Supervision:
   By eliminating unused or unsupervised frontier spaces between fences and buildings, the design maximizes safety and supervision for students. This planning also reduces opportunities for vandalism or other undesirable activities in these areas.

5. Landscaping and Environment:
   The use of a landscaped buffer along the street-facing facades enhances the streetscape, creating a softer, more welcoming urban edge while maintaining functionality and aesthetics. The preservation of central play areas aligns with the goals of urban green spaces, fostering recreational opportunities for students.

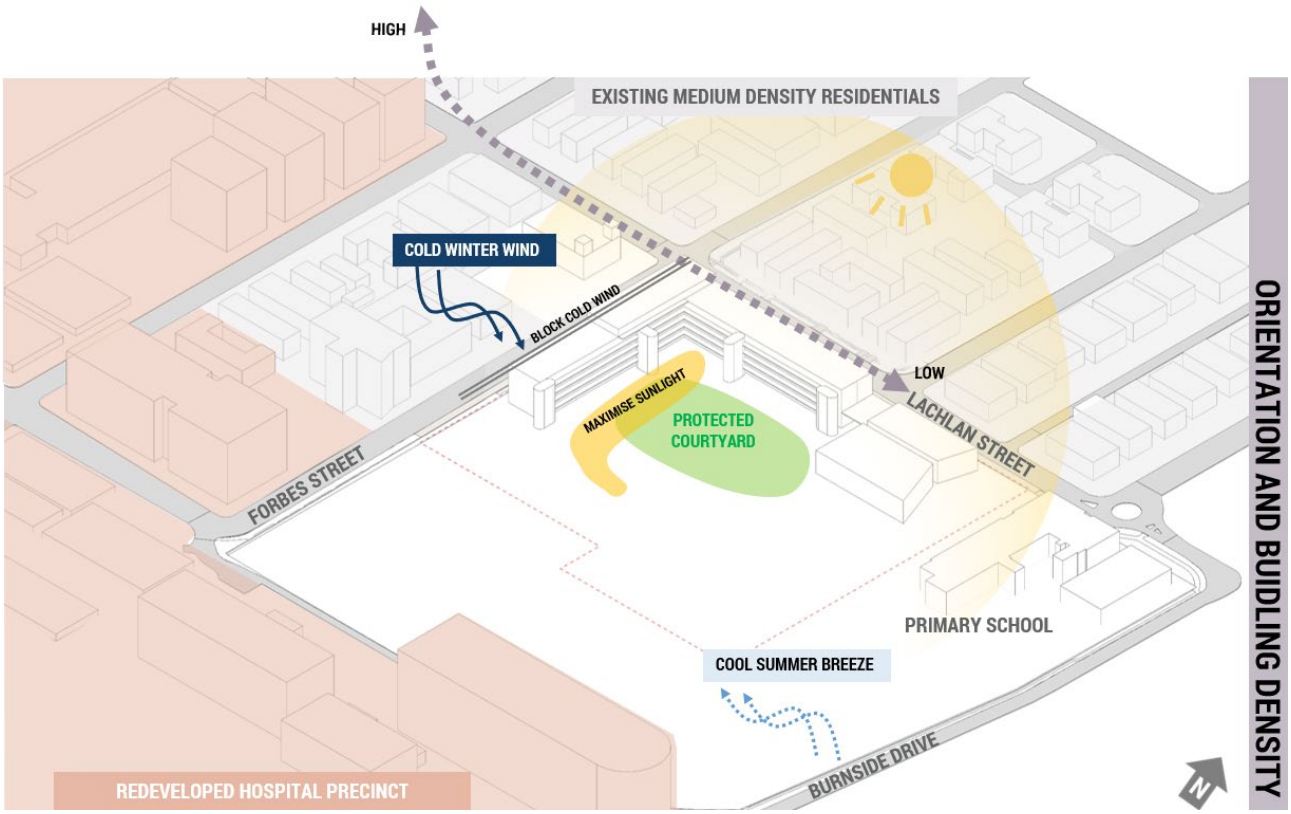
6. Traffic and Transport Considerations:
   The Kiss & Drop zone is strategically positioned to facilitate safe student drop-offs without causing traffic congestion, which is a critical element in urban transport planning.

7. Road access to the site
   Optimised street presence by creating pedestrian friendly path along Forbes Street and Lachlan Street. Vehicle access is restricted from one shared entry point for LBGHS and Gulyangarri Public School.

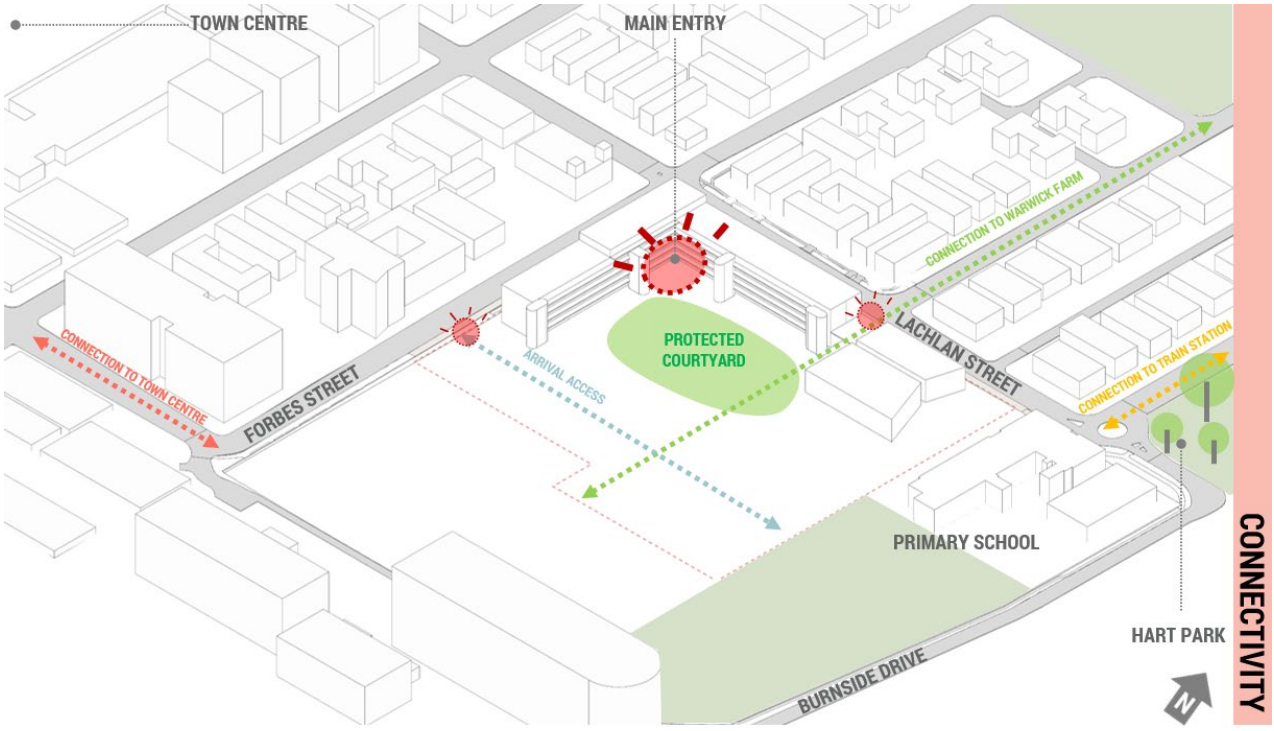
8. Access to public transport
   The use of public transportation by staff and student is encouraged, noting easy access to Warwick Farm and Liverpool Station and buses.

9. Optimise northerly orientated buildings and courtyards.
   Maximised north-facing buildings and east facing courtyard to provide access to plentiful amounts of light all year round.

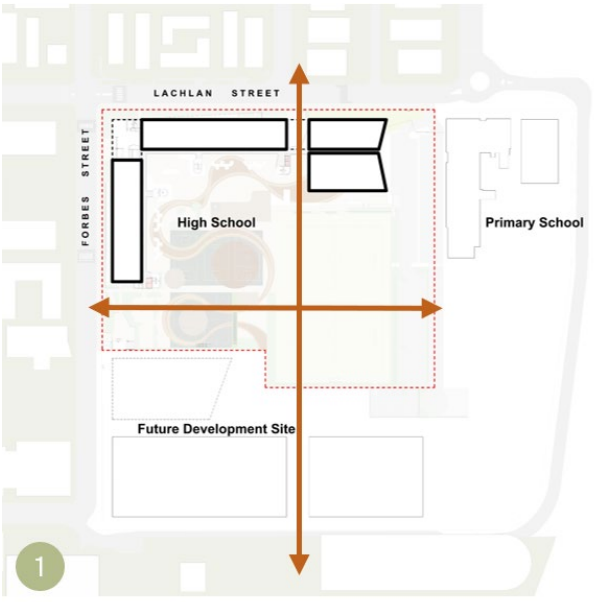
10. Design the landscape and buildings in response to the natural topography of the site.
    Designed a lower ground floor to reduce cut and fill.



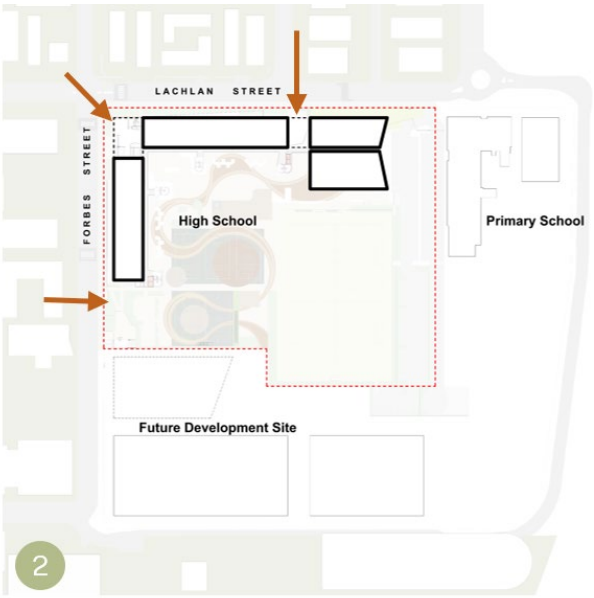
- Good solar access
- Protection from western winds & Capturing cooling northeastern summer breezes
- Maximizing outdoor space to favourable north-east aspect
- Acknowledging medium density in the North and increasing density and scale in the South and East Health Precinct



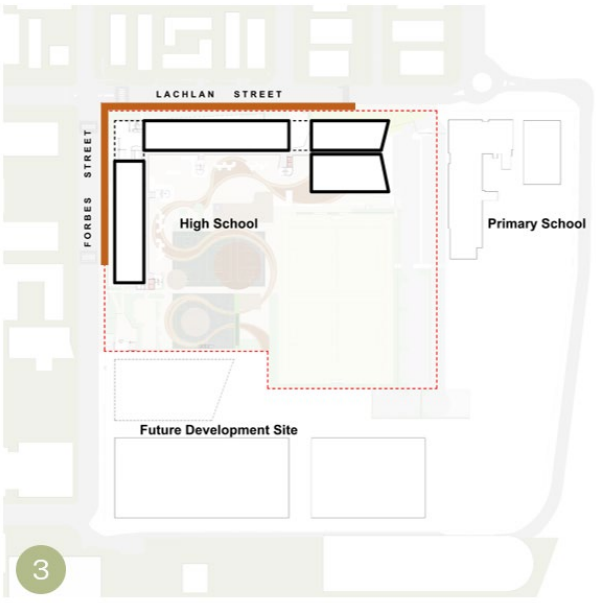
- Acknowledging connection to Liverpool town centre
- Creation of multiple entry points plaza centred on Hoddle Grid + transport links
- Good pedestrian navigation principles
- Proximity to Gulyangarri Public School
- Good connection across site



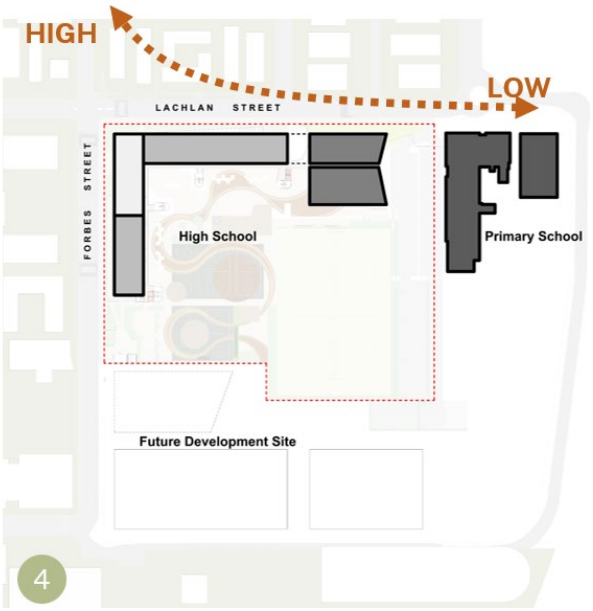
View Corridor



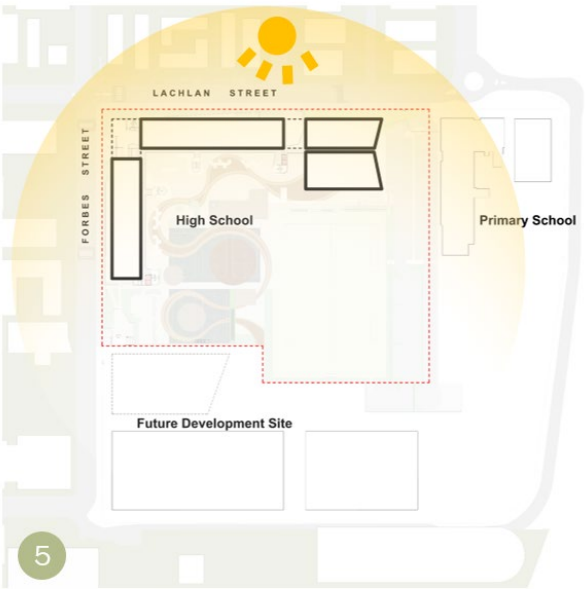
Clear Arrival Points



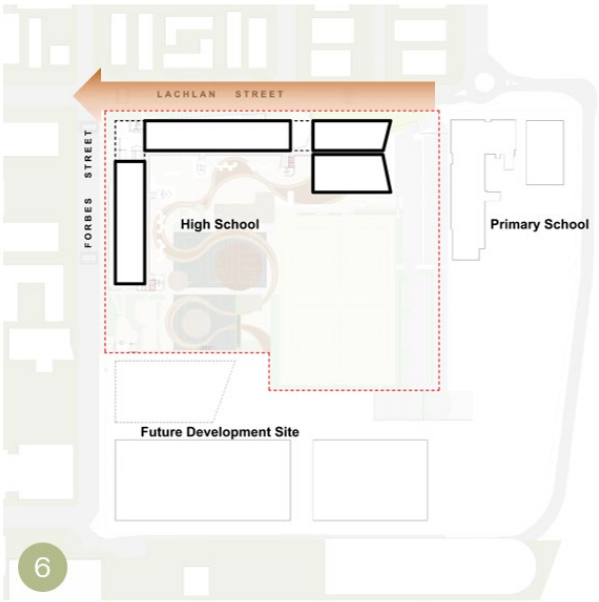
Building Form addresses street frontage



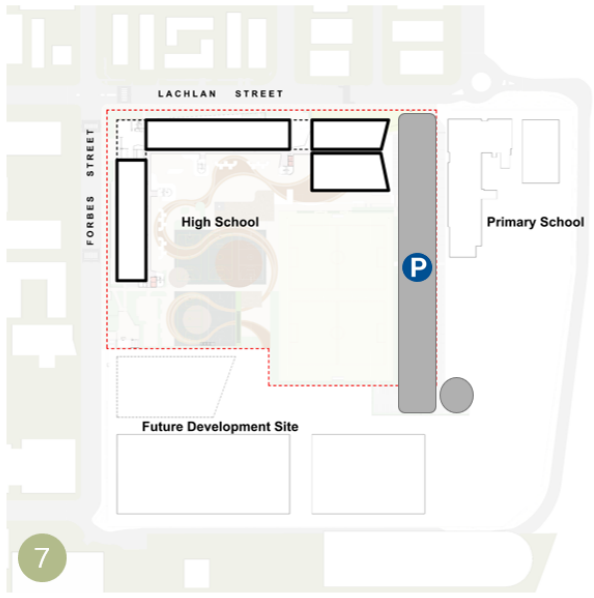
Building Height responds to site contours and scale change from PS across to Liverpool CBD



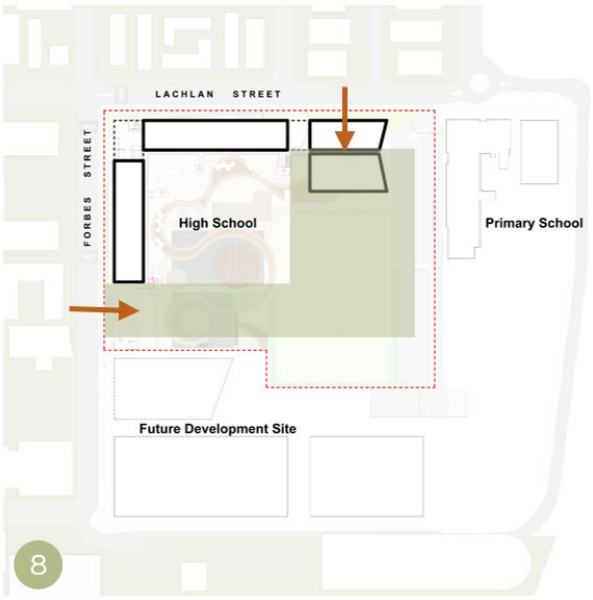
Maximise sunlight and reduce overshadowing



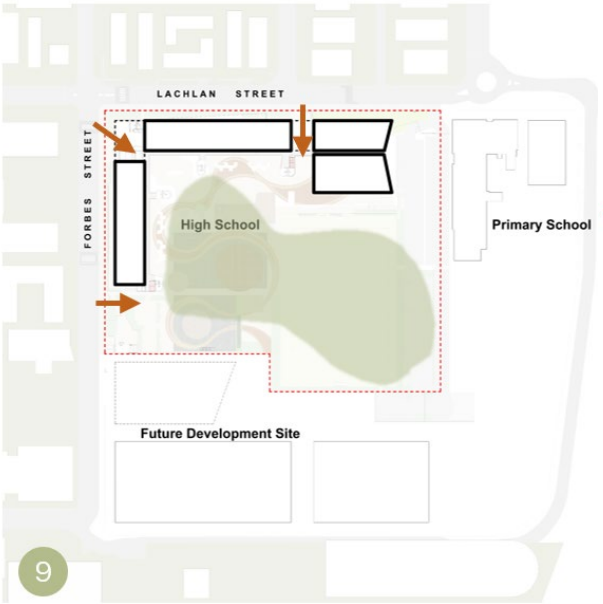
Student transition from cradle through to high school and onwards



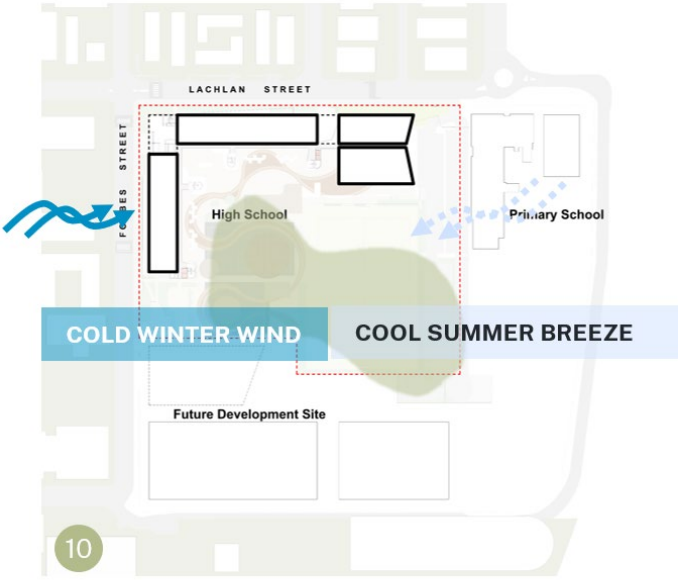
Consolidated car park with existing PS site and shared waste/loading area



Maximising community use



Maximise and continuity of open space



Protected courtyard from cold westerlies and open to NE breeze

2.4.3 ESD

The LBGHS project is targeting a formal certification under the Green Star Buildings v1.0 Tool. The Green Star credit that relates to the thermal performance of the building envelope is Credit 22 – Energy Use.

For further details on ESD strategies, please refer to the "LBGHS ESD REF Report" prepared by Steensen Varming.

Key Green Star/EFSG/Sustainable Buildings SEPP targeted design components:

100%
Electric building
TBC kitchen and lab alignment

20% Target
Annual energy use reduction
- onsite renewable energy (Stage 1 70kW)
- efficient systems
- maximise mixed mode ventilation

20%
Upfront Embodied emission reduction

45%
Water use reduction - air-cooled chillers, recycled water connection

Refrigerants Eliminated
GWP<10 or offset

Climate Change Risk and Adaptation
Address all extreme and high risks

Lighting Comfort
- suitable lighting levels
- glare control & adequate daylight

Low VOC
paints, adhesives, sealants, carpets, engineered wood products

Acoustic Comfort
- Acoustic Separation
- Maximum internal noise levels
- Reverberation control

End of Trip
Showers, changing facilities, lockers and safe access to building

Light Pollution
Controlled to minimise impact on night sky and neighbours

Waste Separation
Collection of waste streams and appropriate waste storage

Urban Heat Island
mitigation through vegetated landscaping, high SRI roof colours/materials

Indigenous Inclusion
RAP or inclusion of Indigenous Design

Inclusive Design
Equal access, diverse wayfinding, inclusive spaces

Stormwater
40% annual average flow reduction and meeting pollutant targets

Operations Resilience
Address all extreme and high system-level interdependency risks; safely habitable during blackout

Bio basin
Bio basin will be utilised in waterway protection

3 Guiding and Key Design Principles

3.1 School Vision

The Department of Education and stakeholders have envisioned that LBGHS will establish active learning environments for equity, wellbeing, learning and knowing. This vision can be broken down into the following areas of focus and key objectives.

Key Focus Areas:

- Preparing students as citizens of the work ready to engage in the community.
- All students should have equity, no matter their background, ethnicity, language, or religion.
- Focus on wellbeing due to the diverse nature of parents and students.
- Enhance the learning experience.

Key Objectives:

Objective 1: Equity for active learning, knowing and wellbeing.

Objective 2: Regional and Community engagement

Objective 3: Institute for Health and Wellbeing

Objective 4: Teaching and Learning: Pedagogy and Curriculum

Objective 5: Built Pedagogy

Objective 6: Professional Learning

Objective 7: Organisational and Operational Matters

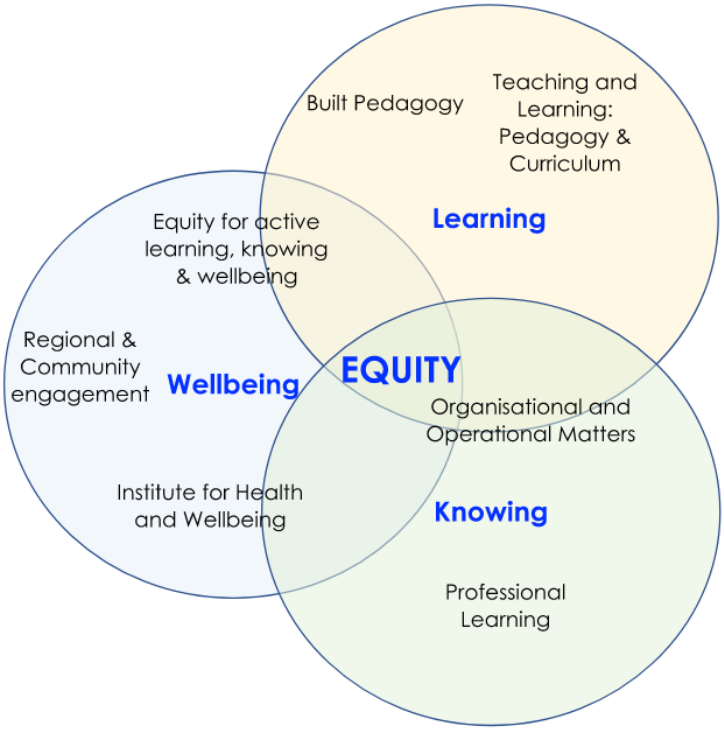


Figure 36. Educational Rationale graphic interpretation of key objectives

The design of the high school can facilitate the school in achieving their targeted vision by adopting the school design principles as outlined in this Architectural Design Report.

3.2 Statutory Planning – SEPP

Response to Schedule 8 Design quality principles in schools—Chapter 3

1 Responsive to context

Schools should be designed to respond to and enhance the positive qualities of their surroundings.
In designing built forms and landscapes, consideration should be given to a Country-centred approach and respond to site conditions such as orientation, topography, natural systems, Aboriginal and European cultural heritage and the impacts of climate change. Landscapes should be integrated into the overall design to improve amenity and to help mitigate negative impacts on the streetscape and neighbouring sites.

The Liverpool Boys and Girls High School upgrade project has been designed to respond to the increasing demands for student numbers as Liverpool City Council's demographic grows and the surrounding context increases in density. The site planning considers orientation, natural ventilation, and landscape integration to create a learning environment that aligns with the broader urban fabric.

The surrounding zoning and built form reflect Liverpool's evolving urban density. Liverpool Hospital is zoned for 8-10 levels, while Forbes Street currently features 2-8 level mixed-use buildings (worship, apartments, and commercial), with new zoning allowing 35m or 9 levels. Similarly, Lachlan Street consists of 3-4 level apartment buildings, but future zoning permits 35m or 9 levels. To the east, Gulyangarri Public School remains at three levels, influencing the scale transition in the school's design.

Connecting with Country consultation was conducted through workshops with Elders, a Walk on Country with Aboriginal students from the school, and the development of a parallel Connecting with Country report. This process informed key design choices, including the incorporation of a yarning circle, native landscape planting, facade elements, and Indigenous-inspired graphics. These features ensure that the school environment reflects and respects Aboriginal heritage while fostering a deeper connection to the land.

The façade design of Liverpool Boys and Girls High School is inspired by the Georges River and Cumberland Plains vegetation, incorporating natural colours and textures. It reflects the river contours, tree canopies, and wildlife movement, with lenticular perforated screens that create dynamic glimpses of animals in motion. The courtyard elevation allows dappled light to filter through, mimicking the effect of sunlight passing through tree canopies. Additionally, skylights and windows, inspired by Cobra Grub (Mangrove Worm) holes, bring natural light into the hall, enhancing the indoor environment.

The design carefully positions buildings along the site's perimeter, creating a central protected play space while maintaining strong connections to the community. The school design acknowledges Liverpool's young and diverse demographic, ensuring the facilities cater to evolving student needs and urban growth. Streetscape integration is enhanced through landscaped buffers, using the building as the secure line (reduce fencing), controlled entry points, and an active frontage along Forbes and Lachlan Streets. The design minimizes overshadowing of adjacent buildings and incorporates natural materials that blend with the urban setting.

2 Sustainable, efficient and resilient

Good school design combines positive environmental, social and economic outcomes and should align with the principles of caring for Country. Schools should be designed to be durable and resilient in an evolving climate. Schools and their grounds should be designed to minimise the consumption of energy, water and other natural resources and reduce waste.

The project aligns with sustainability principles through energy-efficient building materials and systems that reduce long-term operational costs. The design minimises energy and water consumption by incorporating passive solar design, natural ventilation, and efficient water management strategies. Waste reduction measures, such as sustainable material selection and construction waste management, ensure a lower environmental footprint.

The school targets a 5-star Green Star rating, incorporating renewable energy sources such as a 99kW photovoltaic system. Passive design strategies include optimizing window-to-wall ratios for daylight access, shading devices for thermal comfort, and natural ventilation pathways. Water-sensitive urban design measures include rainwater harvesting for irrigation and efficient water fixtures. The site's flood risk management plan ensures resilience against extreme weather conditions. Additionally, the building envelope is designed to exceed National Construction Code (NCC) requirements for thermal and acoustic performance, contributing to long-term environmental efficiency.

3 Accessible and inclusive

School buildings and grounds should be welcoming, easy to navigate and accessible and inclusive for people with differing needs and abilities. Schools should be designed to respond to the needs of children of different ages and developmental stages, foster a sense of belonging and seek to reflect the cultural diversity of the student body and community. Schools should be designed to enable sharing of facilities with the community and to cater for activities outside of school hours.

The project has been designed to be welcoming and inclusive, ensuring that all students, staff, and visitors can navigate the campus with ease. Universal access principles have been integrated into the design, with ramps, lifts, and accessible pathways provided throughout the site. Consideration has been given to different age groups, learning needs, and cultural diversity, creating an inclusive educational environment. The design also facilitates community engagement by enabling shared use of facilities for extracurricular and after-hours activities.

The school follows the Department of Education's Educational Facilities Standards and Guidelines (EFSG) for accessibility, ensuring compliance with universal design principles. The layout incorporates clear wayfinding, wide circulation paths, and multi-functional spaces adaptable for different learning styles. The school's shared-use facilities, such as the gymnasium, library, and performance spaces, foster community engagement beyond school hours. Cultural inclusivity is reflected in the incorporation of First Nations design elements, such as native planting and façade graphics. The design promotes social inclusion through a mix of collaborative and quiet study areas, catering to diverse student needs.

The streetscape and play space design at Liverpool Boys and Girls High School prioritizes accessibility and inclusivity, ensuring a welcoming and engaging environment for all users. A 5m native streetscape planting zone creates a soft and inviting arrival experience. The play spaces cater to diverse needs, offering areas designed for different ages, genders, cultural backgrounds, and accessibility requirements. Features include First Nations planting and yarning circles, passive and active play areas, small group seating, nature play, and shaded canopy zones, all with minimal level transitions to enhance accessibility. A natural colour palette and Cultural and Wayfinding Cues (CwC) foster a sense of identity, ownership, and belonging. Additionally, the

community-oriented entry features a vibrant, active façade, showcasing student activities through banners, public art, and dynamic patterns inspired by the Cumberland Plains forest, reinforcing a sense of place and inclusivity.

4 Healthy and safe

Good school design should support wellbeing by creating healthy internal and external environments. The design should ensure safety and security within the school boundaries, while maintaining a welcoming address and accessible environment. In designing schools, consideration should be given to connections, transport networks and safe routes for travel to and from school.

The design prioritises health and safety by providing well-ventilated indoor spaces with access to natural light and external environments that promote physical activity and social interaction. Safety measures include secure boundaries, controlled entry points, and surveillance systems that ensure student and staff security. Additionally, transport networks and pathways within and around the campus are designed to promote safe travel for students, with clear pedestrian routes and vehicle access zones that reduce potential hazards.

The play spaces are diverse and inclusive, accommodating students of all backgrounds and abilities, promoting both active and passive recreation. Soft landscaping and extensive tree canopy shade help mitigate heat, reducing student fatigue on hot days and ensuring outdoor areas remain comfortable year-round. To enhance safety and supervision, strategically placed staff areas enable passive surveillance, helping to minimize bullying and create a secure environment where students can learn and play with confidence.

Crime Prevention Through Environmental Design (CPTED) strategies have been integrated into the design. The school features clear sightlines, well-lit pathways, and passive surveillance opportunities to enhance security. The perimeter fencing ensures site safety without creating a fortress-like appearance. The Kiss & Drop zone is strategically placed to minimize traffic congestion and improve pedestrian safety. The school's landscaping includes shaded outdoor learning spaces, promoting student well-being. The design retains a number of mature existing trees that are used as features within the external areas as they provide opportunities to utilise their natural shade and amenity.

5 Functional and comfortable

Schools should have comfortable and engaging spaces that are accessible for a wide range of formal and informal educational and community activities. In designing schools, consideration should be given to the amenity of adjacent development, access to sunlight, natural ventilation, proximity to vegetation and landscape, outlook and visual and acoustic privacy. Schools should include appropriate indoor and outdoor learning and play spaces, access to services and adequate storage.

The project delivers comfortable, functional, and engaging spaces for both formal and informal learning. Classrooms, breakout areas, and outdoor learning spaces are designed to support modern pedagogical approaches, ensuring flexibility and adaptability. The layout considers adjacency relationships to minimize noise disruptions while maximizing connectivity between learning spaces. Natural light and ventilation are optimized, and adequate storage and service areas are integrated to support daily operations efficiently.

The school's built form follows a pragmatic design approach, with a standardised 7.5m x 9m grid for efficiency. Learning spaces are designed with flexibility in mind, allowing for reconfiguration based on teaching methodologies. An 18m-wide floor plate allows for ample daylight and airflow, enhancing student well-being and energy efficiency. Specialist facilities, including science labs, performing arts studios, and technology workshops, provide diverse learning environments. Outdoor play areas, including sports courts and shaded courtyards, offer opportunities for physical activity and relaxation. The design ensures visual and acoustic privacy, maintaining a conducive atmosphere for learning. Spaces that produce high levels of noise such as the woodwork and metal workspaces are located on Lower Ground Floor to mitigate noise transmission to the wider context and into quieter learning spaces.

The design incorporates landscaped courtyard views, tree canopy vistas, and distant district outlooks, fostering a calm and engaging atmosphere. To maintain privacy and acoustic comfort, the building form acts as a shield, protecting the courtyard from street noise and external disruptions, creating a secure and adaptable space for both passive and active recreation.

6 Flexible and adaptable

In designing schools, consideration should be given to future needs and take a long-term approach that is informed by site-wide strategic and spatial planning. Good design for schools should deliver high environmental performance and ease of adaptation and maximise multi-use facilities. Schools should be adaptable to evolving teaching methods, future growth and changes in climate, and should minimise the environmental impact of the school across its life cycle.

The design approach ensures flexibility in learning environments, allowing spaces to be repurposed as teaching methodologies evolve. Multi-use facilities provide opportunities for shared use, while modular design strategies enable seamless adaptation. High-performance building materials and systems enhance longevity and reduce maintenance costs, contributing to the school's adaptability and sustainability.

The building's structural design allows for internal reconfiguration without major renovations. The modular 7.5m x 9m grid with standardised floor-to-floor heights ensures future adaptability, allowing the school to accommodate evolving educational needs. The layout supports evolving pedagogies, incorporating both collaborative and individual learning spaces. Digital infrastructure is integrated to support technological advancements in education. The school's sustainability measures, including energy-efficient systems and durable materials, ensure long-term operational efficiency and adaptability to climate change.

7 Visual appeal

School buildings and their landscape settings should be aesthetically pleasing by achieving good proportions and a balanced composition of built and natural elements. Schools should be designed to respond to and have a positive impact on streetscape amenity and the quality and character of the neighbourhood. The identity and street presence of schools should respond to the existing or desired future character of their locations. The design of schools should reflect the school's civic role and community significance.

The architectural design reflects the civic significance of the school, contributing positively to the local streetscape. The built form and landscape elements are carefully composed to create an aesthetically pleasing and balanced environment. The upgrade enhances the identity and presence of Liverpool Boys and Girls High School, incorporating a contemporary yet contextually appropriate design language that respects the site's heritage and urban character.

The building form is carefully designed to create a visually cohesive streetscape, stepping from 3 to 6 levels to transition between the primary school scale and future urban density. Thoughtful façade articulation and fenestration break down the building mass, balancing a civic presence at Forbes and Lachlan Streets with a sensitive response to adjacent residential buildings. A 5m landscape zone with native planting further enhances the streetscape character, integrating the school seamlessly into its surroundings. The school's visual integration with the Liverpool Health and Education Precinct reinforces its role as a key community asset, fostering civic pride and educational excellence.

3.3 Architectural Design Principals

A. PEDAGOGICALLY SENSIBLE DESIGN

LBGHS incorporates best practice pedagogy for the learning spaces by incorporating the use of technology and providing flexibility in design to allow for the delivery of modern pedagogies that are focused on creating learning environments that students may encounter in the workforce. The architectural and landscape design of the high school facilitate opportunities for self-direction, self-reflection, evaluation, and collaboration in learning.

B. GOOD ESD PRINCIPLES

The proposed high school incorporates best practice environmentally sustainable design principles and design including:

ESD Targets	The project's objective is to achieve a 5-star Green Star Certification which has been officially registered under V1.3 - 2019. This certification aligns with the Australian Best Practice standards as per the NSW Government Resource Efficiency Policy (GREP 2019) which focuses on energy use, water use, waste management, and air quality initiatives. SINSW commits to numerous 5-star certified projects across NSW each year, contributing significantly to collective environmental improvements.
Indoor Environmental quality	• Optimal lighting comfort by ensuring well-lit spaces that promote a vibrant and pleasant environment. • Prioritise visual comfort by maximizing daylight and views while carefully considering solar control measures to prevent glare. Avoid visual clutter by using simple interior design techniques. • Creating appropriate and comfortable acoustic to minimize noise disturbances and create a conducive atmosphere for occupants. • High levels of thermal comfort are integral to our design. We employ strategies to maintain ideal temperatures and ensure occupants are comfortable year-round. • To enhance indoor air quality, we incorporate natural ventilation solutions that promote fresh air circulation, contributing to a healthier and more enjoyable indoor environment.
Passive Strategies	• Maximise passive design strategies to contribute towards the energy reduction goals for the project while increasing Indoor Environmental Quality including: • Detailed façade studies to optimise window-to-wall ratios to meet best practice daylight levels and reduce reliance on artificial lighting. • Shading optimisation to provide effective solar protection during summer and mid-season while allowing for passive heating during winter. Internal blinds to manage low angle sun and glare risks. • Achieve a ventilation area of 6.25% of the floor area of the main spaces to facilitate natural ventilation through louvres and doors.
Water	• Selection of efficient water fixtures • Rainwater harvesting to be used for irrigation (Primarily for the sports field) • Water sensitive urban and landscape design solutions. • Stormwater harvesting from the roof of all buildings.

Energy and Net Zero Targets	• Goal to exceed 10% improvement over NCC complaint reference building GHG emissions (Through passive strategies, efficient building systems and improved building envelope) • Allowing for 99kW PV panels system • At completion, LBGHS will be amongst the high schools to be 100% electric powered. • Maximize the selection of materials with reduced embodied carbon and with environmental certifications.
Resilience	Reduction of heat island effect through material selection, shading and vegetation on site.
Site Amenity	• Adequate proportion of trees in the landscaped areas to provide shading and comfortable outdoor spaces. • Avoid light pollution to the sky and neighbouring properties. • Acoustic mitigation strategy to minimise noise outbreak to the neighbouring properties.
Caring for country	Through consultation with First Nations Representatives several key natural elements around the site were identified. The design concept has focused on re-establishing native planting, as well water sensitive urban design. The design outcomes may be used as educational tools to facilitate passing on knowledge and skills about caring for country.
Views to Landscape	The buildings maximise external glazing to provide views to the outdoor spaces and take advantage of the view to the landscape and the natural surroundings. The interior design maximises the use of internal glazing to provide sense of openness.
Prospect and Refuge	The buildings and landscape area provide a variety of refuge spaces including, COLAs, outdoor learning areas, undercover spaces created via overhead exterior walkways. The landscape will have an extensive tree canopy that will provide area for shelter and refuge during school recess. Refer to the Landscape Design Report
Spatial Variability	The design of the high school focuses on achieving spatial variability by incorporating various design elements. These include unique facades with distinct colour palettes for different sections of the building, using diverse colours, materials, and textures to avoid a monotonous appearance.

C. PRAGMATIC FORM AND DESIGN

The built form follows these design parameters:

- Using a prescribed 7.5m X 9m grid.
- Utilising the SINSW hub layouts for the stacking of the functional areas
- Amalgamating services for ease of vertical stacking
- Simple roof forms
- Identifiable entry points
- Easy, simple, and visible circulation paths

3.4 School Design Guides

Three key design principles are adopted in the design of LBGHS.

A. SCHOOL DESIGN WITH APPROPRIATE ARCHITECTURAL & LANDSCAPE DESIGN RESPONSE

When considering the very physicality and powerful presence the built environment has on influencing the interaction between people, built learning environments can become psychosocial spaces. This silent and subtle shaping of people's attitudes towards each other can render the learning environment as one which takes on the role of an implicit curriculum; one which is not overt and didactic in style, but one which implicitly suggests the importance of respect and consideration for others.

For the design of LBGHS in Liverpool, NBRS applies the following design techniques to influence the creation of a built environment that benefits the users as well as creates a presence of the school within the greater Liverpool area:

- Creating a safe environment for your adult learners and staff.
- Designing stimulating environments to support variety of teaching and learning modes.
- Use durable materials that withstands wear and tear in a high school environment.
- Provide adequate built-form presence along Lachlan Street and Forbes Street
- Create protected courtyards that are enclosed by built form.
- Maximise North South facing buildings.
- Provide the opportunity for good sightlines to the outdoor play spaces.
- Minimise the risk of overlooking and overshadowing neighbouring residences.
- Design of buildings and landscapes that respond to the natural topography of the site.
- Minimise building footprint to reduce the travel distance to walk between learning hubs,
- Design a simple building layout to enable clear navigation within the campus.
- Design building fabrics that reflect the unique characteristics of the place to create a sense of belonging.
- Establish building heights that are sympathetic to providing natural light to the outdoor play areas.
- Create an urban scale-built form that responds to the existing high-density residential developments on the neighbouring sites and adjacent health and education infrastructure developments.
- Establish relationships between the access/egress to a school site and between the main operational units and areas that form the central functions of a school.

B. DESIGNING CONNECTION TO THE NATURAL SURROUNDING

Outdoor environments encourage spontaneous, voluntary, and joyful learning opportunities for children to explore and interact with their peers and the world around them. Play spaces, vegetable gardens, and outdoor sports courts are outdoor learning activities that promote teamwork and hands-on experiences. This includes designing learning environments that respond to simple and pragmatic ecologically sustainable design and biophilic design principles as outlined below.

- Optimise sunlight intake to positively contributes to higher academic performance. Natural light also supports attention, the stability of the circadian cycle, and overall health, mental health, and comfort, which in turn, leads to better academic performance. (UCL, Mar'22)
- Maximise natural ventilation to facilitate constant flow and exchange of fresh air in learning environments.
- Create quality outdoor play spaces with adequate access to natural light and a variety of experiences.
- Provide quality outlook from the internal spaces by maintaining a visual connection to landscape, nature, and the open sky.
- Create playful outdoor spaces to encourage physical activities.
- Design indoor spaces which extract the qualities of the natural environment.

C. CREATING A COMMUNITY HUB.

A partnership between the school and the community provides the opportunity to engage with and enhance the surrounding community to create a stronger school as a hub within its community.

The high school has been designed to enable some interaction between the school and its community.

- Opportunity to share some of the school facilities for community use after school hours. Extended use of school facilities activates the school beyond its operational hours and increases passive supervision.
- Design a forecourt at the main entrance to the school to create a meeting space that is welcoming.
- Provide opportunities to connect with the local Aboriginal Community.

EFSG guidelines and design principles have also best been incorporated into the proposal.

3.5 Designing With Country

We see the need to preserve local history and cultural significance for students, staff, and the community. Acknowledging the history and knowledge of the Aboriginal custodians of the land, the vast rivers and rolling mountains, flora, and fauna.

The inclusion of First Nation references in architectural design is vital for various reasons, with a primary focus on reconciliation. This integration acknowledges historical injustices, respects, and recognises Indigenous cultures, and fosters a sense of inclusion. Incorporating such references also connects the design to the land, provides educational value, engages the community, preserves cultural heritage, and symbolises unity in multicultural societies. Ultimately, it contributes to creating spaces that are respectful, inclusive, and reflective of the diverse cultural heritage of the community.

The architectural and landscape design team at NBRS has established the following methodology to guide our approach to Designing with Country.

- Acknowledge: To acknowledge the need for in depth discussion and consultation sessions with the Aboriginal Community.
- Obverse: To listen and understand the stories told and the identified items of significance.
- Evaluate and establish connection: To seek opportunities to connect with the stories and significant elements.
- Consult: We intend to continue the consultation process throughout the course of the project.
- Framework: Apply structures to guide the design and implementation of the CWC ideas.
- Act: incorporate CWC ideas and ensure of a pathway to extend the CWC ideas and design stories to the end users.

3.6 Crime Prevention

The project has implemented the following crime prevention strategies:

- Avoid Blind Corners - Clear sight lines have been created through direct pathways and permeable barriers, eliminating blind corners with elements like mirrors and glass panels to enhance safety and comfort.
- Well Designed Communal/Public Areas – the design has incorporated strategy in placing windows in active areas and making communal spaces, utilities, elevators, and stairwells easily seen.
- Provide Clearly Visible Entries – the school entrances have been strategically located and visible from the street & adjacent buildings to foster safety, security, and allowing swift emergency response.
- Effective Fencing Design – the high school design includes a single line of perimeter fencing to secure the site and buildings from vandalism.
- Effective Lighting Design – There is a well balance in the high school design, allowing natural and artificial light as well as window treatments to reduce glare or shadows so to promote safety, deters misuse, and encourages use after dark while supporting surveillance.
- Consider Mixed Uses – Some of the school facilities such as the gym, library and sport facilities have been planned and designed to enable extending their use beyond school hours so to activate the site and engage the community.
- Use Permeable Security Grilles and Doors – the proposed perimeter fences are made in metal mesh for better permeability for better passive surveillance from the surrounding neighbours.
- Clear Building Identification – for permanent and prominently display and unobstructed to provide clarity in wayfinding.
- Creating a Positive Image – the school and SINSW Asset Management Unit (AMU) are encouraged to promptly remove graffiti to maintain a positive image and deter criminal activity.

- Use of Robust Materials – the school design has implemented the use of robust building materials to minimise damage opportunities and vandalism, along with sturdy construction and reduce maintenance costs.
- Defining Spaces for Restricted Entry – the school security design includes the use of intercom and CCTV to control site access and provide added level of surveillance.
- Creating A Sense of Place – The school has been well designed with facilities that are accessible for after school hours use to bring together the neighbourhood which in turn will foster community pride and sense of ownership.
- Ensuring Clear Sight Lines in the Carpark – The school staff carpark has been designed with staff only access to prioritise the safety of the staff. The staff carpark is visible from a school building and the neighbouring residences.

For further information refer to the CPTED Report by NBRS

3.7 DRP Comment Responses

Below are the architectural and landscape justifications in response to the DRP advice letter.

3.7.1 Connecting with country

Response Item 1. CwC consultation and design process has continued after DRP meeting.

Response Item 2. The river graphic was indicative at the time of the DRP. We note the DRP comments and the design team has further developed this item to now provide a pixelated river option that both adheres to constructability methodologies & also aligns with similar themes proposed for the internal courtyard balustrade (Refer to L-00002). The abstracted river graphic highlights the significance of the Georges river to the local Cabrogal clan and generates a range of social and active spaces through the external area was indicative of the design intent at the time of the DRP. These spaces demonstrate how the river is the genesis for community by providing opportunities for play, learning, gathering, social interactions, providing food, and supports life local flora & fauna. The abstract river line marking uses colours which reflect the tones and movement of the tidal banks of the Georges river and the earthy tones of the ochres and sandstone geologies.

Response Item 3. Noted

3.7.2 Site strategy and landscape

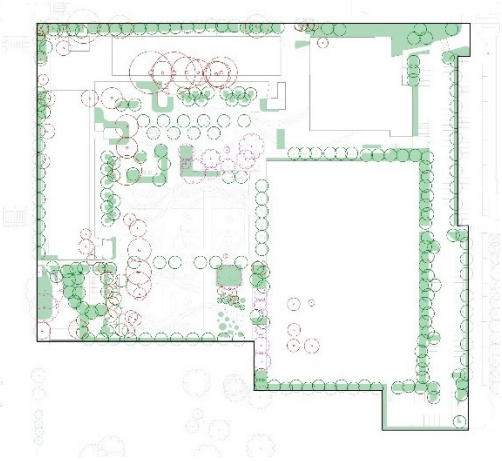
Response Item 4. Landscape strategies mitigate urban heat island day one of the school opening by:

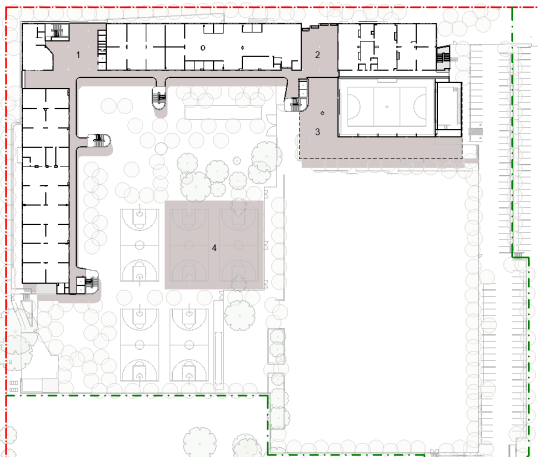
a) All trees will be pre-procured and grown to achieve a 200ltr pot size. Regular reports will be sent to the team which will outline progress and identify any issues. The trees will be grown in similar climatic conditions to those on sit to minimise the "shock" when the trees are installed on site. The trees will be 3m or taller (species dependant) which will maximise the day one shade from the new trees. Tree locations have been carefully selected to maintain relevant clearance to building/structures, not to impact sport fields/courts, and the in-ground services. The tree locations generate social spaces for students to gather and to shade the hardscape across the external areas. Additional shaded areas have been provided in the walkway overhangs, covered outdoor learning area adjacent to the hall, bistro terrace, covered terrace break out areas between block A and B, shade canopy area over hardcourts, COWA and semi-external covered SELU spaces. These spaces create lots of opportunities for shade on day one of the school opening.

b) The extents of hardscape across the site are required to meet the design brief and school requirements. The number of external multicourts, assembly areas, and circulation allowances are predefined and need to be achieved. The external surfaces need to accommodate 2000 students every day during all weather conditions. As such, an appropriate, durable, and cost-effective material is required to meet these requirements and ensure the external spaces are accessible all year round.

c) Carparking numbers aligns with the recommendation of the traffic impact assessment report which has been prepared in consultation with council and transport for NSW through the transport working group. Further reduction of parking spaces will not be supported. The carparking plan shows both the proposed High school and the existing Gulyangarri Primary School car park. The existing primary school car park has limited opportunity to introduce tree planting. However, tree planting has been provided in the car park where possible. The western frontage is densely planted, trees are located along the central garden bed (at the junction between the Gulyangarri PS & the HS), trees have been located to the perimeter of the southern carpark, & where possible trees have been located in the carpark medians.

d) Tree Canopy cover has been maximised. The project is achieving 30% mature canopy coverage of the site which is greater the Draft Greener Places Design Guide recommendations of 15% for Urban CPD sites and 25% for medium to high density sites. Where possible ex. Trees have been retained to maintain their canopy coverage and new trees have been provided in appropriate areas to provide canopy coverage to the external areas. The project will not achieve 40% canopy cover due to other project constraints including, play space, fields, courts and carparking requirements. A shade structure has also been included over x2 multi courts (Refer to L-00002). This will provide additional shading area. Refer to tree canopy cover diagram and built form shade diagram.



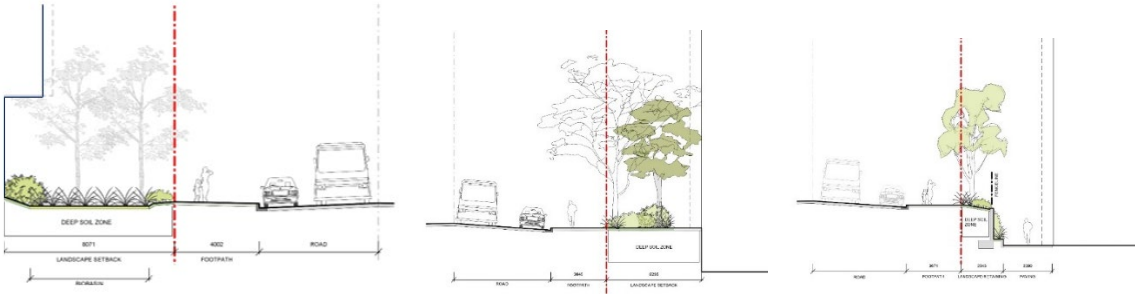


Built Form Shade Diagram

Canopy Cover
The project will also achieve 15% of the site area as vegetation and achieve 30% mature canopy coverage.

Response Item 5. Water sensitive urban design principles have been integrated into the design to improve water quality, initiatives include minimizing impermeable pavements, reducing building roof area through multilevel design, and rainwater reuse with a 200kl rainwater tank which harvests rainwater from the built form. This water is re-used to provide irrigation to the mass planted areas. Stormwater catchment is generally sheeted towards the sports field where it is filtered through the fields sublayer before being directed into the stormwater system to the south of the site which includes GPT and SW treatment chamber. A Portion of the stormwater to the northern side of the site is directed to the north and is treated in a bioswale before discharging to the north. Trees & planting have been located to enable passive irrigation across the site.

Response Item 6. There is a 6m building setback along Lachlan and Forbes Street which allows for landscape planting zone which will add to street character, please refer to streetscape sections. The building setback has not been increased as it will have an negative impact on usable Play space area and increase overshadowing to the courtyard space. The design is currently achieving 9.8m2/student of play space which is already lower that the requested target 10m2.



Response Item 7. The campus urban design strategy has focused on Strengthening the physical and visual connections between the school and the broader Liverpool Town Centre and Health and Education Precinct. The team has continued to develop the design to tie into the existing and future character of the area. Design strategies include:

- The Main entrance is positioned at the corner of Forbes and Lachlan Street addressing the prominent corner of the site and connection to Liverpool town centre.
- The building steps up to address the corner and the opening clearly defines the civic entrance to the campus.
- Secondary community and after-hours entry off Lachlan Street provide access to the Hall, Oval and Courts as well as proving connectivity into the site for the wider community
- Building from addresses the street and responds to the future urban scale of developments which may be as high as 35m (refer LEP)
- The building from and articulation breaks down the mass of the building and responds to the future and existing residential scale of buildings on adjacent sites across the streets.

- The material and colour palette ties into the Georges River and Cumberland plain tying the building back to the natural setting, giving the building a unique identity.
- 6m setbacks building setbacks allow for the development of soft landscape streetscape which includes Endemic and local natives which ties into the local character of the Liverpool area
- Endemic and local natives have been selected and used throughout the design including streetscape areas.
- Reducing perimeter fencing and using the built form to define the site edge improves the streetscape outcome.
- Combining PS and HS carpark crossover entry point improves the streetscape character

Response Item 8. The internal fencing strategy has been refined. Please refer Landscape drawings L-02000 & L-33000 where additional sections are provided. The edge condition along the southern boundary comprises of a low retaining wall (less than 1m) to address the level change, planting and a 2.1m high perimeter fence, refer landscape drawings. The existing girls school will be demolished and the temporary school will be removed and returned to the Gulyangarri PS Site.

Response Item 9. Bike parking numbers meet recommendations of the Traffic impact assessment report and align with planning requirements. Increasing bike parking numbers will not be supported and would either reduce play space or canopy cover area. The main bike parking area is accessible via the 1:14 ramp of Forbes street in the southwestern corner of the site (refer below). A smaller bank of bike parking is located adjacent the hall/car park entry, this is accessed via the secondary entry of Lachlan street (refer below).

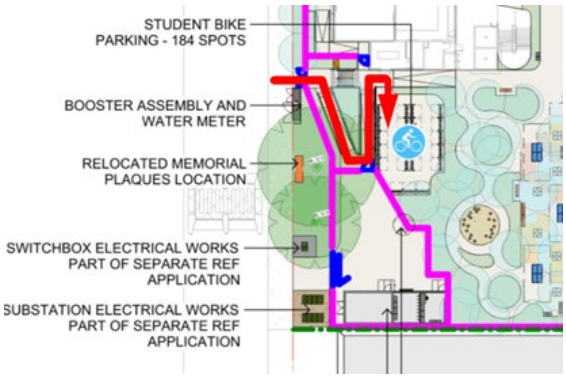


Figure 37-Bike parking – item 16. Forbes St. Access.

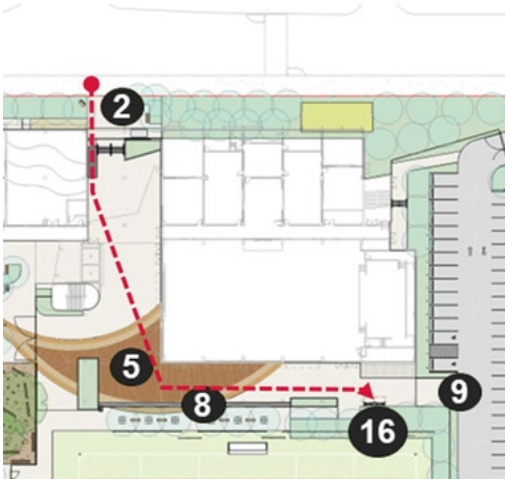


Figure 2 – Bike parking- item 16- Lachlan St. Access.

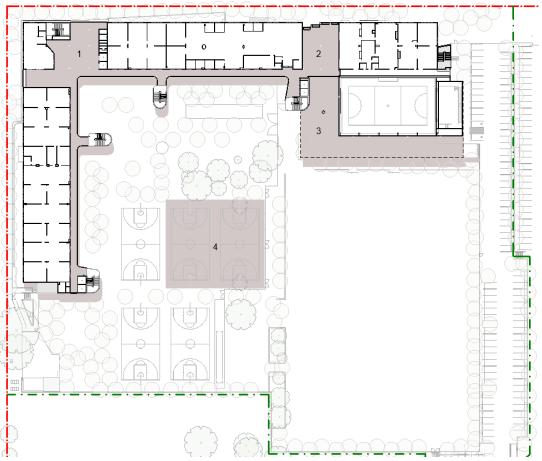
Response Item 10. The size and quantity of the courts & field are set by the EFSG/brief a reduction of these spaces are not supported/feasible. That being said the design incorporates a variety of other multi use/social spaces and every effort to maximise these areas have been made. These spaces have been thoughtfully considered to provide a range of seating types and create a variety of social environments that consider the physical and mental safety of the students. These spaces are generally enclosed by vegetation to provide a sense of enclosure/security and have been located adjacent to new or retained tree planting to provide shade.

3.7.3 Architecture

Response Item 11. Architectural expression aligns site specific requirements for shading and wind protection as well as the pattern book design principles.

a) Deep Horizontal and vertical shading has been provided along the north and western facades and detailed modelling review completed to access the effectiveness of shading elements

b) Shaded areas have been provided in the walkway overhangs, covered outdoor learning area adjacent to the hall, bistro terrace, covered terrace break out areas between block A and B, shade canopy area over hardcourts, COWA and semi-external covered SELU spaces. These spaces create lots of opportunities for shade on day one of the school opening. Refer to built form shade diagram.

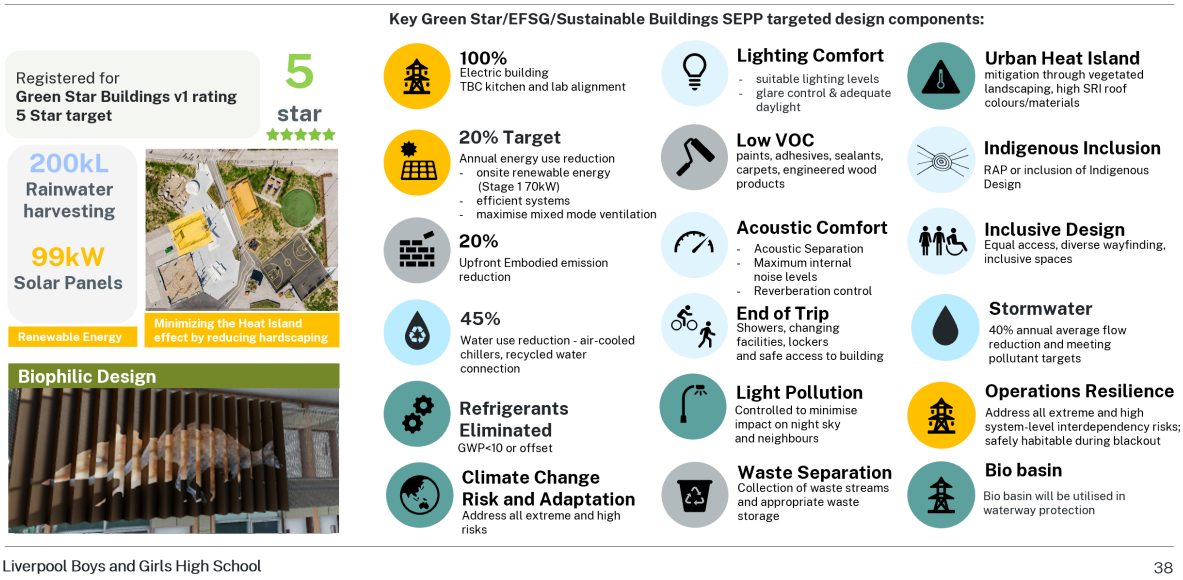


Built Form Shade Diagram

Response Item 12. The school identity and material palette are strongly tied to place and reflects the earth tones and colours of the Cumberland Plains and the Georges River in alignment with CwC and school stakeholder consultation. Material selection and the façade design are based on EFSG and Pattern book design guidelines. The team is working to fine tune the material selections as they finalise the design.

3.7.4 Sustainability and climate change

Response Item 13. Refer to summary page below and detailed Greenstar initiative spreadsheet which indicates how sustainability targets have been integrated into the site planning , landscape and building design and how these targets will be achieved.



Response Item 14. Heat gain to outdoor areas have been minimized through external space design including; Location of built form to the North and East of main external space, incorporation of shaded areas into built form, provision of shade structure over courts, maximising tree canopy cover, and use of light-coloured materials to reduce heat gain. Refer detailed response in items 4 and 11b above.

Response Item 15. Refer to Net Zero statement which illustrates how the project contributes to NSW's Net Zero emissions goal by 2050 and specifically addresses 'NSW, DPIE, Net Zero Plan, Stage 1: 2020-2030'.

3.7.5 Additional information requested by DRP

Response Item 16. Refer to updated drawings.

- Detailed architectural plans
- Site sections

Items referenced in response:

- Net Zero statement
- Greenstar initiative spreadsheet
- Traffic impact assessment report
- Landscape plans
- Updated drawings

Drawings:
Landscape section to south of site
Arch site section with existing buildings / future building envelope shown

3.8 Liverpool Council Comment Responses

Item	Council Feedback/Comments	NBRS Response LCC
	<u>City Design and Public Domain team (CDPD)</u>	
Note	CDPD notes the material presented was pre-REF therefore high level, without a full set of plans, elevations, sections, landscape drawings or reports. The applicant will be lodging the REF submission in early 2025, where Council will receive full sets of documents and have the opportunity to provide more detailed commentary. As such, the commentary provided below is high-level only, and CDPD will provide more detailed comments based on updated full drawings and reports as part of the REF submission.	
1	CDPD is supportive of the urban approach to secure lines and fencing, utilizing the building line as fencing, and reducing long expanses of fencing interfacing the public domain and the 5m landscaped setback to the street. CDPD seeks further detail of the landscape design throughout the setback, including native planting, and utilizing opportunities for dwelling and seating.	High level planting plans have been provided in the latest documentation (refer LBGHS-NBRS-00-XX-DR-L-20000 to 23000). This covers species, pot size, and quantities in these areas. However, the detailed planting design (the location of individual species) will be completed in the next stage of the project. Please note that the plant species are all native and are a mix of shrubs, groundcover, native grasses, and climbers.
2	Liverpool City Council (LCC) is currently working on a draft Public Domain Technical Manual that will be released this year. CDPD recommends as part of the project program, and response to REF comments, the applicant reach out to Council for the most current information and drawings from this document to inform the finalisation of the public domain design, particularly from the site boundary to the street kerb. Note the surrounding street types application for this site is the 'Periphery Streets'.	Please refer to the public domain documentation (LBGHS-NBRS-00-XX-DR-L-90000) for these items. This will be further developed in the next phase of the project – Detailed Design when the building contract has been awarded.
3	The Presentation included notes on some of the proposed public domain works and options being explored, including relocating pedestrian crossings, bus stops, kiss and ride bays and parking. Once the full package of drawings and reports is submitted as part of the REF, CDPD will review with Council's internal teams and provide feedback from an urban design perspective.	Please refer to the public domain documentation (LBGHS-NBRS-00-XX-DR-L-90000) for these items. This will be further developed in the next phase of the project – Detailed Design when the building contract has been awarded.
4	Liverpool City Council's Public Domain Masterplan and soon to be released accompanying draft Technical Manual incorporates the design direction and strategies to increase landscaping throughout the Liverpool CBD streets and updated finishes, fixtures, fittings and furniture for future developments. How these are incorporated is dependent on the location of pedestrian crossings, parking, bus zones and entries. Once Forbes St and Lachlan Street parking strategies are confirmed, and a resolved public domain plan	We look forward to incorporating these elements when the parking strategies are confirmed. This will be undertaken in the next phase of the project – Detailed Design when the building contract has been awarded.

<table>
<tr><td></td><td>provided, CDPD can provide further recommendations on street treatments including (but not limited to) intermittent garden beds, grass where appropriate, paving, street furniture, lighting and multi-function poles.</td><td></td></tr>
<tr><td>5</td><td>Lachlan Street and Forbes Street are ‘existing off-road cycle paths’ of the Liverpool cycle path network as per the LCC Bike Plan, therefore as part of the public domain works as part of this project, the shared path should be incorporated, including a minimum 3.1m clear zone, floor finishes and line markings to Council specifications.</td><td>Need client to confirm this, not currently part of scope/brief.</td></tr>
<tr><td>6</td><td>As part of this project and in line with Council’s design direction for the City Centre, CDPD recommends streets trees are provided in the public domain along both Forbes St and Lachlan St frontages, in tree grates to Council specifications. Spacing should be provided as follows:
<table><tr><th>Tree Size</th><th>Height</th><th>Crown Spread</th><th>Spacing</th></tr><tr><td>Small Tree</td><td>< 7 m</td><td>3-5 m</td><td>7-10 M centres</td></tr><tr><td>Medium Tree</td><td>7-15 m</td><td>6-10 m</td><td>10-15 M centres</td></tr><tr><td>Large Tree</td><td>>15 m</td><td>12-15 m</td><td>15-20 M centres</td></tr></table></td><td>There are currently no existing street trees in the public domain along Lachlan & Forbes Streets. However, new planting (tree & understory) will occur in the setback between the building and the public domain.

The current documentation demonstrates the design intent, species, quantities, and pot sizes. Tree locations will be finalised in the next phase of the project – Detailed Design when the building contract has been awarded (refer LBGHS-NBRS-00-XX-DR-L-20000 to 23000).</td></tr>
<tr><td>7</td><td>The site currently has a significant number of mature trees, lining the streetscape, provide shade, and mature native trees within the school site. CDPD requests clarity provided and accompanying Arborist report, of what trees are proposed to be removed and the rationale for why. Seeking opportunities in the site layout to retaining these existing high value trees is recommended and offers great benefit to the school community and environment.</td><td>Please refer to tree management plan (refer LBGHS-NBRS-00-XX-DR-L-01000) and the current arborist report as requested. Please note that every effort was made to maximise ex. tree retention however a number of significant mature native trees along Lachlan Street have been lost as they clash with the placement of the building footprint.</td></tr>
<tr><td>8</td><td>The Liverpool CBD has several tall multideck car parks with long balustrades and uniform screens, that are highly visible from the streetscape and a poor urban design outcome. The Liverpool Hospital high rise car park is in close proximity to the school. CDPD is concerned the south and east internal elevations of the circulation are dominated by uniform balustrade and screens, and will be highly visible throughout the CBD. CDPD recommends further design consideration of these facades to differentiate from this existing surrounding condition and add visual interest, articulation and variation.</td><td>The courtyard walkways have been enhanced with additional balustrade-colored infill panels, adding variation, visual interest, and breaking up the facade. Some of these infill panels are also proposed with a lenticular art display that will tie into the connecting with country design notions for the site. This pixelated design concept will also seamlessly integrate with the overall landscape design. Courtyard stairs (x4) are also proposed with a perforated aluminum screen that will have a varying aperture / open % & will also be powdercoated a colour that will provide additional vibrance & interest.</td></tr>
</table>

9	The proposal is a unique opportunity to include the provision of high-quality Public Art within its design. Council's Public Art officer should be consulted.	The project proposes opportunities for indigenous artists to provide graphic illustrations that are intended to be incorporated within the building facade. This includes printed fibre cement cladding panels & perforated screen graphics to both Lachlan & Forbes Street. The design team is happy to further clarify with relevant council stakeholders on what is currently proposed.
10	CDPD recommends an integrated approach to services, including discreet positioning, rotated sideways, set away from the street boundary, concealed within buildings, and/or screened.	The design team is best trying to provide efficient services and runs required for the project. The proposed hydrant booster assembly booster is also proposed to have an enclosure with access gates as per LBGHS-NBRS-00-XX-DR-L-11030. Refer to services documentation for additional information.
11	CDPD encourages the campus master plan to enable shared-use of open space by the community.	The proposed secure line / fencing design will enable school flexibility for facilities to potentially be used for community use should the stakeholders wish to do so. By encouraging accessibility and multi-purpose use, these spaces can enhance engagement, collaboration, and a stronger connection between the school and the broader community.
12	CDPD has concerns toward the functionality of a vertical high school and limited access for students to play areas during the day. The Liverpool City Centre is a high density urban environment and many students will be experiencing high density living, with limited access to play space. CDPD requests clarity on how play spaces are accessed by students throughout the day, particularly from the upper floors, and how recreational space and landscaping has been including throughout the buildings.	The proposed site & build falls under SINSW urban school design parameters given its location & context. Providing multi-Storey blocks enables the lower ground level to be best dedicated to landscaped play areas which align with the min m2 per student requirements. Knuckle areas on upper levels also provide COLA opportunities, particularly the outdoor bistro area *(between Block B & C, Level 1)* where planters for local shrubs & herbs will provide additional learning opportunities. A vertical transportation assessment will also be conducted for the proposal to ensure adequate vertical movement is provided.
<u>Information requested:</u>		
Note	CDPD requests a Public Domain Plan is provided for Council to review and approve and include information of the following:	
13	Upgrade and embellishment of the shared-path to Council specifications, and in line with 'Periphery Streets' paving requirements	Need client to confirm this, not currently part of scope/brief.
14	Connections from the site entry points to the pedestrian footpath	Included in documentation

15	Existing / proposed kerb and gutter embellishment. Existing driveways no longer used should be removed	This will be undertaken in the next phase of the project – Detailed Design when the building contract has been awarded.
16	All proposed street tree plantings at 200L pot size with tree grates	No street trees - Confirmed that all new tree planting will be 200l pot size. Tree grates will be installed to all street trees as per CDPD requirements.
17	All retained/proposed planting, garden beds and/or turf	There is no existing planting.
18	Proposed driveway layback and crossovers	Refer to Civil documentation.
19	Detailed treatments for the safe intersection of footpaths & driveways (for pedestrian priority and promoting vehicles calming).	Refer to Civil documentation.
20	Public domain of neighbouring sites, and how the proposed ties in, for example Gulyangarri PS	Please refer to civil public domain documentation & landscape LBGHS-NBRS-00-XX-DR-L-90000) for these items.
Note	As part of the Landscape drawings, please include the following information:	
21	Proposed vegetation positioning	High level planting plans have been provided in the latest documentation (refer LBGHS-NBRS-00-XX-DR-L-20000 to 23000). This covers species, pot size, and quantities in these areas. However, the detail planting design (the location of individual species) will be completed in the next stage of the project
22	Tree spacing, quantity, pot size, mature height and spread	Please refer LBGHS-NBRS-00-XX-DR-L-20000.
23	Species (refer to Council's preferred species list and the Tree Management Framework)	Please refer LBGHS-NBRS-00-XX-DR-L-20000.
24	Canopy coverage (percentage in public domain and separate percentage within site)	No trees in the public domain. All trees occur within the school boundary. For the current canopy coverage diagram please refer LBGHS-NBRS-00-XX-DR-L-04000.
25	Planting schedule identifying the native, endemic, or exotic status of each species	Please refer LBGHS-NBRS-00-XX-DR-L-20000.
26	Planter soil depths and irrigation	Please refer LBGHS-NBRS-00-XX-DR-L-42000.
<u>Heritage (Email Received 09/01/2025 From Thomas Wheeler – LCC Heritage Officer)</u>		
27	Is either the Boys or Girls high school identified on the DoE Section 170 Heritage Conservation Register?	

28	Are you undertaking any archaeological assessments for either Aboriginal or Historical? I know the new primary school at the back had work to do in relation to Aboriginal Cultural Heritage.	
29	Are you going to be following the NSW Governments Connecting with Country framework as a part of the design process?	
30	Is there an opportunity to develop and install (particularly in the administration building) heritage interpretation in relation to the history of both schools, the old buildings and any significant people that have been through the schools?	
31	In the instance that Aboriginal objects, or historical archaeological relics are uncovered, is there an opportunity for a permanent display within the Administration building or library?	

4 Design Process

4.1 Asset Utilisation

We have adopted the following high level area assessment to validate suitability of the site for a large high school.

- Play Space: As an urban school we are obliged to achieve 6.5m2/student. However, the current design is aiming to exceed this target and achieve a target of 9m2/student to facilitate recreational and outdoor activities.
- Gross Floor Area: To accommodate classrooms, administrative offices, and various facilities, an approximate Gross Floor Area of 27,000 square meters is needed.
- Staff Carpark: The high school provides 112 parking bays (including 2 accessible spots)

This 3.3-hectare site for LBGHS, is a large high school accommodating 2000 students and 151 staff. This diagram has been prepared to examine the best use of the site and an indication on how the above areas for play space, building, and parking are apportioned. Here is the summary:

- Approximately 18,000 square meters of unencumbered play space, exceeding the required 6.5m2 square meters per student calculation.
- Assuming all school buildings are to be three to six storeys high to optimise outdoor areas on the ground level.
- Staff parking provisions at 75% capacity, suggesting that 112 staff parking bays can be accommodated, and no student parking will be provided on site.

The following bubble diagram illustrates suitability of the site for the proposed high school, with adequate space allocations for unencumbered play area, building structures, and staff parking, thus laying the foundation for further detailed planning and development.

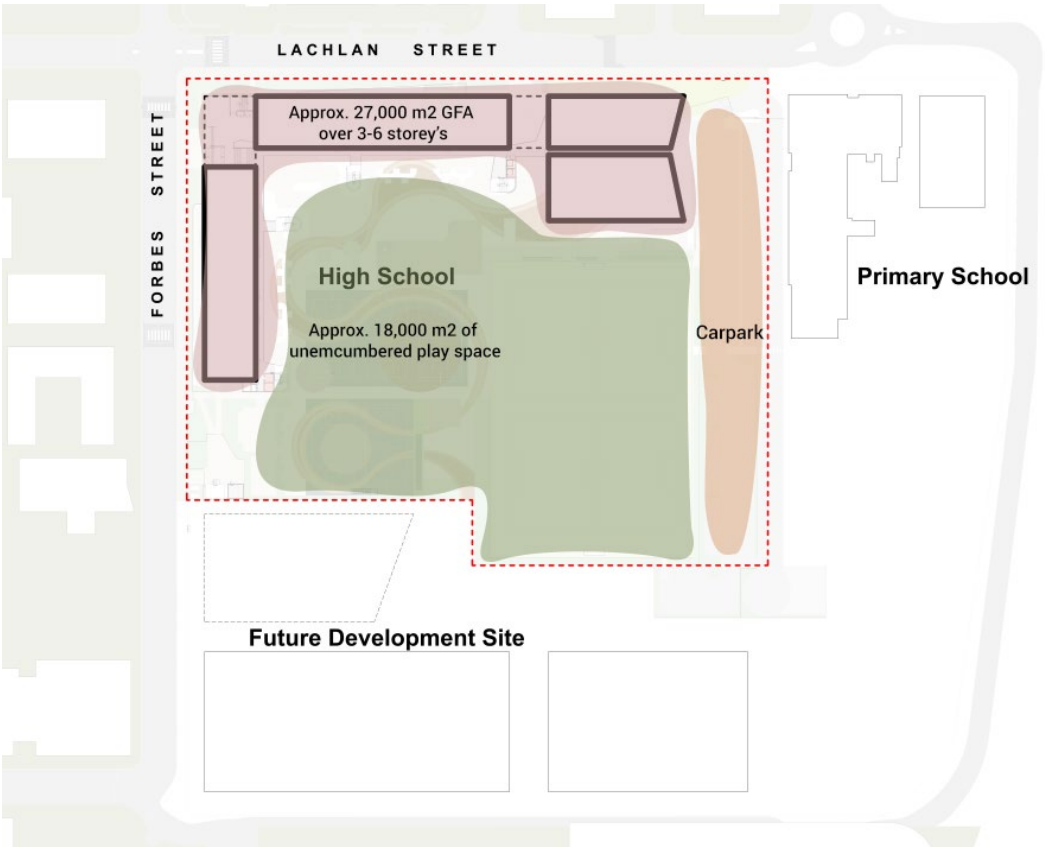
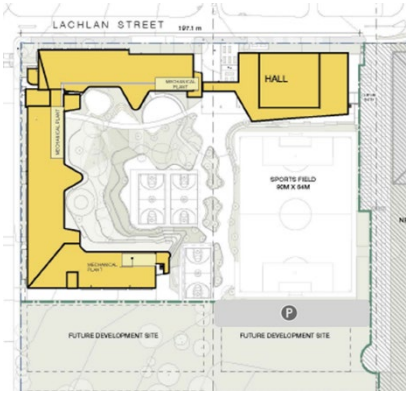


Figure 38. Site utilisation and area analysis diagram

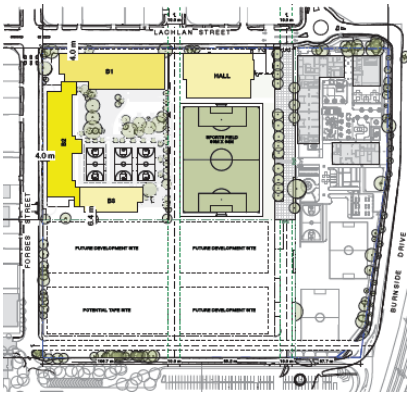
4.2 Masterplan + Concept Summary

The master planning and concept design phases were completed by a previous architect by the end of 2023, after which our team took over the project. During the interim, School Infrastructure New South Wales (SINSW) developed an in-house masterplan for the site. Our team conducted a thorough analysis of each design, adhering closely to established design principles and school design guidelines. The masterplan options are presented below.



Main reasons to disregard this option:

- Buildings have a large footprint.
- Carpark extends into LGHS Site



Main reasons to disregard this option:

- Budget overrun
- Buildings have a large footprint.

Scheme we are progressing

- Complies with Large School EFSG
- Approved Masterplan

Figure 39. Master planning Options (source: TKD and SINSW)

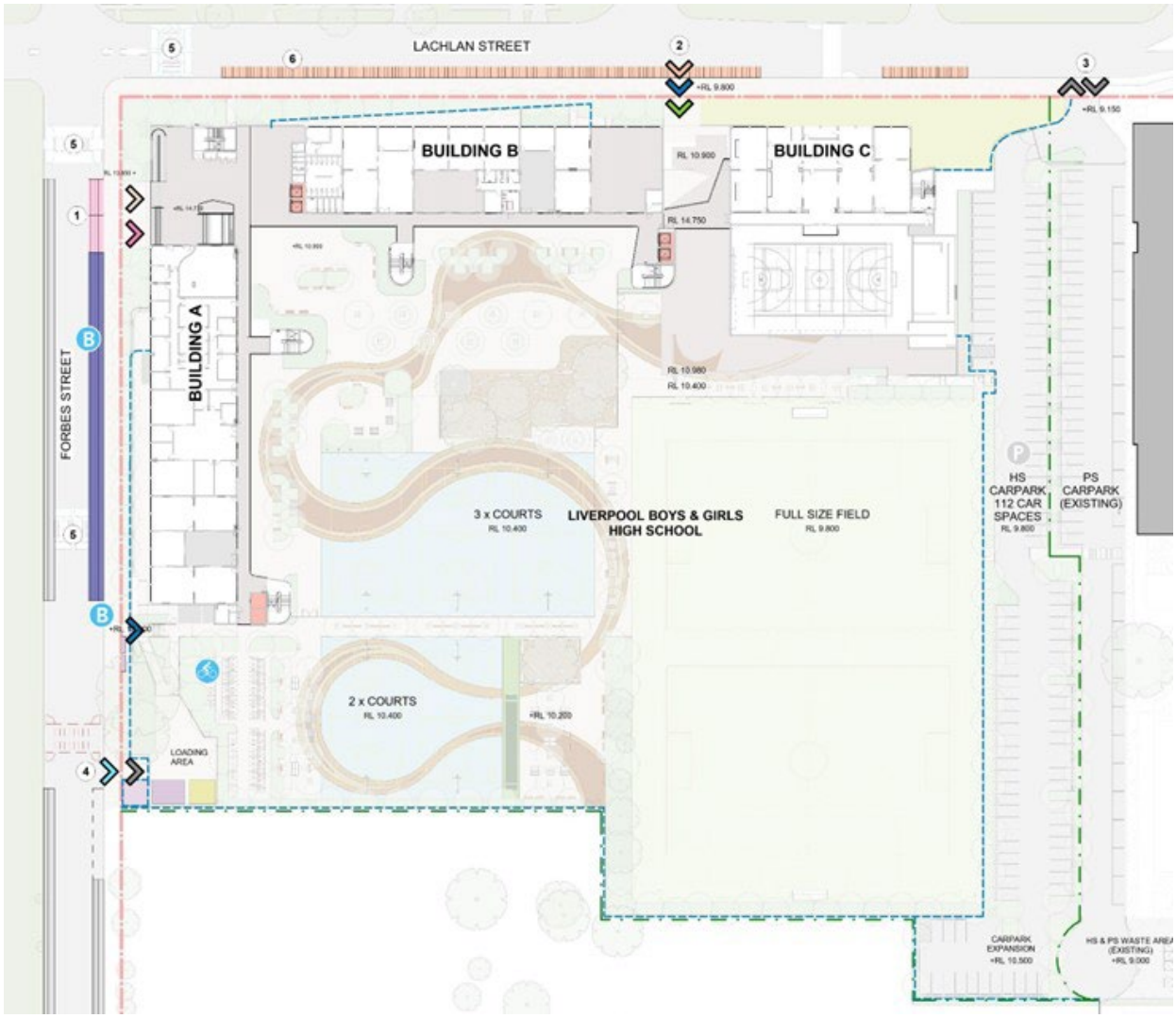


Figure 40. Site Plan (Source: NBRS)

NOTES:

1. MAIN SCHOOL ENTRY
2. PEDESTRIAN ENTRY & MAIN COMMUNITY ACCESS FROM LACHLAN STREET
3. VEHICULAR ACCESS FOR PS AND HS FROM LACHLAN STREET
4. SERVICE LOADING & DELIVERY ENTRY
5. PROPOSED UPGRADE OF EXISTING PEDESTRIAN REFUGE TO BE DISCUSSED WITH SINSW
6. SCHOOL PICK-UP & DROP-OFF AREA

LEGEND

- BUS STOP
- CAR PARKING
- SITE SLOPE
- BICYCLE PARKING
- PROPOSED PEDESTRIAN CROSSING
- EXISTING PEDESTRIAN CROSSING
- DEMOLISHED PEDESTRIAN CROSSING
- PROPOSED HIGH SCHOOL SITE
- EXISTING BOUNDARY
- PROPOSED FENCE
- RAIL LINE
- MAIN ACCESS
- SECONDARY ACCESS
- SELU ACCESS
- VEHICLE ACCESS
- STUDENT ACCESS
- PRIMARY SCHOOL ACCESS
- DELIVERY ACCESS
- AFTER HOURS COMMUNITY ACCESS
- PICK UP AND DROP OFF
- ACCESSIBLE PICK UP AND DROP OFF
- POTENTIAL BUS ZONE
- EXISTING PICK UP AND DROP OFF
- EXISTING EASEMENT INGROUND SERVICES
- 2.5m STORMWATER EASEMENT
- SUBSTATION EASEMENT
- MAIN SWITCHBOARD
- LIFTS

4.3 Design Summary

The key main objective in the Design phase is to develop the high school design in alignment with the SINSW masterplan and the Urban High School SOA. Below are some of the key learning hubs planning considerations:

- The Support Education Learning Units (SELU) are located on the ground floor of Building B where level access from the street to SELU's is achievable at a flatter ground gradient.
- The Performing Arts and Physical Education Hubs are close to the Gym to create a Performing Art Zone
- The library adjacent to the Bistro terrace and VET Kitchen to enable spill out space from both spaces for community after hours use should it be desired.
- The Wood and Metal Hub is located on the lower ground floor of Building A to not face the neighbouring residential area to reduce potential noise outbreaks from these manual art learning areas.
- Specialist learning areas are distributed throughout the campus for efficient travel distances.
- The Science Learning Area, Food and Textile Hub and Visual Arts are located on upper floors of the buildings, allowing direct discharge of the mechanical services through the roof.

The below table outlines the distribution of facilities and services across the buildings and levels across the campus.

	BUILDING A (FORBES STREET)	BUILDING B (LACHLAN STREET)	BUILDING C (LACHLAN STREET)
LOWER GROUND FLOOR	3 X GLS / Wood Workshop 2 X Wood Workshop / Store 1 X Outdoor Covered Workshop 1 X Health & PE Hub 3 X GLS / Metal Workshop 1 X Metal Workshop / Store 1 X Admin / Staff	4 X GLS / Health & Pe 1 X Pe Fitness Laboratory 6 X GLS / Performing Arts / Music 1 X Performing Arts Workshop 2 X Learning Commons 1 X Performing Arts Store	1 X Cola 1 X Gymnasium 1 X Canteen General Store
GROUND FLOOR	5 X GLS 1 X Learning Commons 2 X GLS Industry Immersive 1 X Industry Immersive Learning Commons 1 X Industry Immersive / Seminar / Office Consulting Room 1 X Admin / Staff	7 X GLS / SELU 2 X Learning Commons / SELU 2 X Outdoor Learning Commons / SELU	3 X GLS / Food & Textiles 2 X Kitchens 1 X Learning Commons / Bistro 1 X Learning Commons
LEVEL 1	7 X GLS 3 X Learning Commons 4 X GLS / Visual Arts 2 X Visual Arts Workshop / Dark Room / Store 1 X Admin / Staff	5 X GLS 1 X Learning Commons 1 X Library Hub	1 X Food & Textiles Hub (Including 2 X Vet Kitchen) 3 X GLS Vet / Textile 1 X Learning Commons
LEVEL 2	12 X GLS	7 X GLS	

	2 X Learning Commons 4 X GLS / Big Picture 1 X Learning Commons / Big Picture 1 X Admin / Staff	2 X Learning Commons 4 X GLS Science 2 X Science Lab 1 X Preparation Store / Multipurpose Space / Botany / Chemical Store
LEVEL 3	14 X GLS 3 X Learning Commons 2 X Admin / Staff	6 X GLS 3 X Learning Commons 6 X GLS Science 2 X Science Lab 1 X Preparation Store / Multipurpose Space
LEVEL 4	1 X Admin / Staff Lounge 1 X Staff Terrace 1 X Staff Amenities 5 X GLS 1 X Learning Commons	

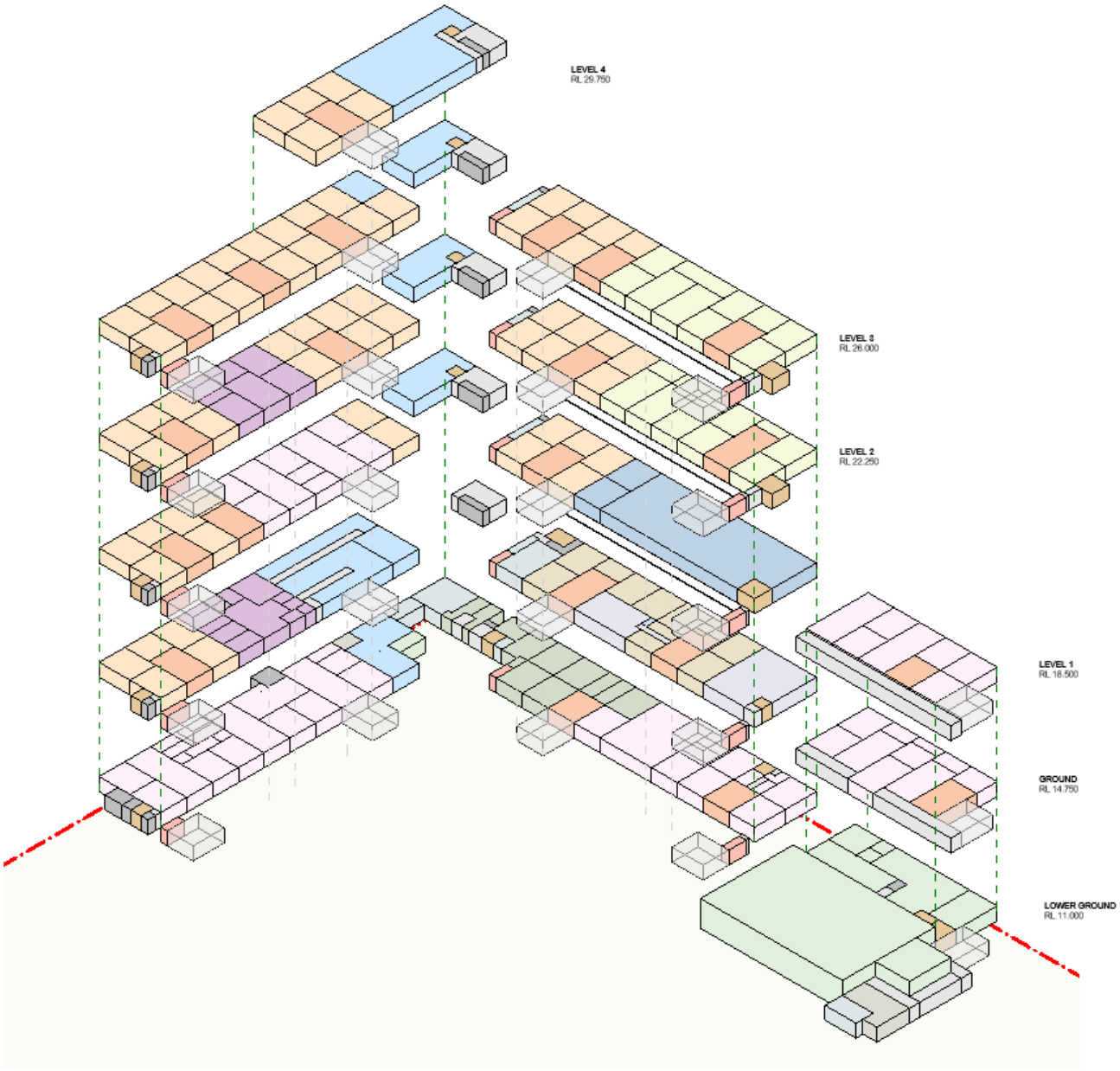
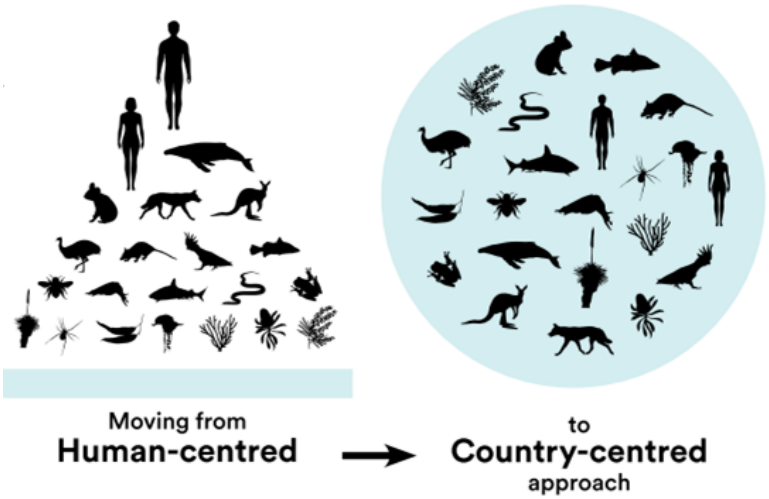


Figure 41. 3D Axonometric stacking diagram prepared by NBRS.

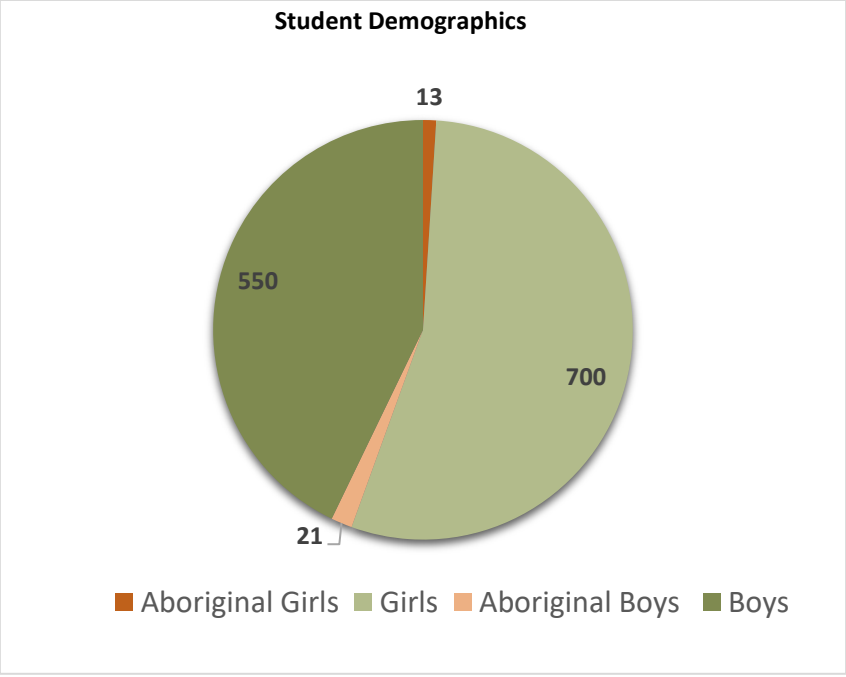
LEGEND

- GENERAL LEARNING SPACES (GLS)
- SUPPORT EDUCATION LEARNING UNIT (SELU)
- LEARNING COMMONS
- HEALTH & PE
- ARTS / TECH / FOOD + TEXTILES
- ADDITIONAL LEARNING UNITS
- SCIENCE LEARNING
- GYM & CANTEEN
- LIBRARY
- ADMIN / STAFF HUB / STAFF STUDY
- STORAGE
- SERVICES
- SERVICES COMMS
- CIRCULATION, STAIRS, TRAVEL & ENGINEERING
- LIFTS
- STUDENT AMENITIES
- NATURAL LEARNING COMMONS
- EXISTING BOUNDARY

4.4 Connecting with Country

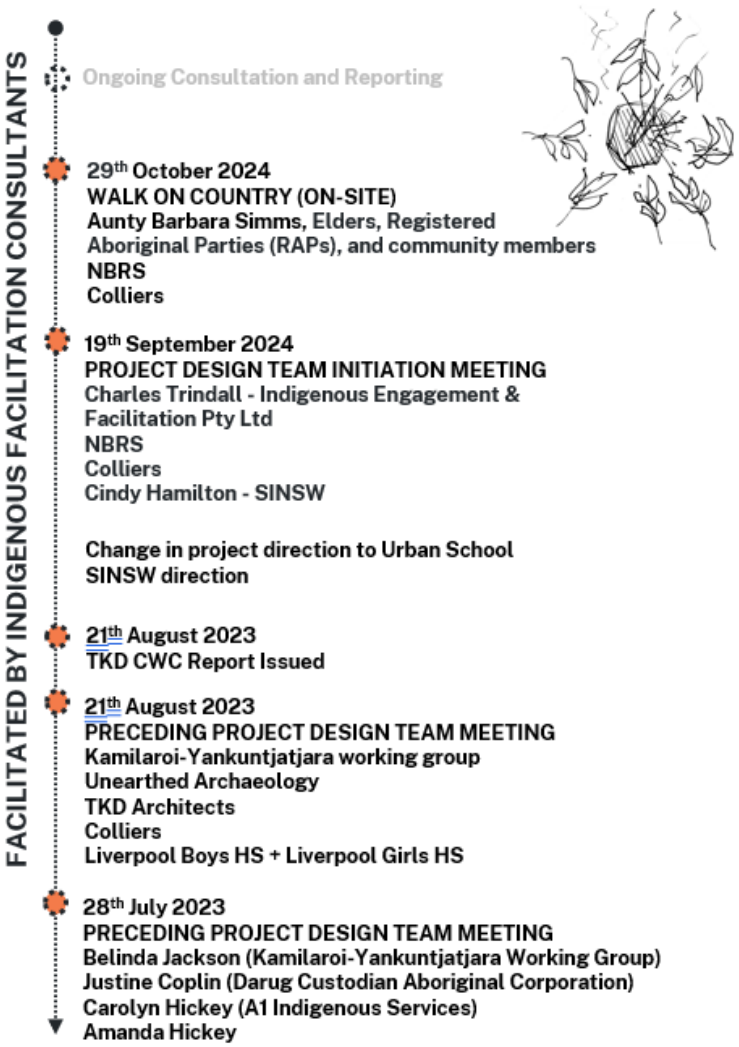


LBGHS, situated within the Liverpool LGA is part of the Traditional lands of the Cabrogal clan of the Dharug nation. The schools currently have 34 students who identify as first nations as well as some staff members including the current Deputy Principle of the boy's school.



CONSULTATION PROCESS

The project team has continued the CWC consultation process throughout this design phase. The Connecting with Country process, facilitated by Charles Trindall, Indigenous Lead Facilitation and engaging First Nation Representatives, which is a continuation of previous CwC consultation has proven to be highly successful in fostering meaningful dialogue and collaboration. Stakeholders included Aunty Barbara Simms, Aunty Margie, Brad Maybury, First nations students and Staff. The outcomes of this consultation process as well as previous consultation for alternative proposed design options for LBGHS has influenced and shaped the proposed design.



Through a comprehensive consultation process, open communication and active involvement, which has influenced outcomes that are invaluable for First Nation Peoples, the education of high school students and the community. These outcomes reflect the commitment to inclusivity and cultural sensitivity and lay a foundation for a collaborative and respectful approach to the development of a high school that honours and respects the cultural heritage of the First Nations community.

CABROGAL PEOPLE + LAND

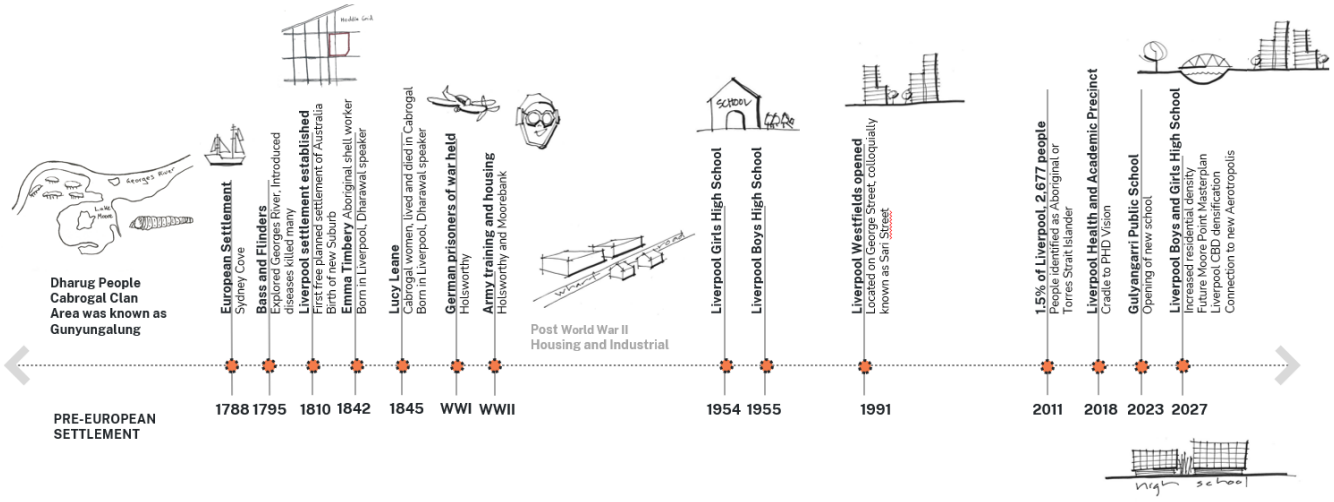
The Cabrogal clan, part of the larger Dharug-speaking peoples, are the original custodians of the land now known as the Liverpool area in Sydney. Their values emphasize the interconnectedness of culture and nature, with distinct roles observed through Men's and Women's Business.

The Georges River was central to their lives, serving as a source of food, transport, trade, and migration. Cabrogal people used tools such as whistles to warn of snakes and smoke for cleansing rituals. Their land is rich in diverse ecology, including mangroves, goannas, shark, mullet, and the culturally significant Cobhra grub, a freshwater worm vital as a food source.

Environmental and cultural landmarks like middens served as educational tools, and seasonal cycles guided their understanding of nature, such as "*The whale appears when the tea tree blooms. The whale moves south when the waratah flower blooms*". The Dharug language reflects their deep connection to land, with words like *Badu*

(water), *Burra* (sky), and *Ngurra* (country/land). These practices and ecological knowledge highlight their sustainable way of life.

SITE HISTORY

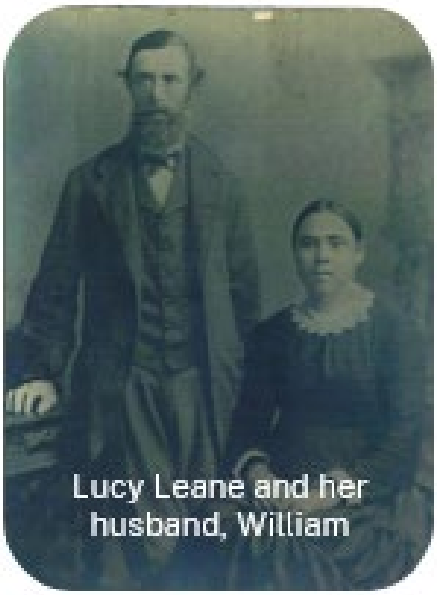


SIGNIFICANT FIGURES

During the consultation process and Walk on Country, Elders spoke about two notable women who lived and worked in the area.

Queen Emma Timbery was an Aboriginal shell worker who created art with shells and sold them at markets. Her work and her great granddaughter, Esme Timbery's work. Queen Emma Timbery often displayed and sold shellwork at Sydney's Royal Easter Show, and in 1910 was included in an exhibition of Australian manufacturing in London where, according to a report in the *Australian Aborigines Advocate*, her work was so popular it was 'fought' over. Indeed, for many Aboriginal families the sale of shellwork was their only source of cash income.

Lucy, a Cabrogal woman, was born and spent her entire life in the Cabrogal area, living there for 53 years. She owned and managed 82 acres of land on Williams Creek in Holsworthy alongside her European husband. Later in life, in a letter dated May 31, 1893, she described herself as the "only surviving Native woman of the Georges River and Liverpool District" in correspondence with the Colonial Secretary of the Aborigines' Protection Board. This statement reflects her unique position as an Indigenous woman maintaining her cultural roots in the region amidst the challenges of her time.



FEEDBACK FROM WALK ON COUNTRY

- There is a feeling of displacement among students, not just Aboriginal students, but other members of the school community who may be refugees or have other difficult and unsafe backgrounds
- Provide gender equitable play space: passive and active zones
- Create a welcoming entry area
- Include a prominent acknowledgement of Country
- Implement a single yarning circle for boys and girls (there was discussion about a boys and girls Yarning circle)
- Incorporate curved, organic landscaping and seating. This reflects the way that Aboriginal people would sit in circles which allows and encourages inclusion and open discussion.
- Reuse artwork from existing schools including First nations artwork (display to allow for new work to be added)
- Use the Colours of Country
    - Earthy/Ochre tones of rock escarpments and riverbank,
    - Greens and yellows of seasonal changes of Native Flora and Fauna
    - Country as a whole – Sky / land / water
    - Shapes and patterns of country

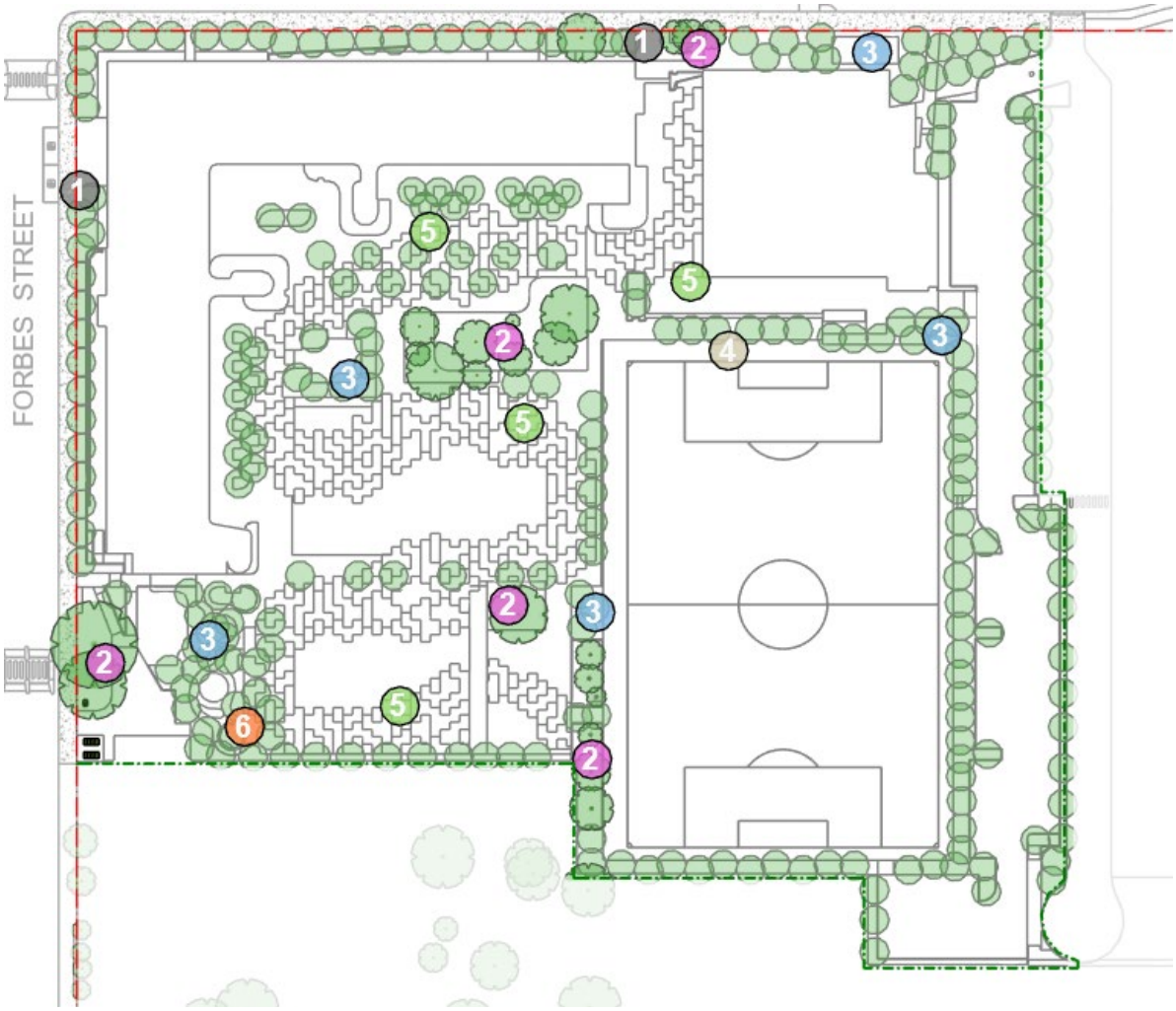
- Incorporate cultural symbols that reflect local fauna flora like Cahbro grub, sharks, mullet, goanna, grass tree, mangrove in design motifs
- Potential subject based approach to first nations learning with aboriginal knowledge shared in graphics and language relating to each learning department.
- Salvage existing tree trunks which can be used in yarning circles, seating, and for Totems
- If Artefacts identified on site, they should be notified to Land council and re-buried, potential to display 3d printed versions

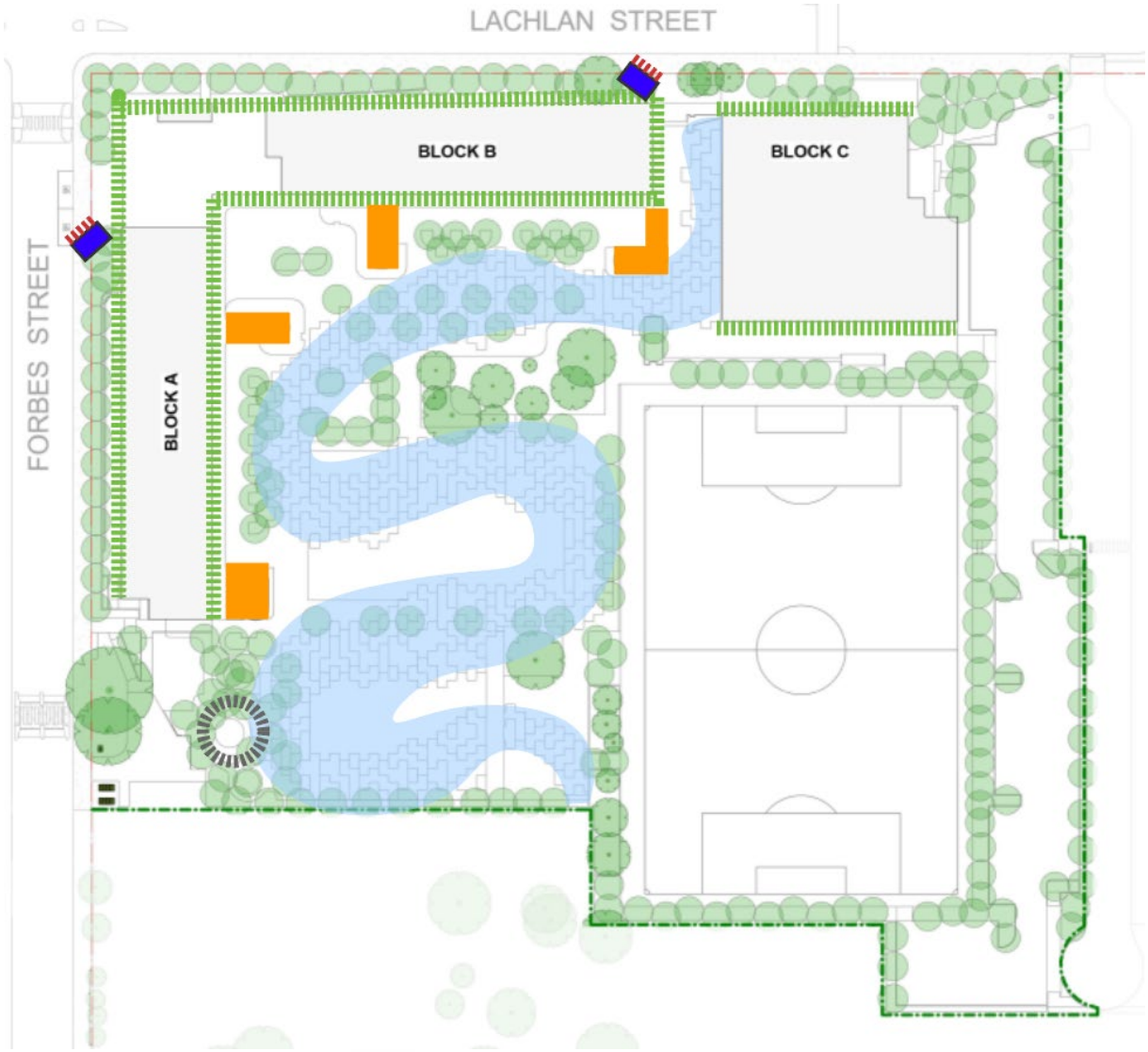
CONNECTION WITH COUNTRY OPPORTUNITIES:
The following site plan features the extent of Connecting with Country themes that have been integrated in the architecture & landscape design.

1. Welcome To Country boulder location
2. Retained stand of mixed native tree species to be created into a naturally shaded social space. Yarning circle will be located in this space.
3. Endemic feature plant bed to showcase culturally significant plants which will highlight their uses and significance.
4. Opportunity for imagery or phrase in language along sports netting along northern end of the sports field
5. Abstract river line marking. Colours to reference ochre and tones of the tidal banks of the Georges River and the earth tones of the sandstone escarpments
6. Yarning Circle location

Site Wide interventions

1. Salvaged limb/logs from removed existing trees for informal seating and play elements in nature play areas of the site
2. Building facades, materials and colours to reflect place
3. Dual language signage / first nations graphics related to subject learning / natural colour palette


FORBES STREET



ACKNOWLEDGEMENT OF COUNTRY

CUMBERLAND PLAIN REFERENCES
- BUILDING FACADE
- GENERAL LANDSCAPE

INTERPRETATION OF COUNTRY THROUGH GROUND PLANE

FAUNA & FLORA REFERENCE

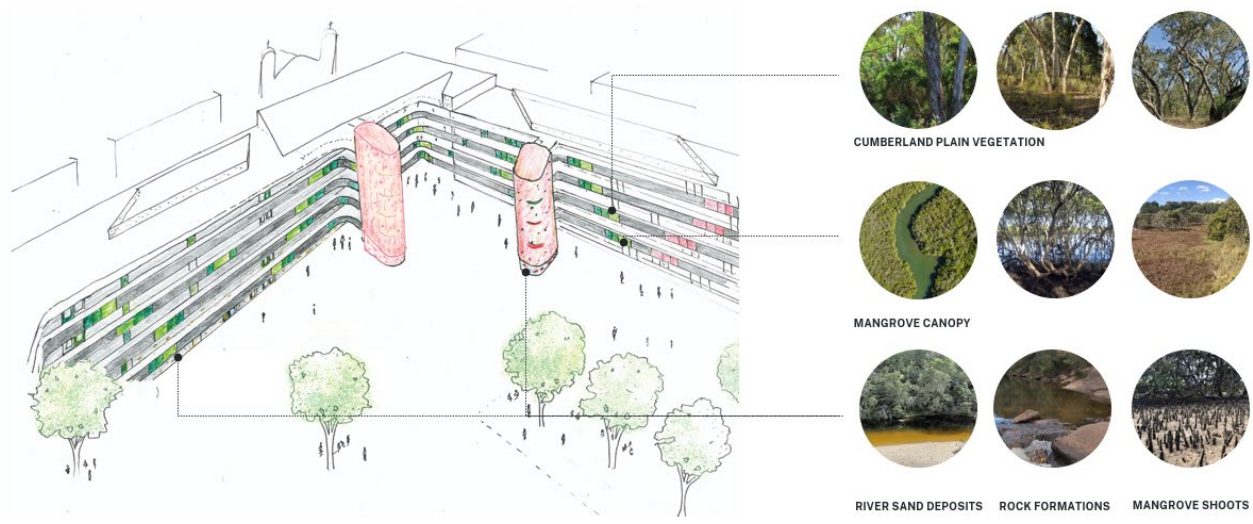
YARNING CIRCLE

LANGUAGE

BUILDING DESIGN AND MATERIALITY

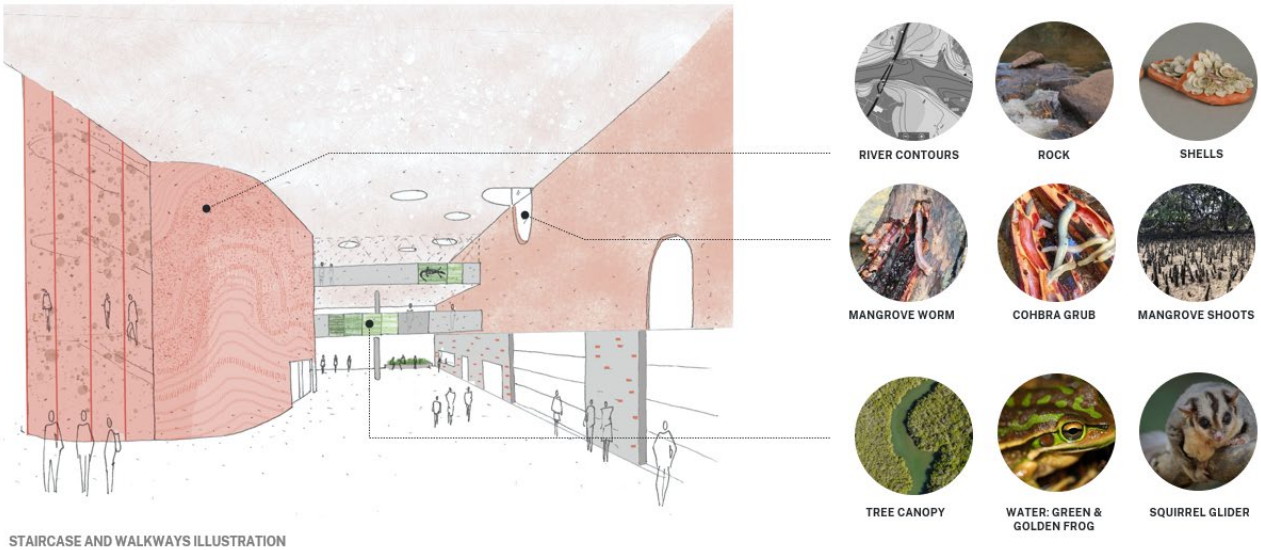
The architectural design of the façade's texture & pattern is inspired by the Georges river and Cumberland Plain Woodland. Commonly found on a shale soil ground, a Cumberland Plain Woodland features earthy tone of shale soil and the understorey, a transparent section in the middle due to tall tree trunks and leafy canopy at the top, all providing distinct horizontal bands.

The sketches below show the initial material and colour expression on the façade that will integrate the themes of Connecting with Country. The façade is layered from Ground to Sky. The verticality of the building form mimics the shift vertically in natural elements from earth, tree base, tree canopy to sky. The use of bricks on ground floor represents the earth. The building materials on the upper floors are in light weight cladding and the skylights to represent transparency.



COURTYARD ILLUSTRATION

HALL FACADE ILLUSTRATION



STAIRCASE AND WALKWAYS ILLUSTRATION

MAIN ENTRY ILLUSTRATION

FLORA & FAUNA REFERENCES

Flora endemic to the Cumberland Plains is featured throughout the architecture and landscape proposals, in pattens on façade panels, pavement graphics, signage and materials and colours. Careful consideration has been given to incorporate local plant species, creating an environment that reflects the region's natural beauty and ecological identity.

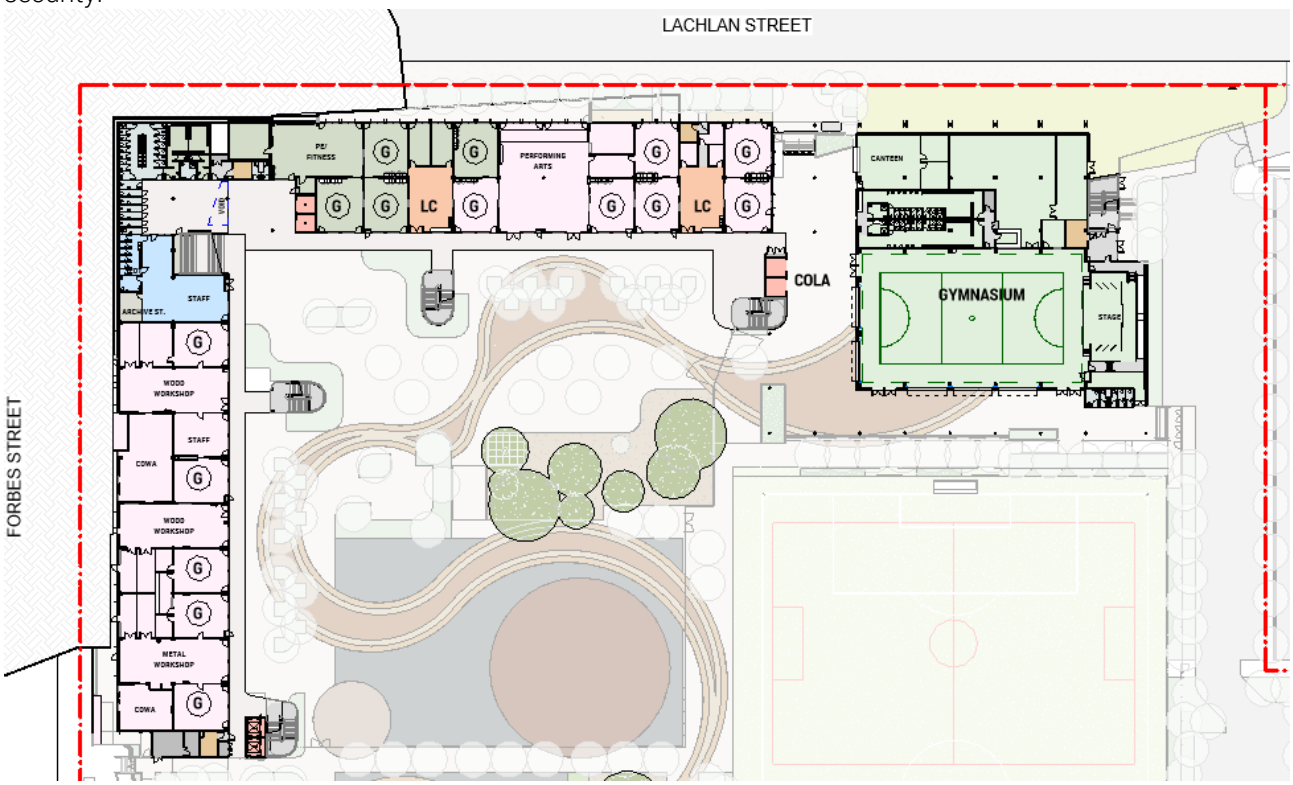
By featuring flora that extends beyond physical use, the architectural and landscape design of the new school becomes a canvas for cultural expression and environmental consciousness. This intentional integration of endemic flora, graphically and symbolically adds an enriching layer to the design, inviting students and staff to appreciate the intrinsic connection between the school environment and the unique flora of the Cumberland Plains.

4.5 Detailed Planning Outcomes

4.5.1 Floor Plans

LOWER GROUND FLOOR

The lower ground floor of the school is a subterranean level connected to the internal play area, offering visual access to the playground from teaching spaces and housing flexible specialist learning areas that support interactive learning. Accessibility is ensured through stairs, elevators, and ramps. Building A includes wood and metal workshops with direct outdoor connections to minimize noise disruptions and streamline logistics via direct access to the loading area. Strategic voids between Buildings A and B bring natural light into the interiors, reducing reliance on artificial lighting, while toilet layouts address safety and supervision concerns. Building B emphasizes indoor-outdoor connectivity in physical education spaces, with close proximity to play areas and supporting facilities. Building C, designed for community use, features a gym integrated with the outdoor covered learning area (COLA) and easy access via Lachlan Street, balancing public convenience with school security.



LEGEND

- GENERAL LEARNING SPACES (GLS)
- SUPPORT EDUCATION LEARNING UNIT (SELU)
- LEARNING COMMONS
- HEALTH & PE
- ARTS / TECH / FOOD + TEXTILES
- ADDITIONAL LEARNING UNITS
- SCIENCE LEARNING
- GYM & CANTEEN
- LIBRARY
- ADMIN / STAFF HUB / STAFF STUDY
- STORAGE
- SERVICES
- SERVICES COMMS
- CIRCULATION, STAIRS, TRAVEL & ENGINEERING
- LIFTS
- STUDENT AMENITIES
- NATURAL LEARNING COMMONS
- EXISTING BOUNDARY

GROUND FLOOR

The ground floor of the school is designed to enhance functionality, accessibility, and engagement. Building A houses the administrative and staff areas, ensuring easy public access for parents and visitors while fostering staff collaboration. Building B accommodates the Support Education Learning Units (SELU), strategically positioned with direct access for pick-up and drop-off along Forbes Street to streamline logistics and ensure inclusivity. Building C features food technology and textiles learning areas with clear sight lines to the gymnasium from the Bistro, promoting openness, passive surveillance, and a holistic integration of creative and active spaces for student well-being.

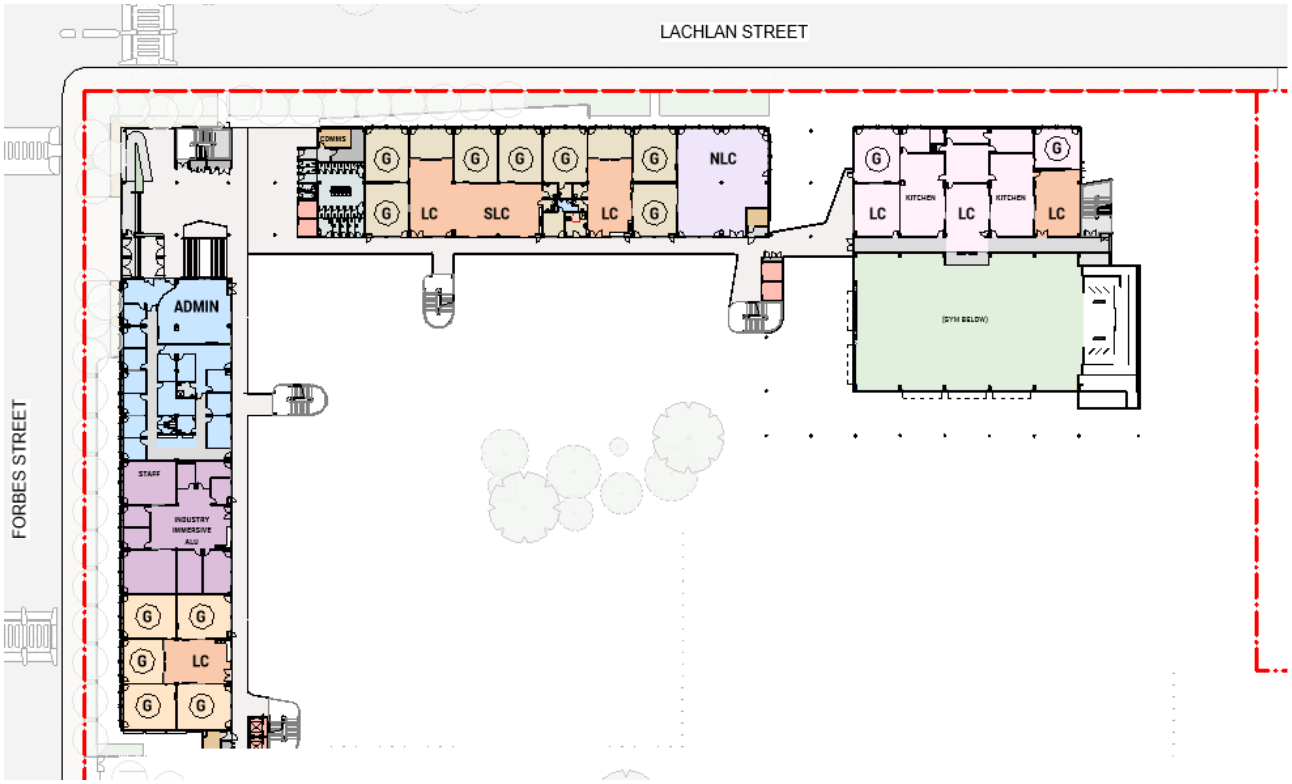


Figure 42. Overall ground floor plan, not to scale (Source: NBRS)

LEGEND

- GENERAL LEARNING SPACES (GLS)
- SUPPORT EDUCATION LEARNING UNIT (SELU)
- LEARNING COMMONS
- HEALTH & PE
- ARTS / TECH / FOOD + TEXTILES
- ADDITIONAL LEARNING UNITS
- SCIENCE LEARNING
- GYM & CANTEEN
- LIBRARY
- ADMIN / STAFF HUB / STAFF STUDY
- STORAGE
- SERVICES
- SERVICES COMMS
- CIRCULATION, STAIRS, TRAVEL & ENGINEERING
- LIFTS
- STUDENT AMENITIES
- NATURAL LEARNING COMMONS
- EXISTING BOUNDARY

LEVEL 1

Level 1 of the school integrates academic and communal spaces, fostering collaboration, accessibility, and community engagement. Building A houses general learning hubs and visual arts spaces, with a staff study positioned for passive supervision and a lift core ensuring equitable access. Nearby toilets allow for ongoing supervision, enhancing safety. Building B features the school library facing Lachlan Street, designed for after-hours use with an adjacent bistro providing a covered outdoor area for events. Building C extends food technology and textiles spaces, including a VET Kitchen and outdoor bistro, offering practical, real-world learning opportunities while connecting with community-focused elements like the library and external spaces.

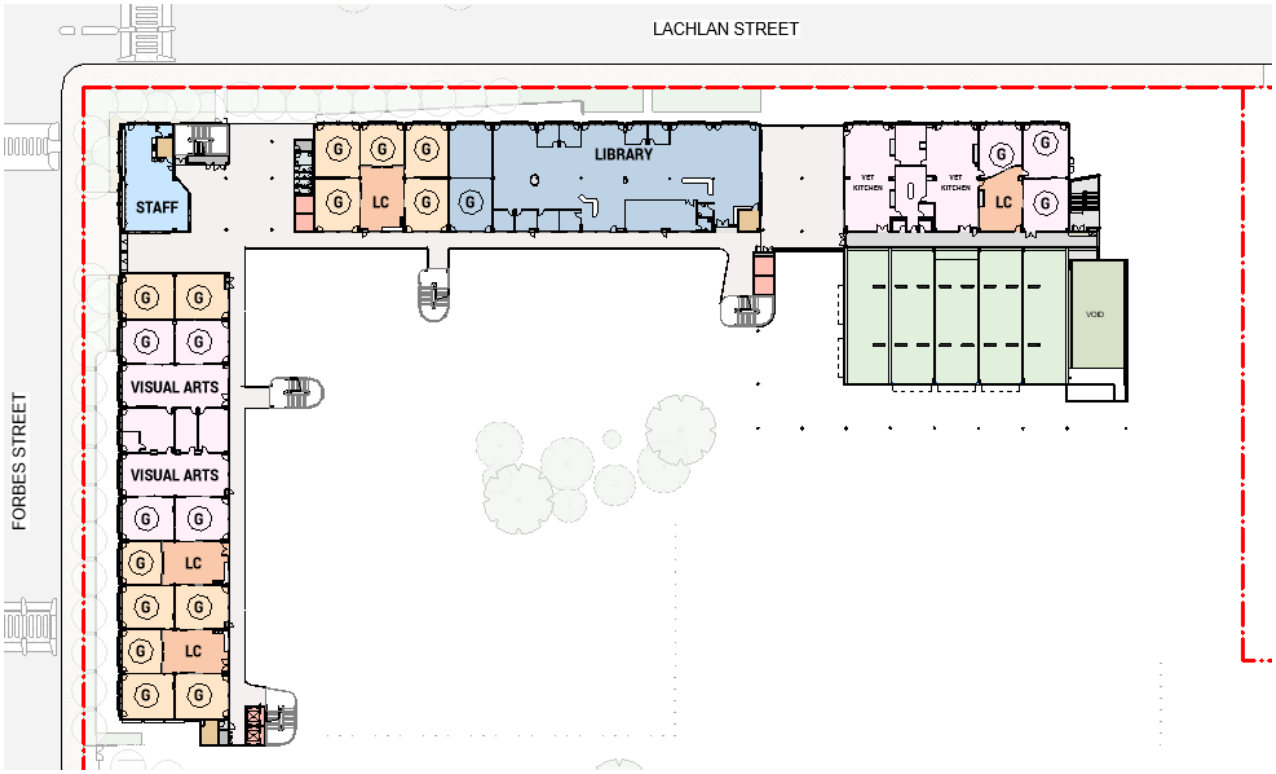
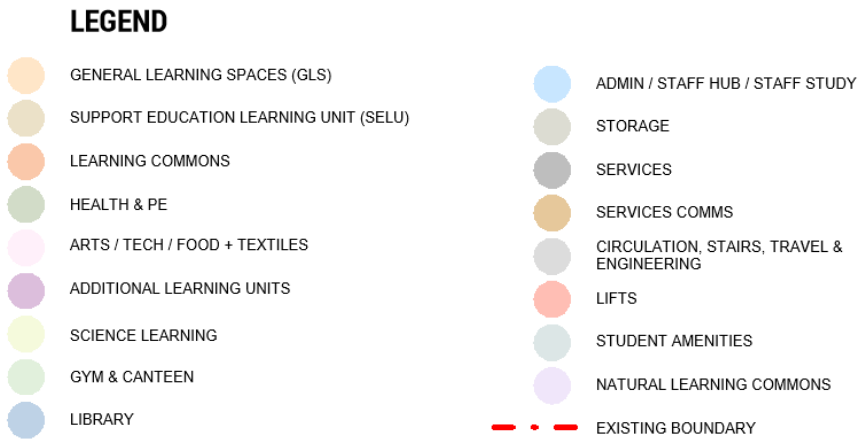


Figure 43. Overall level 1 plan, not to scale (Source: NBRS)



LEVEL 2

Level 2 of the school supports both general and specialist learning with a focus on accessibility, safety, and flexibility. Building A includes general learning hubs and the Big Picture program, which offers personalized learning in small advisory groups with customizable private workspaces for students. Passive supervision is ensured by a centrally located staff study, with nearby student toilets and a lift core for equitable access. Building B features specialized science labs with secure storage for hazardous materials, ensuring safety and compliance. The lift's proximity to the science hub streamlines the transport of materials and equipment across levels.

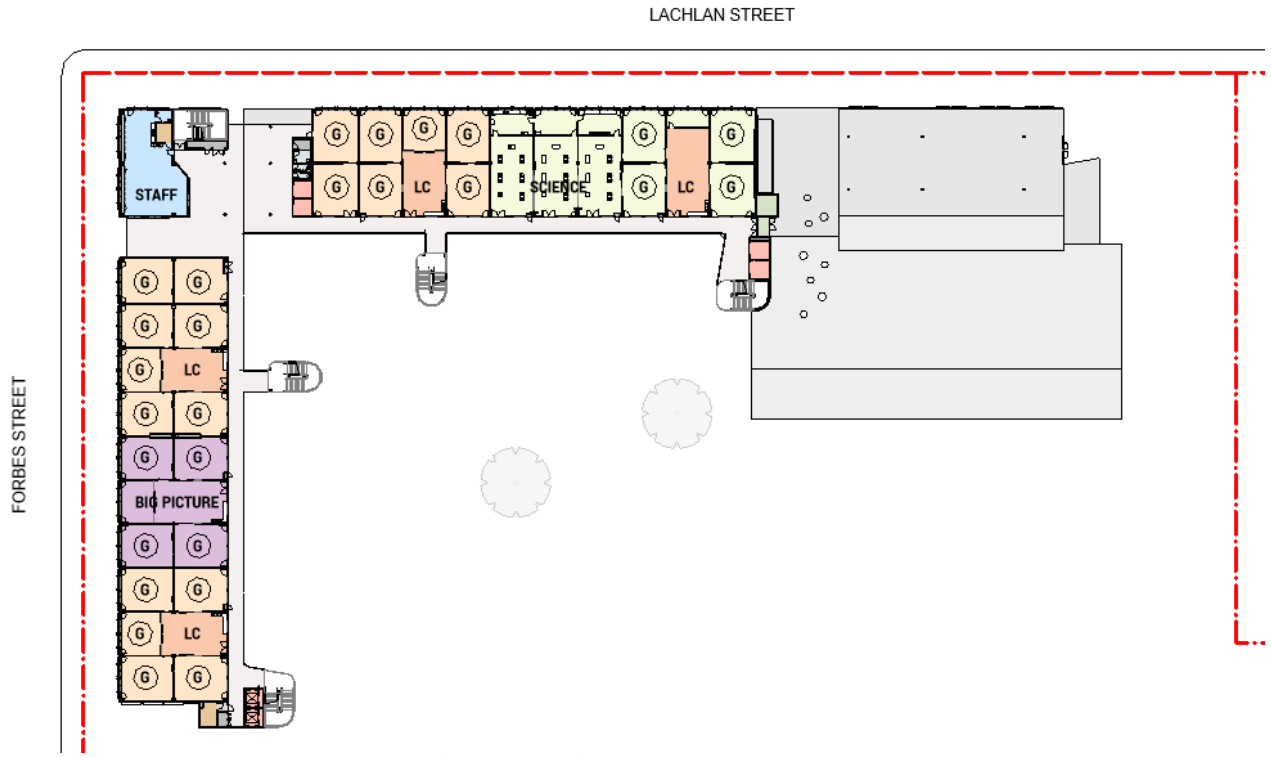
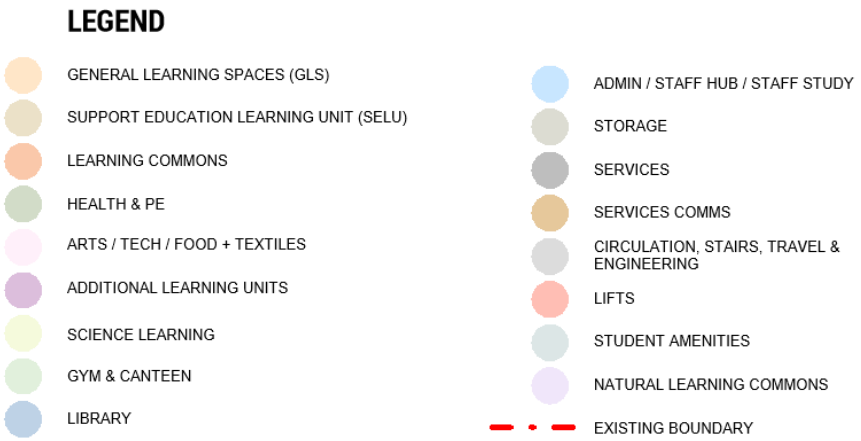


Figure 44. Overall plan of level 2, not to scale (source: NBRS)



LEVEL 3

Level 3 of the school enhances accessibility and efficiency, supporting both general and specialist learning. Building A houses general learning hubs (GLS) for seamless transitions to specialist areas, with a centrally located staff study for passive supervision, adjacent toilets for safety, and a lift core for equitable access. Building B extends science labs from the floor below, featuring specialized equipment, secure hazardous material storage, and direct roof ducting for safe and efficient fume ventilation. Lifts near the science hub ensure smooth vertical circulation for materials and equipment.

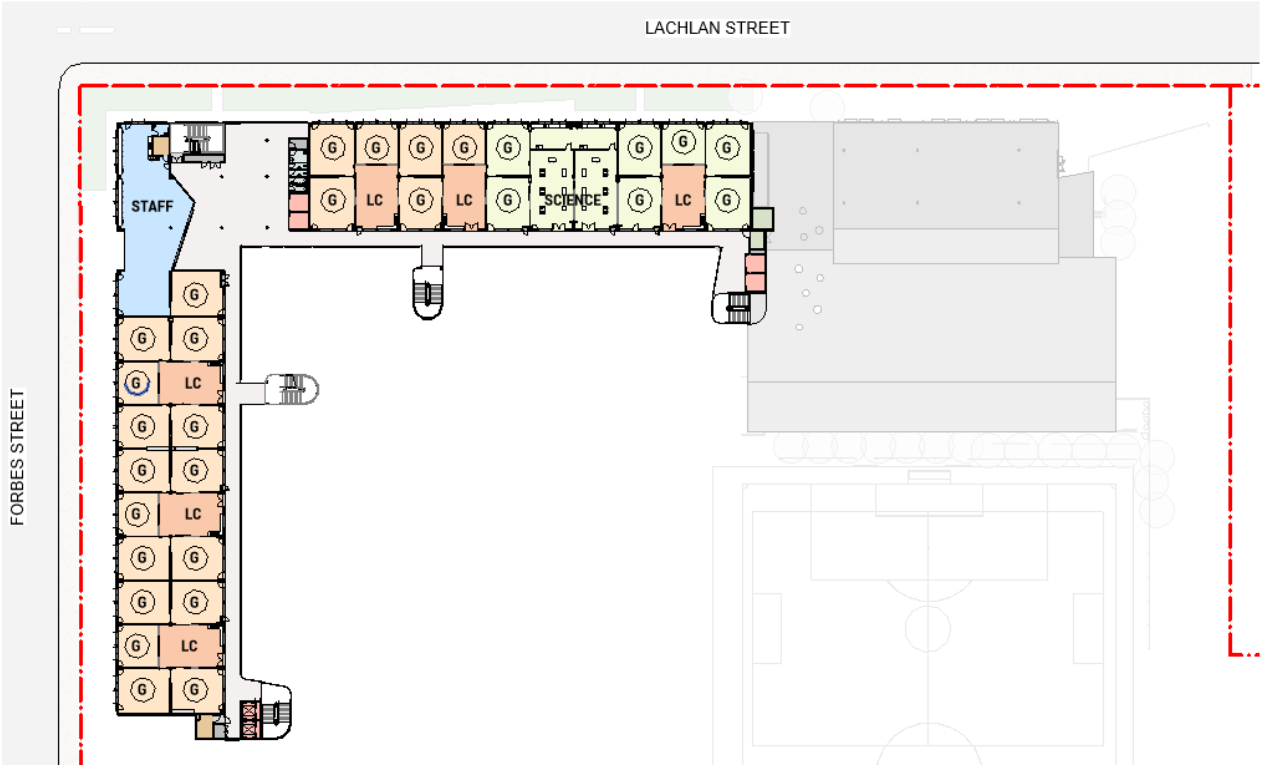
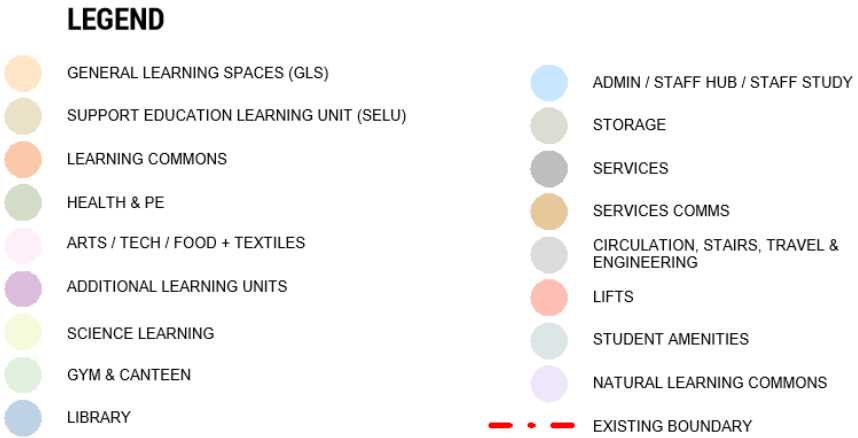


Figure 45. Overall level 3 plan, not to scale (Source: NBRS)



LEVEL 4

Level 4, the top floor of Building A, houses the Staff Hub and General Learning Spaces (GLSs), offering panoramic views of the Liverpool Health and Academic Precinct. The placement of the Staff Hub provides inspiring outlooks over the school play area and green spaces, enhancing the working environment for staff. The design of Building A, which extends beyond the height of Buildings B and C, creates a stepping façade that visually unites the three buildings. The GLS layout on this level maximizes functionality and accessibility for students, fostering seamless transitions between spaces while minimizing disruptions, and ensuring an optimal learning and teaching environment.

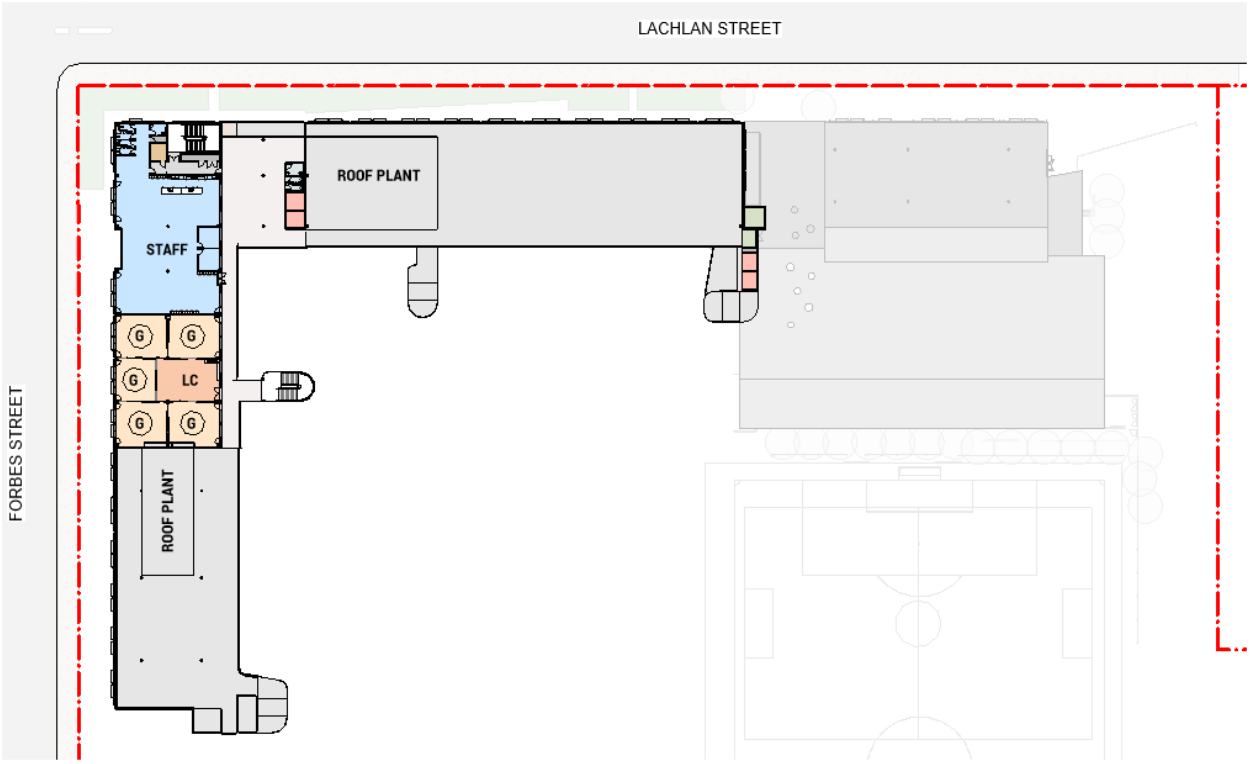
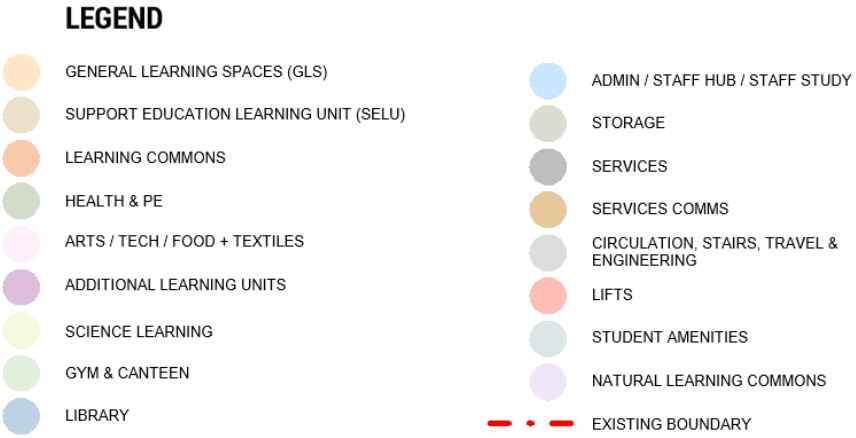


Figure 46. Overall plan of level 4, not to scale (Source: NBRS).



4.6 Envelope

4.6.1 Façade Design and Thermal Comfort

The architectural design of the building façades has been designed to minimise solar heat gain. It includes the making assessment of natural ventilation, daylight intake, energy efficiency and safety as detailed on the below table so to balance the requirements of the National Construction Code 2022 (NCC) for Deemed to Satisfy (DTS) solutions in design, the Green Building Council of Australia (GBCA) and the Education Facility Standards and Guidelines.

	NCC / SECTION J FOR DTS SOLUTION	GBCA	EFSG
NATURAL VENTILATION	**".**ventilating area not less than **5%** of the floor area of the room required to be ventilated" (NCC 2022) Free flow air area with no obstructions	No specific requirements.	"The area of natural ventilation opening must a minimum of **6.25%** of the floor area." (EFSG, DGN001 – Natural Ventilation). and in accordance with AS1668.4
DAYLIGHT	Performance - Daylight factor 2% as a minimum level of natural daylight is available within the interior spaces. Design measure – glazed area to be 10% of the floor area	40% of floor area to meet 160lux level, for 80% of the occupied hours. Daylight modelling required. Complete building modelling would typically be carried out in DD	REFERS TO GREEN STAR "Maximise Natural Daylight in all learning and working spaces, to reduce energy usage, improve the indoor amenity and create a pleasant environment. … As prescribed within Green Star, a space is considered to have high levels of daylight if: **• the space has minimum 160 lux due to daylight during 80% of the nominated hours, across 40% of the floor area"** (EFSG, 00 Planning and design, 2023)

	NCC / SECTION J FOR DTS SOLUTION	GBCA	EFSG
ENERGY	Combined U-value of 2.0 for external walls and glazed area. Region – Climate Zone 5 and 6 SHGC which defines the shading co-efficient. Via the ABCB Façade Calculator	DTS Pathway (6 credits) + 10% improvement per 'system' Façade combined U-value of 1.8	Improvement of + 10% improvement (façade + systems) compared to Section J DTS
SAFETY	"The openable part of the window covered by (1) must be protected with a barrier with a height of not less than 865 mm above the floor." (NCC. 2022)	No specific requirements.	Critical dimensions for design if schools are to adopt 1m sill height on ground floor and level 1 of a building. Level 2 and above requires 1.2m sill.

Table 3. Table of facade design requirements

The façade design targets a deemed to satisfy solutions, focusing on achieving daylight and ventilation targets for the benefit of the end users.

Part J4 Building Fabric Summary Table		Minimum Project requirements	Project Target
Section-J Sub-sections	**Construction Element**	**NCC Section-J DTS Requirement**	**EFSG/Greenstar Requirement (DTS +10%)**
PART J4D4 Roofs/Ceiling constructions	Roof Constructions	R-Value: 3.2	R-Value: 3.52
PART J4D6 Walls and Glazing	Walls	R-Value: 1.4	R-Value: 1.4
	Internal Walls*	R-Value: 1.0	R-Value: 1.0
	Glazing	U-Value: 5.8	U-Value: 5.8
		SHGC: 0.69	SHGC: 0.61
	Roof skylights	Not Applicable (no skylight provision)	Not Applicable (no skylight provision)
PART J4D7	Slab on ground	R-Value: 2.0**	R-Value: 2.2**
Floors	Suspended floor above or below a non-conditioned space	R-Value: 2.0	R-Value: 2.2
*If Learning Commons (NLC) area is to be operated as outdoor area, a minimum of R-1.0 should be applied to walls that are common with the NLC room (highlited within thermal makups) **It is noted that the project sits on the ground and the ground floor slab has no in-slab heating or cooling system, thus considered to meet the requirement of R-2.2 for slab-on-ground insulation.			

Figure 47. Section J Summary (Source. Steensen Varming)

NATURAL VENTILATION TARGET - the high school design has achieved a minimum of 5% natural ventilation through external windows to the minimum NCC target. In addition, 1.25% of ventilation is achievable through internal doors, complying with EFSG requirements in promoting a well-ventilated and refreshing indoor atmosphere.

DAYLIGHT TARGET: The design has achieved a minimum of 40% natural daylight within the building interiors. This ensures that a substantial portion of the indoor lighting is provided by sunlight, reducing the need for artificial lighting during the day.

Our ESD Consultant has carried out daylight analysis to understand the extent of natural light condition in a learning hub. This analysis is measured as a percentage and targets 40% of floor area meeting 160 lux level for 80% of the occupied hours.

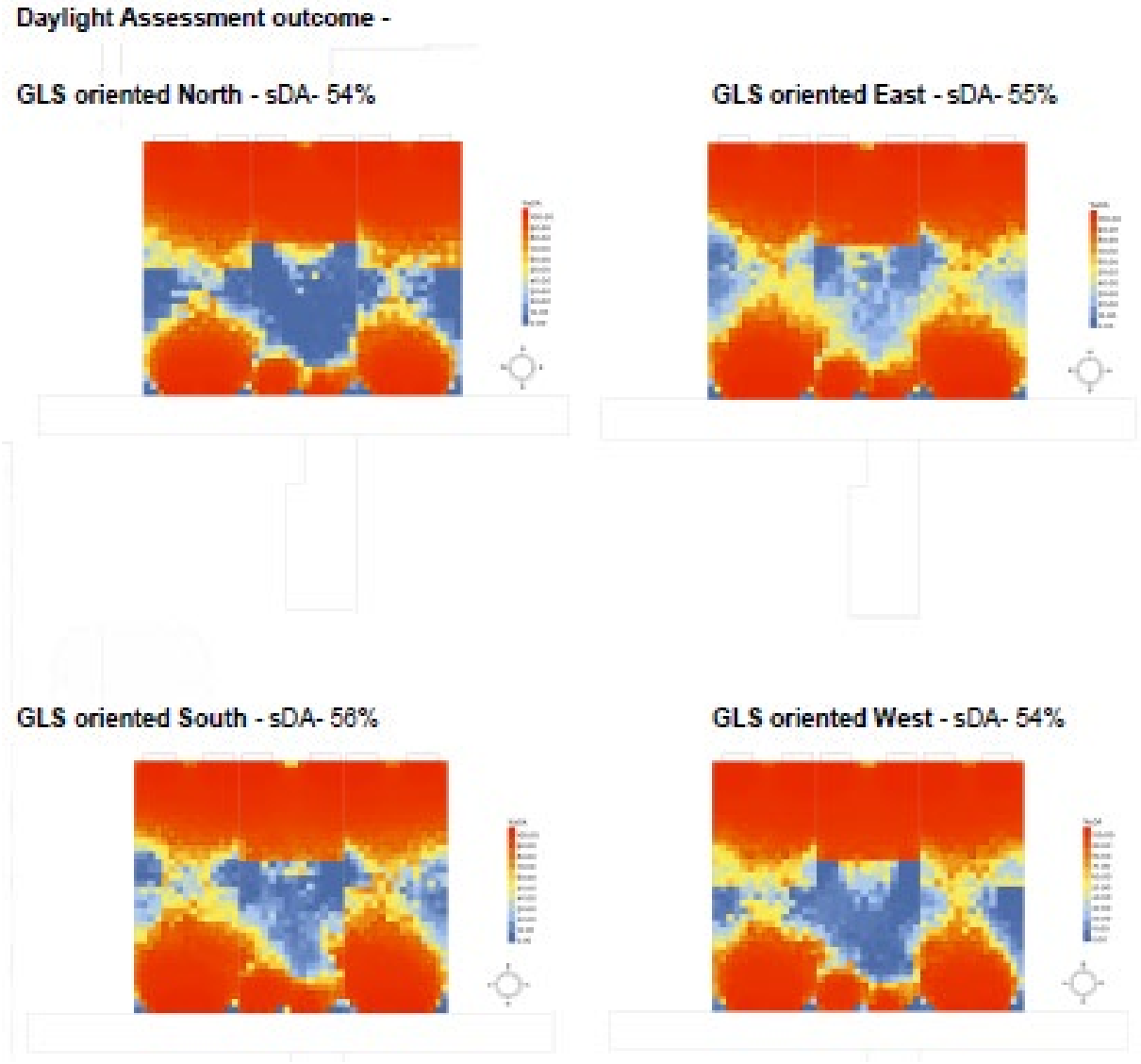


Figure 48. Daylight assessment on GLS hubs. (source: Steensen Varming)

The above diagrams illustrate that a general learning hub achieves 55% of daylight, 15% over and above the target. Therefore, excessive daylight triggers requiring additional building shading devices as illustrated below.

BUILDING and GENERAL ORIENTATION REFERENCE	FACADE ORIENTATION	SUN SHADING REQUIREMENT
Building A, West block	West (facing Forbes Street)	Intermittent vertical shading to prevent ingress of late afternoon sun.
	East (facing courtyard)	A covered walkway, 2.5m wide, provides protection at all times.
Building B, The Northwest block	North (facing Lachlan Street)	Horizontal shading to address midday sun angle
	South (facing courtyard)	A covered walkway, 2.5m wide, provides protection at all times.

Building C, The Northeast block	North (facing Lachlan Street)	Horizontal shading to address midday sun angle
	South (facing courtyard)	A covered walkway, 2.5m wide, provides protection at all times

Table 4. Breakdown of building sunshades

4.6.2 Streetscape Elevations

The combination of well-proportioned bulk and scale of high school buildings, along with carefully chosen building textures and colours, has a positive impact on the urban fabric. This design approach ensures the high school enhances the surrounding context in several ways:

- Integration: The well-proportioned bulk and scale of the buildings allow them to blend cohesively with the surrounding existing and future buildings. This integration is vital for maintaining the visual harmony of the area, preventing the high school from appearing imposing or out of place.
- Aesthetics: The choice of building textures and colours plays a crucial role in creating an aesthetically pleasing urban landscape. By selecting materials and colours that complement the existing architectural palette, the high school buildings become an attractive addition to the area. This aesthetic appeal contributes positively to the overall urban fabric, improving the visual quality of the neighbourhood.
- Identity: The design's sensitivity to urban context through appropriate scale and materials also helps in creating a distinct identity for the high school. While integrating with the surroundings, the school maintains its unique character, making it an identifiable and memorable part of the urban fabric. This distinctiveness is not only visually appealing but also fosters a sense of pride among the school community.
- Community Engagement: A well-integrated high school that complements the urban fabric encourages community engagement. It provides a welcoming and inviting environment that encourages interactions between the school, students, and the broader community. This can lead to the establishment of strong community ties and the sharing of resources and facilities.

Figure 49. Lachlan Street elevation, not to scale (Source: NBRS)

Figure 50. Forbes Street elevation, not to scale (Source: NBRS)

4.6.3 Material Palette for Planning Approvals

Careful consideration of robust and pragmatic building material selection is essential for the high school, this includes:

- The selected materials and finishes are durable and suitable for the application.
- Cost-effective for construction and operation. Using affordable building products without compromising on quality, durability, and aesthetic qualities.
- Inclusion of systems which could be modulated in production.
- Making selection from standard ranges and finishes, minimise custom colours and finishes.

Here is the summary of the proposed building materials & application.

- Face bricks are assigned to external walls of the ground floor only. Face brick is robust and can withstand wear and tear in highly transient areas.
- Colour-through compressed fibre cement (CFC) cladding is proposed on courtyard facing facades. It is acceptable for use on the upper floors where moderate transient spaces are located.
- Perforated Metal cladding is proposed to be used on street facing façades where there will be no pedestrian traffic.
- Powder coated aluminium window framing and glazing system throughout the campus.
- Powder coated steel balustrade posts with powder coated perforated aluminium metal infill.
- Building Structure: Post-tensioned concrete slabs supported by concrete columns provide a strong and durable foundation.
- Roof Structure (Buildings A and B and C): Concrete roof complies with NCC fire rating of roof requirements for buildings with five or more storeys.
- Roof Structure (Building C): A structural steel frame roof for the hall metal roof in Building C

Figure 51. Perspective view – corner of Forbes Street and Lachlan Street and representation of architectural materials and finishes (source: NBRS)

4.6.4 Key Perspectives

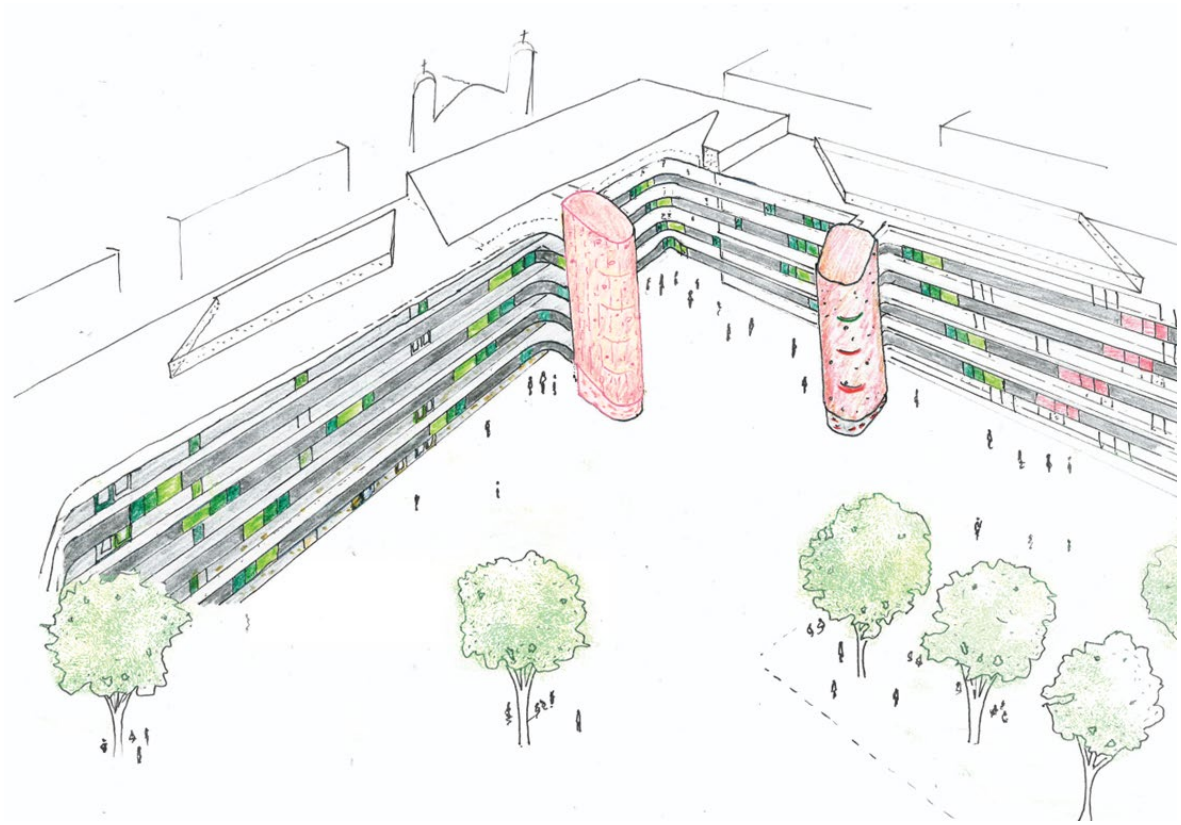


Figure 52. Perspective 1 – Internal façade from Courtyard perspective (Source: NBRS)

Figure 53. Perspective 2 – Forbes Street Entry (Source: NBRS)

Figure 54. Perspective 3 – External Hall Façade Perspective (Source: NBRS)

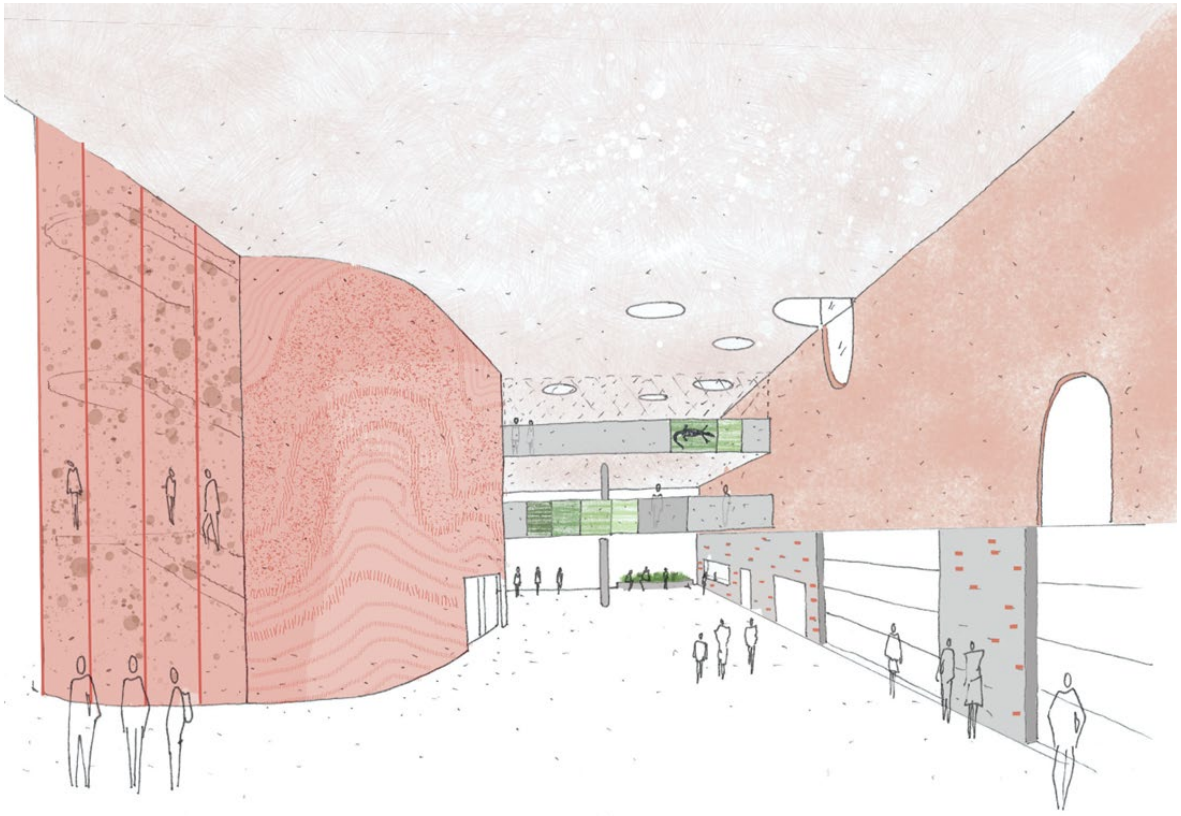


Figure 55. Perspective 4 - Staircase and Walkways Perspective

[redacted]

A temporary school will be constructed on the Gulyangarri PS site for LBHS to relocate to. [redacted] Once LBHS and LGHS is decanted into LBGHS, the temporary school will be dismantled and LGHS will be fences of for future development.

Please note, temporary school works & existing LBHS demolition are subject to a separate REF.

4.8 Landscape Design

4.8.1 Landscape Statement

The objective of landscape design of Liverpool Boys and Girls High School Upgrade Project is to provide a design the celebrates the site's cultural and natural characteristic be reinstating the remnant plant communities to restore the link to the Georges River landscape. The new design looks to establish an education campus by consolidating the parking and waste requirements of the new school and the recently completed Gulyangarri Primary School which links the two schools and creates the education campus effect. This also maximises the opportunity to provide a safe, inviting, and diverse range of active and social spaces.

4.8.2 Landscape Strategy

The built form has been located to the perimeter of the site (west, north) which creates a sheltered and protected centralised external play space. By locating the built form to these boundaries, the main level difference has been isolated to the western boundary which in turn has provided a generally flat external courtyard space at the heart of the school. This has meant that we are able to navigate the external areas without significant ramping/stairs and have been able to retain a number of existing trees that have been integrated into the design.

The design looks to create an education campus by consolidating the High School parking & waste requirements to the recently completed Gulyangarri Primary School parking, waste, and link road. This not only contains the parking and waste area to a centralised location mitigates the risks associated with interactions between vehicles and pedestrian whilst providing a linked education campus.

Establishing a strong urban connection to the surrounding area is critical in enabling healthy link between the school and the surrounding community. The design aims to accommodate after hours community use of the external play areas (refer below). This will be strengthened by the creation of a site through link that provides access from Lachlan Street through the site exiting to the south and to the west to Forbes Street. The perimeter fencing has been reduced where possible with the building acting as the secure line where possible.
This provides a stronger connection to the surrounding urban context and reduces the imposing visual barrier of the 2.1m high secure fence.

The site is highly disturbed and developed site with no remnant vegetation remaining. However, due to the proximity to the Georges River there are a number of remnant plant communities near by including Cumberland Blue Box River flat Forest, Sydney Creek flat Wetland and Cumberland Shale Plains Woodland community.
The design looks to re-establish the local endemic plant species and reconnect to the site to the Georges River landscape. To address this the landscape design looks to establish a mature tree canopy across the site using local endemic tree species which will be reinforced by using understory planting (shrubs, clumping grasses, and ground covers) to strengthen the connection and to provide habitat to local Fauna and provide future Connection to Country opportunities to celebrate these species, their uses, and their importance to the Country.

4.8.3 Landscape Design Initiatives

The landscape design of LBGHS has applied the following key design initiatives.

Scale responsive design

The landscape design for the new high school responds to the required built form and function for the 2000 students. The design will provide a hierarchy of outdoor spaces to meet different needs and uses, ensuring that all students feel comfortable in the space. The Landscape Design chapter of this Report describes all the elements of the design and provides details of all the different areas of the landscape design and open space.

Water Sensitive Urban Design

The landscape design seeks to utilise all best practices regarding WSUD principles. Rainwater harvesting, natural irrigation and appropriate planting selection will see the school's reliance on water infrastructure be reduced.

Cumberland Plain reinforcement

The Cumberland Plain is one of six core indigenous woodland communities of central Sydney that comprises of open canopy trees and grasses. However, currently less than 6% remain in small clusters across modern day Western Sydney. The community is listed as an Endangered Ecological Community under the Threatened Species Conservation Act 1995.

The NSW Government has prepared the Cumberland Plain Conservation Plan (CPCP) to protect Western Sydney's biodiversity and support its growth to 2056 and beyond. The planting selection and landscape design for the school is supportive of the CPCP by selecting trees and plants commonly found within the community. Using native species helps preserve the local ecosystem's biodiversity by providing habitat and food sources for native wildlife, including birds, insects, and small mammals.

Constructable and usable

The landscape form is set out to be as functional as possible. Each space is flexible to suit the needs of the day. The materials and furniture selected are robust as suitable for the school environment. Using standard details, ensuring coordination with all the services, and providing consistency to the design elements such as walls, balustrades and paving will result in a construction package easy to build. We have also specified for the outdoor fixtures and furniture proprietary products and furniture off-the-shelve where we could make the construction and delivery process as simple as possible.

Pre-contract grown trees

The landscape design includes 230 new 200L trees within the high school site. The intention of the project team and the main stakeholders is for these trees to be grown through nurseries in a pre-contract form. This will result in larger trees to be available, providing a greater impact on day one.

Good ESD principles

The ESD SSDA Report prepared by Steensen Varming provides detailed information on the ESD initiatives proposed for the new Liverpool Boys & Girls high school to reduce the environmental impacts associated with the new buildings and landscape design. The following strategies highlight the measures adopted within the proposed landscape design to ensure a sustainable outcome:

- Adopt Water Sensitive Urban Design (WSUD) principles that includes rainwater reuse for landscape irrigation, planting of low water species and stormwater management.
- Utilise paving and hardscape materials with high Solar reflectance index (SRI) to reduce the heat island effect and improve outdoor thermal comfort.
- Rainwater collection and reuse to include landscape irrigation.
- 15% of site area to be mass planted.

4.8.4 Landscape Design Principles

Remnant Response

- Planting palette that focuses on reintroducing and restoring Cumberland Shale Plains Woodland community whilst being appropriate in a school environment.
- Planting selections are responsive to local environment, with opportunities to provide shade and reinstate the local habitat.
- Provide Canopy trees and WSUD initiative to mitigate heat island effect, treat surface water runoff, provide shade, and mitigate the visual impact of car parks.
- Maximise mature canopy coverage.
- Planting to accommodate the varying climate conditions and requires low maintenance and low water use.
- Provide different types of habitats for local wildlife through the succession of trees and planting.

Community

- Provide a strong site through connection to allow after hours use by the community.
- Provide an Education Campus by connection to Gulyangarri Primary School to the east.
- Provide afterhours access to sporting facilities to ensure community engagement and a sense of ownership within the community.
- Green presence along the perimeter to alleviate the visual impact from security fencing.
- Use the building as the secure line to eliminate the need for fencing to the perimeter.
- Ensure the design is culturally safe to a variety of cultural backgrounds and social backgrounds

Diverse Spaces

- Ensure the design presents an accessible, inclusive, and welcoming environment, both physically and culturally.
- Ensure equal access is provided and structured to allow for clear navigation through the site.
- Allow for passive/dynamic activities and learning spaces for groups of different age and ability.
- Provide access and connections to the natural environment that encourages learning and social interactions, whilst providing areas for respite and reflection.
- A mixture of passive, active and targeted play areas to be integrated into the design accommodate different ability, skill level and age groups.
- Flexible spaces to be included throughout the site to provide a variety of social and play opportunities whilst also facilitating larger groups and school assemblies.
- COLA spaces and under croft spaces to provide a sheltered environment for outdoor activities in all-weather conditions.
- Intimate courtyards and terraced spaces to provide opportunities for accommodating specific programming and user groups.
- Varies game types and line marking overlay to provide multiple opportunities for outdoor activity
- Planting to be used as soft buffer to delineate different types of spaces.

4.8.5 Connection with Country opportunities

Refer to section 4.4 of the report.

4.8.6 Proposed Landscape Concept Plan

This description provides an overview of the layout and features of the high school's landscape design, showing a thoughtful approach to utilising the available space and accommodating various activities and needs. The design comprises in a large open play area enclosed by the school buildings along the north, east sides. The parking and waste area has been consolidated to the east of the site and provides a buffer to Gulyangarri Primary School.

Figure 57. Landscape Site Plan (Image source: NBRS)

Consolidated Car park & Waste area

The existing Gulyangarri Primary School car park (indicated in blue) is located along the north/south link road leading to the waste area (indicated in green). The proposed design looks to locate the 112 space carparking high school parking (indicated in pink) to form a consolidated car park and waste area.

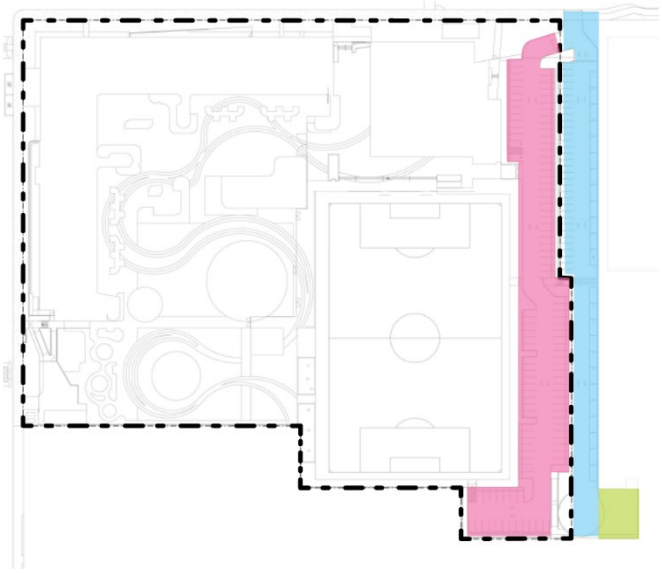


Figure 58. Consolidated Car park & Waste area

Active Spaces

The field (indicated in green) is a full-size natural turf football field (106x72m incl. overrun) which will require netting protection to the northern end of the field to provide protection to students adjacent the hall. Five multi-sport courts (indicated in yellow) have been provided to the central courtyard. These will include Netball, Basketball, Volleyball, and tennis by the use of moveable equipment. A Batting practice net has also been provided (indicated in blue) has been located adjacent the two southern multi courts.

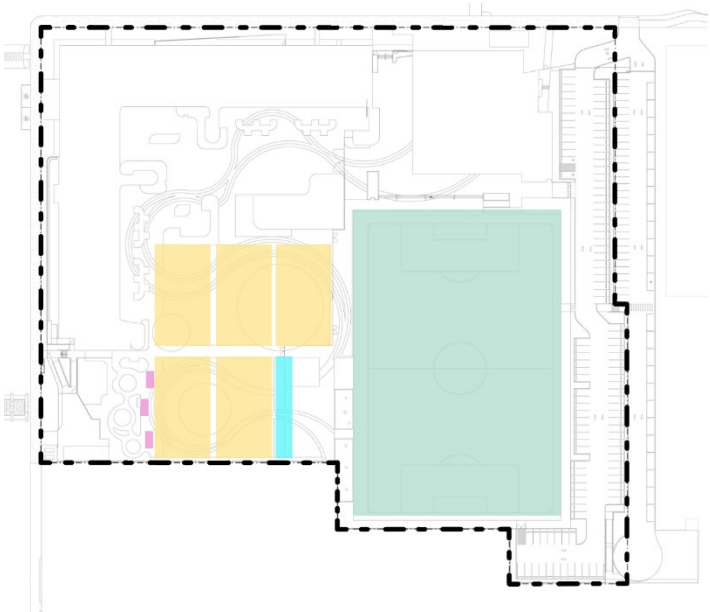


Figure 59. Active spaces

Social Spaces

The areas indicated in green represent the social spaces within the external area. These will include a range of seating typologies to create a variety of social spaces to cater for a range of ages, group sizes, and social competencies.

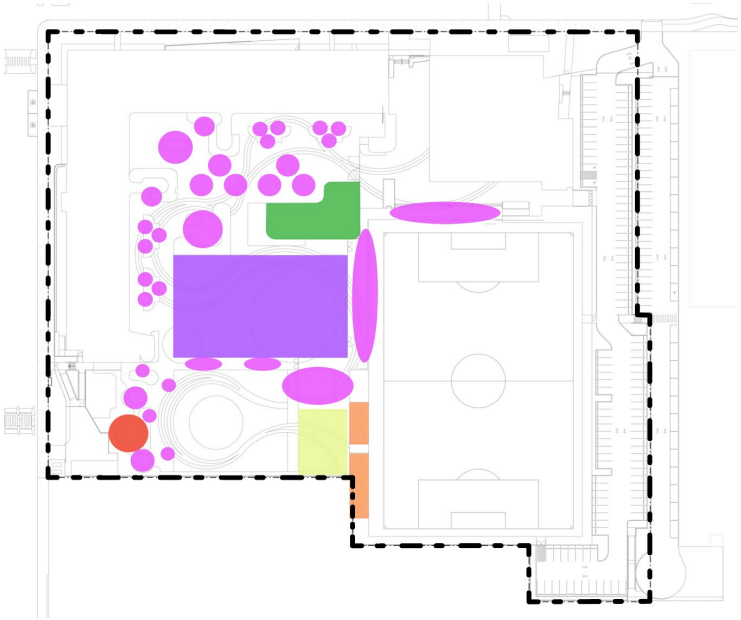
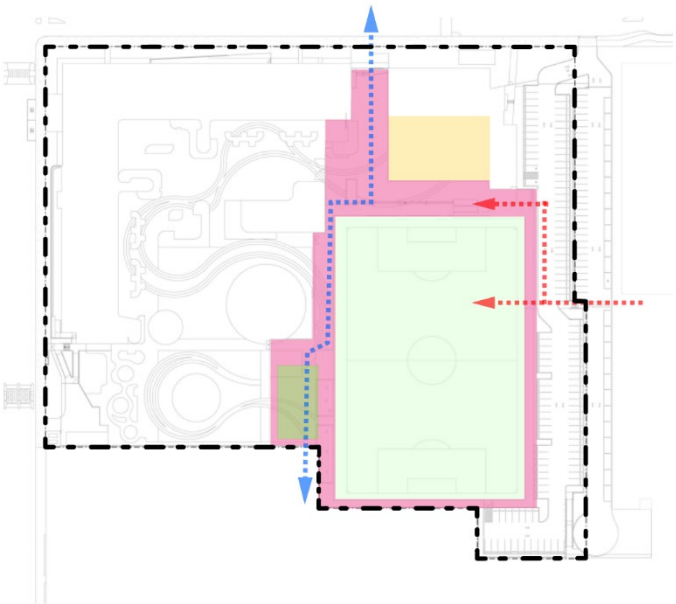


Figure 60. Social spaces

Community Usage

The areas indicated below denotes the areas open for community use outside of school hours. This will include the use of the field and Community gardens. The hall (indicated in yellow) will also be available for afterhours use by the community. The area in green will be a community garden space located adjacent the through site



connection (red dashed line) to allow it to be easily accessible.

Figure 61. Community Use

Mature Tree Canopy

The design is currently achieving a 30% mature tree canopy coverage. This has been achieved by using 230 mature trees (200ltr pot size) and by retaining the number of mature existing trees to the central play area.

Figure 62. Mature Tree Canopy

Mass planted area

The design is achieving the Greenstar requirement of 15% of the site area to be mass planted as can be seen in the diagram below.

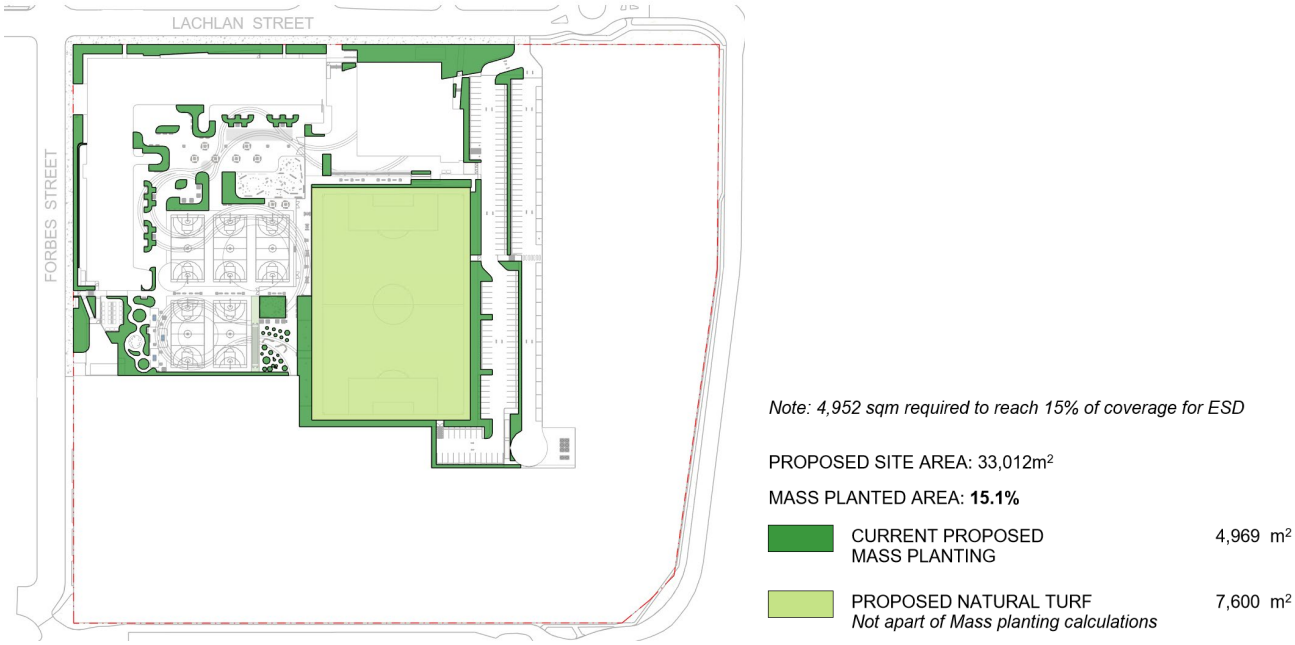


Figure 63. Mass planted area

Planting Typology

The planting selection for this project is based on the Cumberland Plain Planting Community. This palette has been distributed across the site to adapt to shade, wind and sunlight. Their growth habits, colours, and textures have been also considered to create a visually pleasing and cohesive landscape as well as responding to some of the Connecting with Country themes. Refer to the L-2000 Planting schedule & Palette for the full list of plant species proposed.

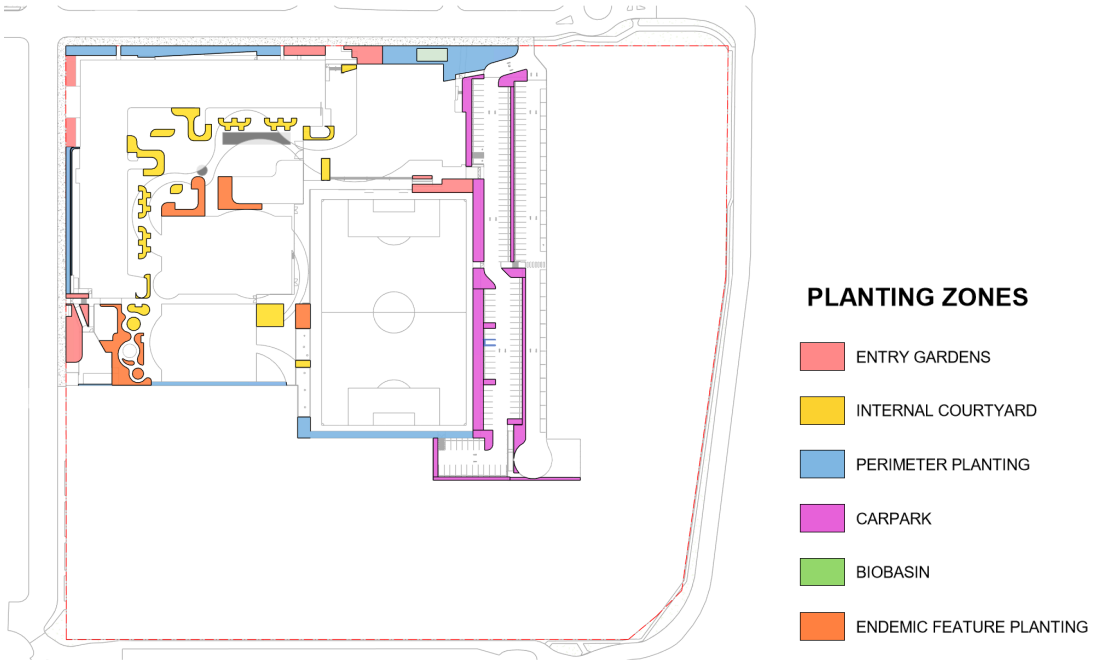
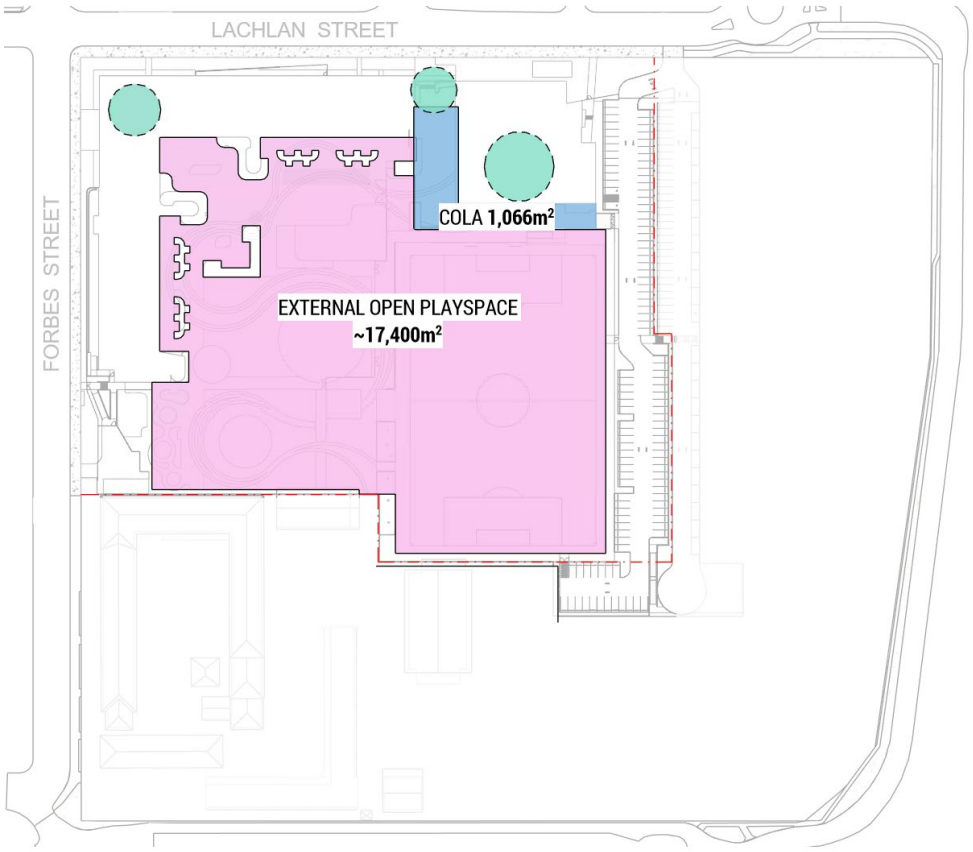


Figure 64. Planting typology

Unencumbered play area

Unencumbered play area typically refers to a designated space or area that is free from obstacles, obstructions, or hazards, where children can engage in unstructured and spontaneous play. This project is considered an urban school and has a reduced play space target of 6m2/student compared to the standard 10m2/student. The current design is achieving 9m2/student, a detailed breakdown of the areas is provided



TOTAL PLAYSPACE **20,516 m²**
10.3 m²/Student

EXTERNAL PLAY SPACE 17,400 m²

COLA 1,066 m²

BUILDING PLAYSPACE 2050 m²

	Area (m)
Hall	790
VET & Library Terrace	250
Knuckle Terrace - Lower Ground	140
Knuckle Terrace - Ground Floor	140
Knuckle Terrace - First Floor	235
Knuckle Terrace - Second Floor	235
Knuckle Terrace - Third Floor	140
Staff Terrace - Fourth Floor (TBC if any student use)	130
Total	2050 m²

below.

65. Unencumbered play areas

4.8.7 Public Domain Interface

The landscape design as part of the public domain works includes the streetscape along Forbes Street (to the west) and Lachlan Street (to the north). The existing footpath and kerb extents will largely remain the same with some new works required at the interface between the new entrances to the site and the existing.

The landscape design objective is to provide a welcoming, generous and a sense of place at the main entry whilst ensuring that the other entries have a strong relationship to the existing public domain. A generous landscaped setback will provide a transition between the public domain and the school. This buffer will provide space to negotiate any level difference, soften the secure fence line with the use of planting, allow space for new tree planting for shade and amenity, transition the scale of the building and the street, and demonstrate an adequate urban understanding and resolution to all interfaces.

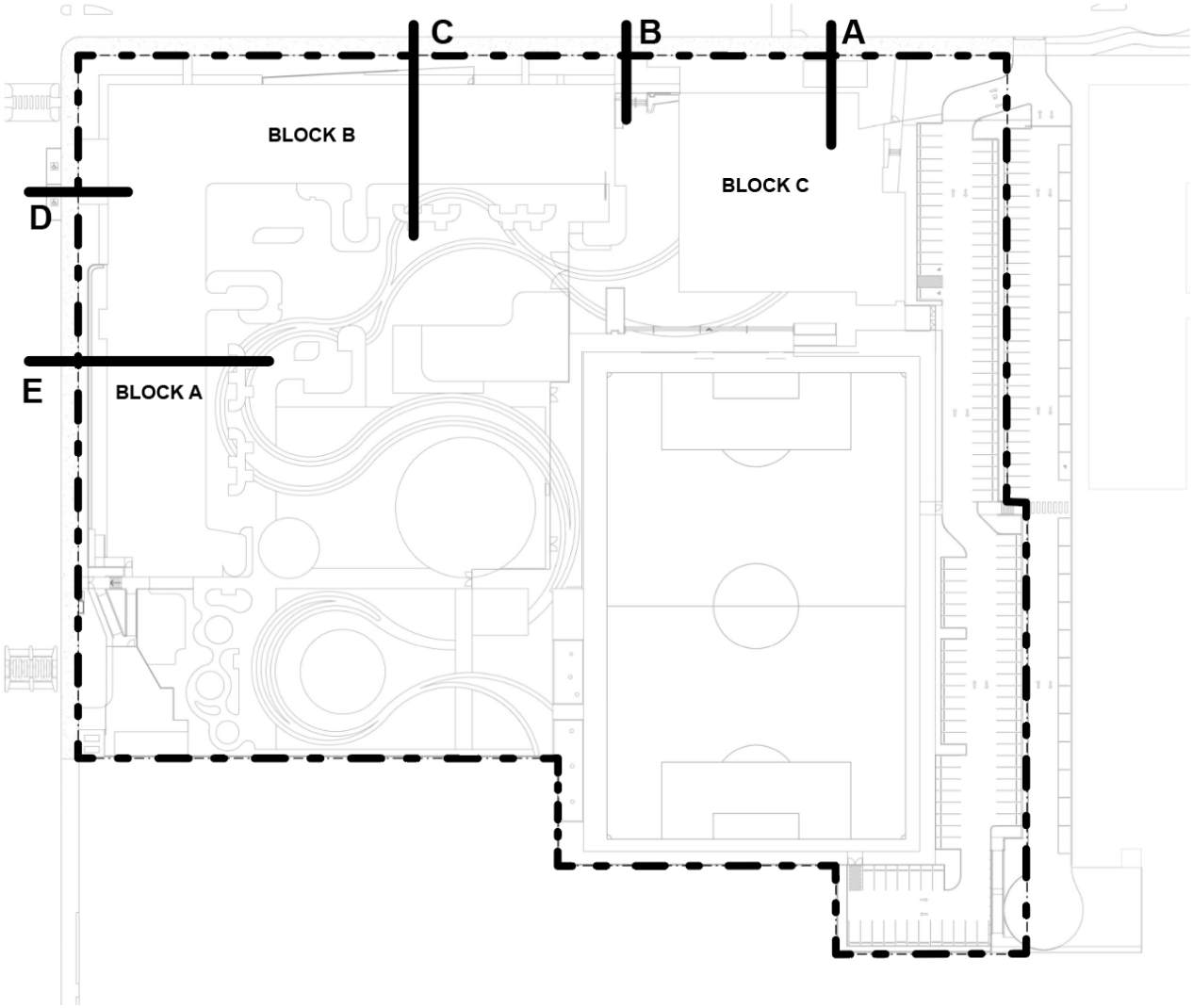


Figure 66. Public Domain section key plan.

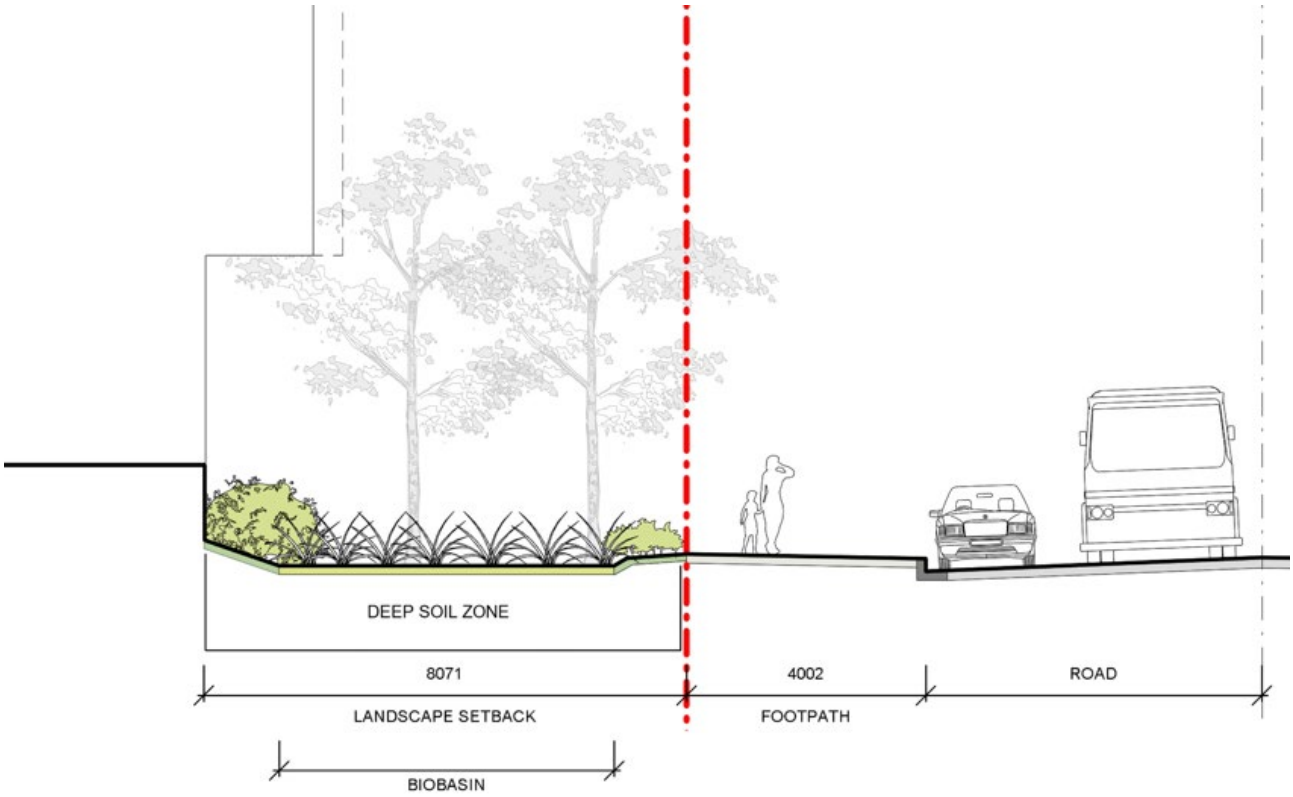


Figure 67. Section A – Lachlan Street interface Hall

Figure 68. Section B – Secondary Entry, Lachlan Street

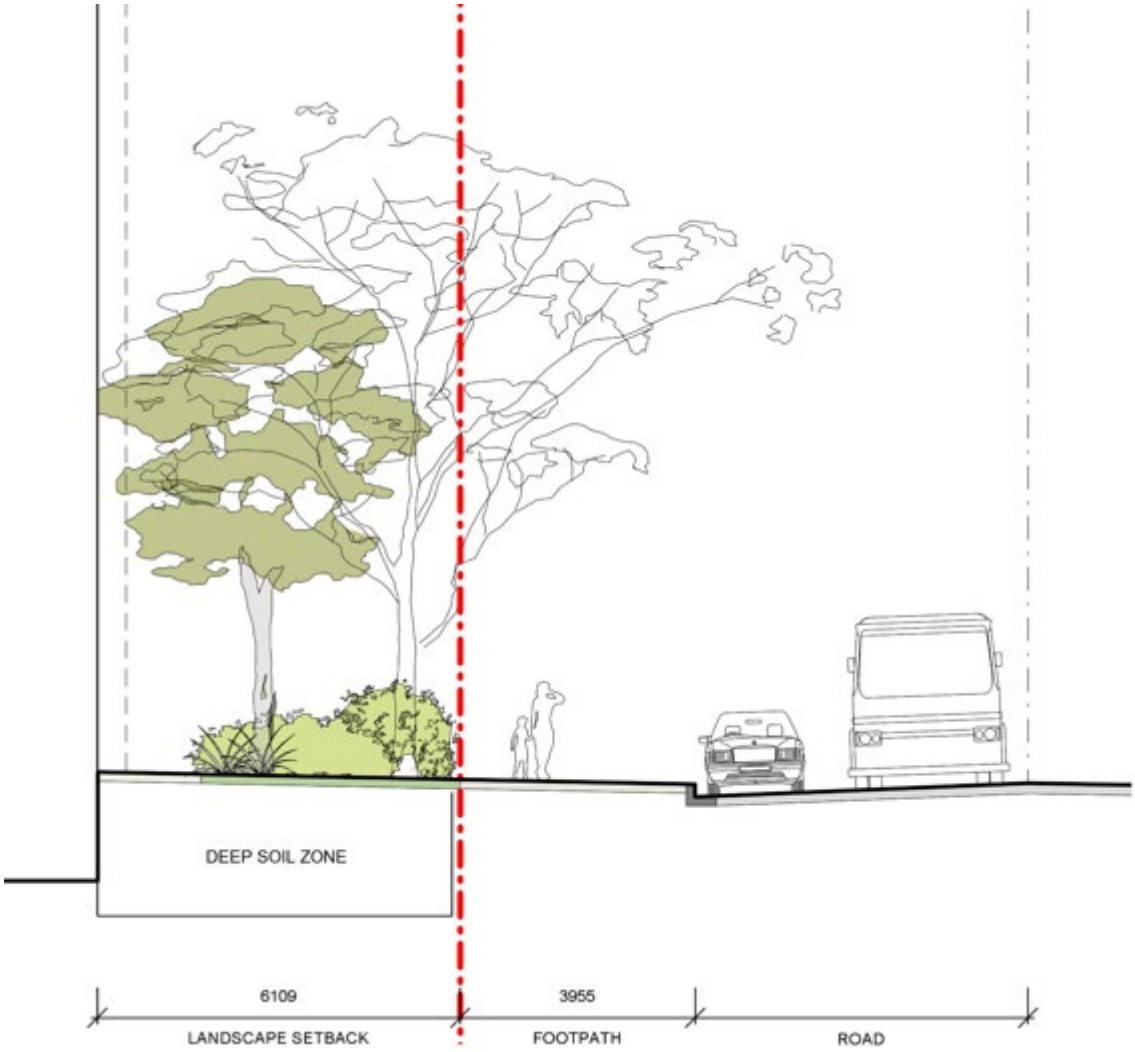


Figure 69. Section C –Typ. Lachlan Street interface

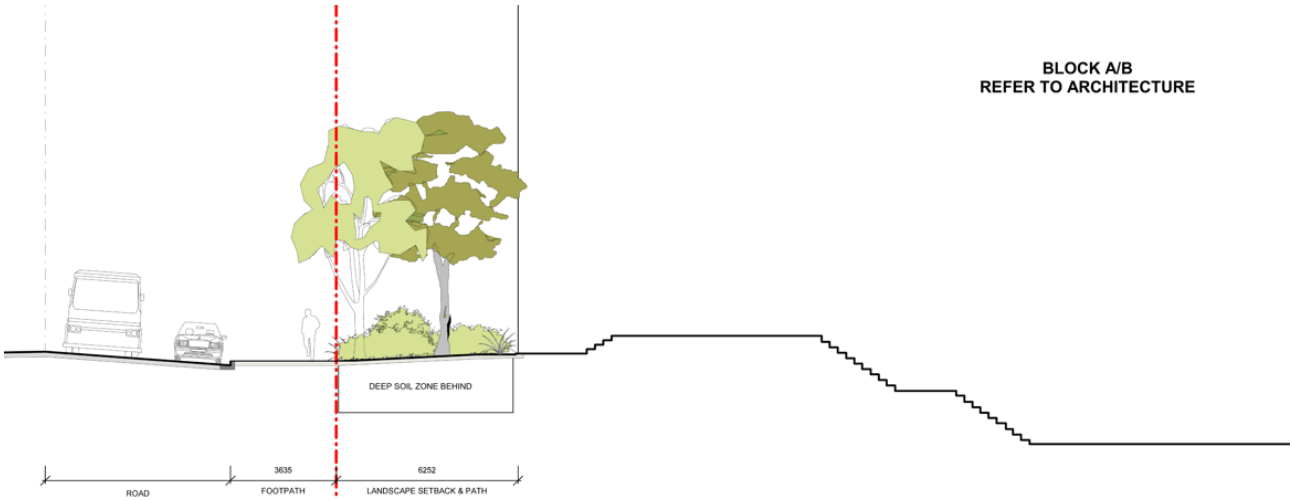


Figure 70. Section D – Main entry, Forbes Street

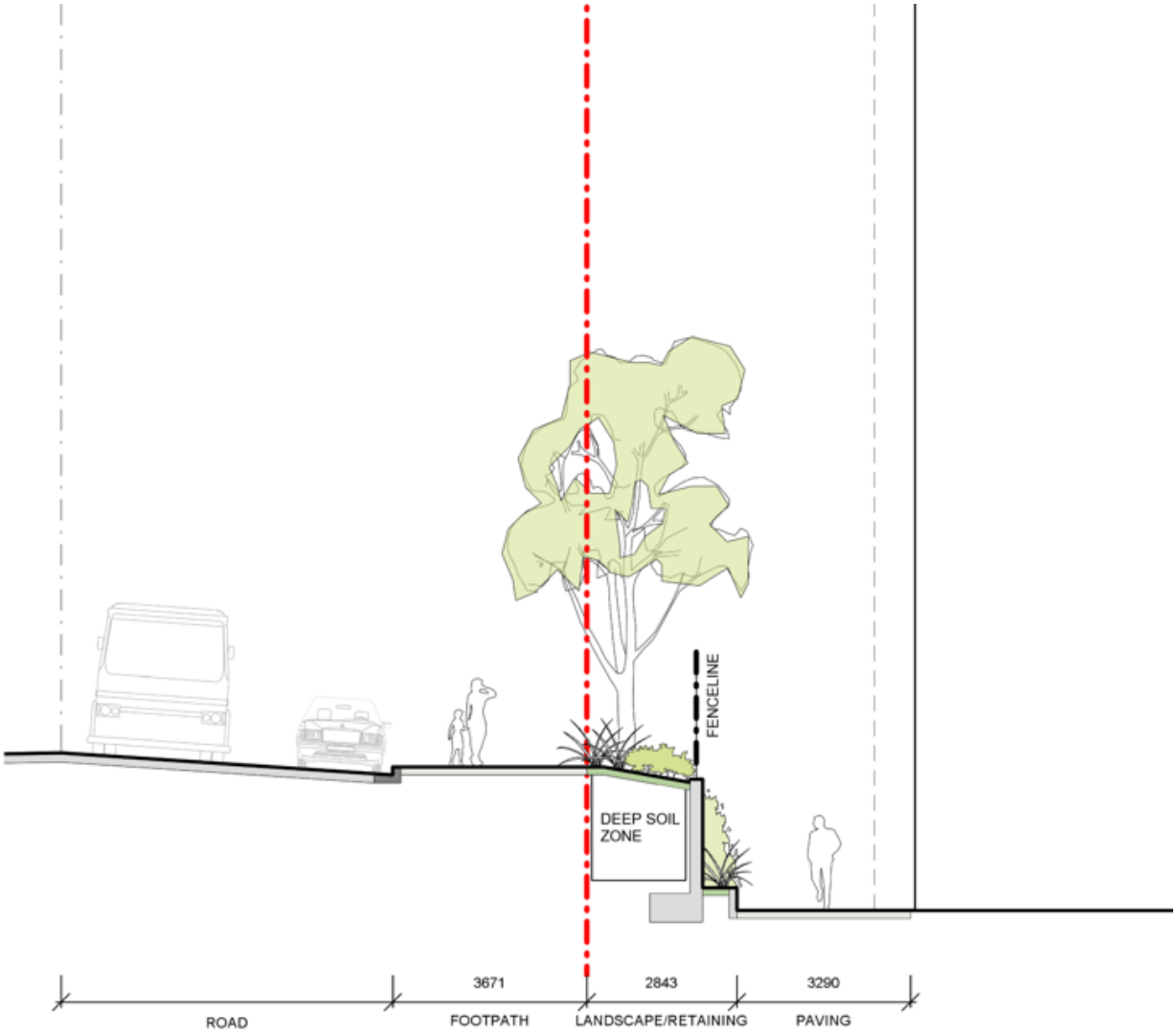


Figure 71. Section E – Forbes street interface Block B

4.8.8 BIKE PARKING

Cycling is encouraged as one of the best modes of transport for students and staff travelling to and from school. Cycling promotes health and wellbeing. The high school will be equipped with student bike parking spaces at main entry points around the school as well as end of trip facilities and bike parking for staff. Shared cycle and pedestrians' paths have been constructed in the site proximity and the project aims to support this mode of transport.

The design provides 200 student bike parks and 22 staff parking spaces. The student bike parking has been consolidated to the southwestern corner of the site with 184 bike spots provided. A further 16 spots is positioned outside the hall. The 22 staff parking spots sit within an Enclosure only accessible to staff located internally of Block A, refer to architecture for further details.

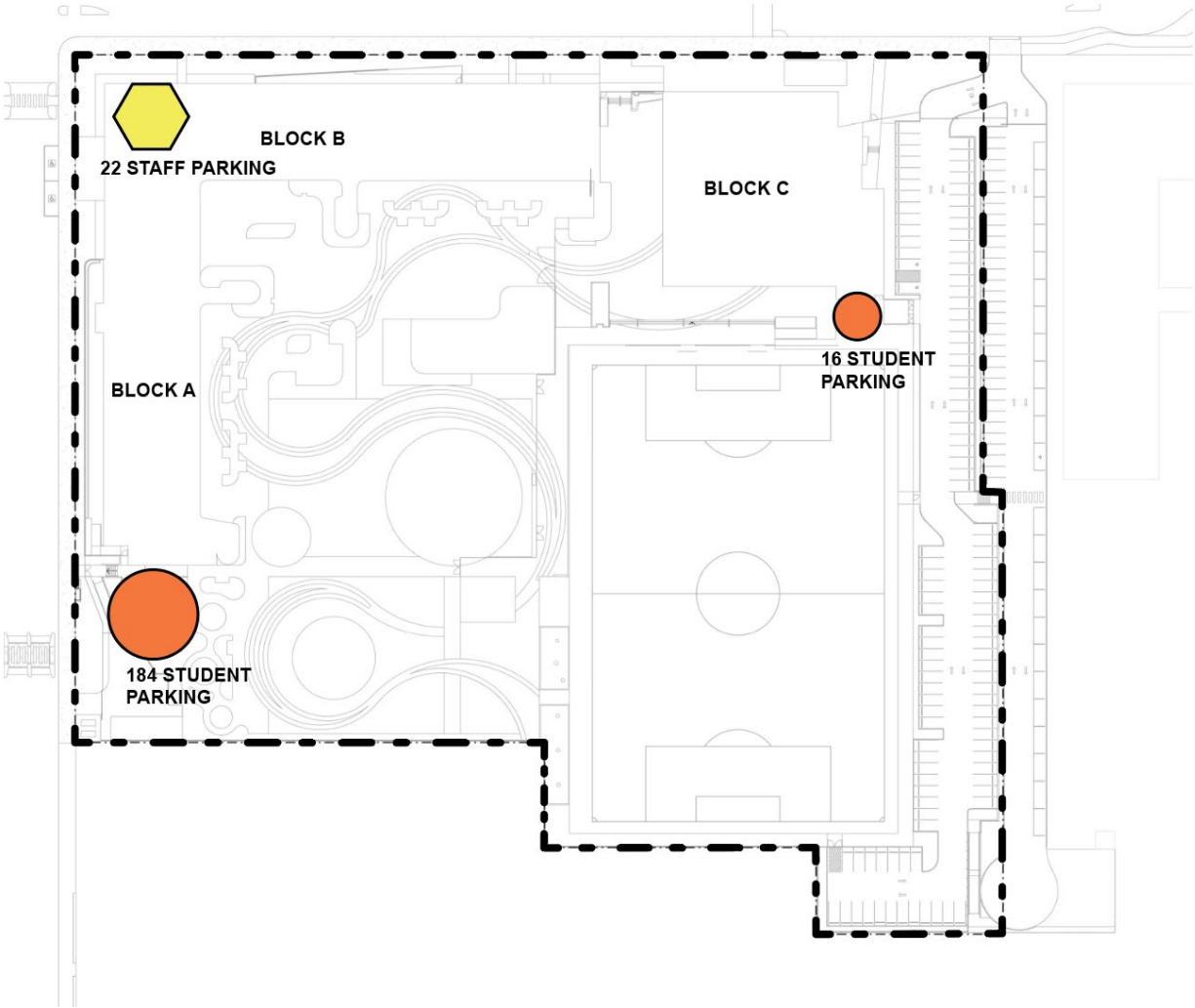


*Figure 56. **Bike parking location***

4.9 Interior Layout & Design

The interior of buildings will see a seamless thematic transition between the architecture and the interior. The Connecting with Country themes and colour palette continues from external to the interior spaces.

We see an opportunity to assign each learning hub with unique colour which links to the overall wayfinding strategy to create the sense of identity of each hub. Feature colours will be applied interior elements such as paint colours, carpet, vinyl, pinboard, joinery and furniture.

High School furniture layout aims to foster collaborative learning in a mature learning environment. The concept is to maximise the use of loose furniture where practicable to allow for maximum flexibility of use in various teaching model. Furniture selection is subject to future refinement with the appointed Principal.

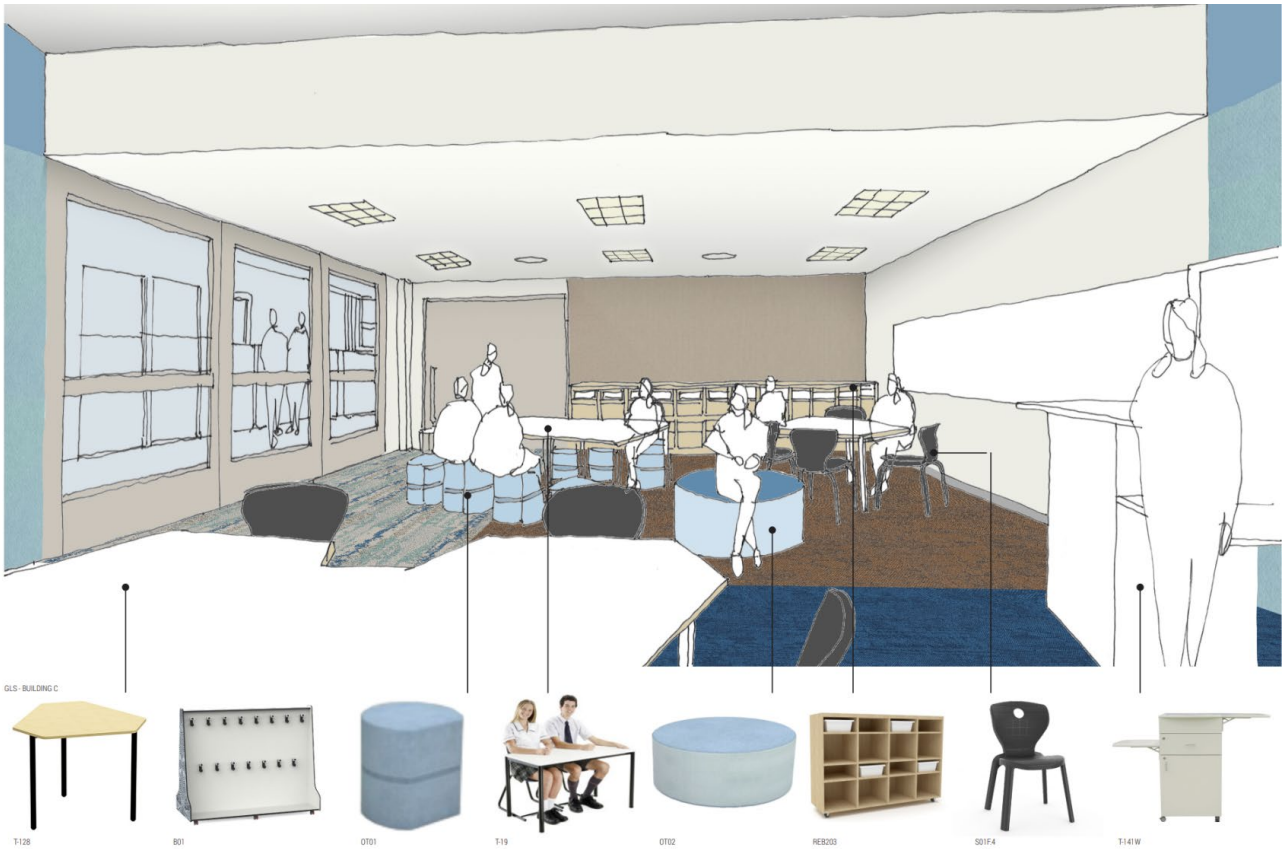


Figure 573. A perspective of a typical GLS (Source: NBRS)

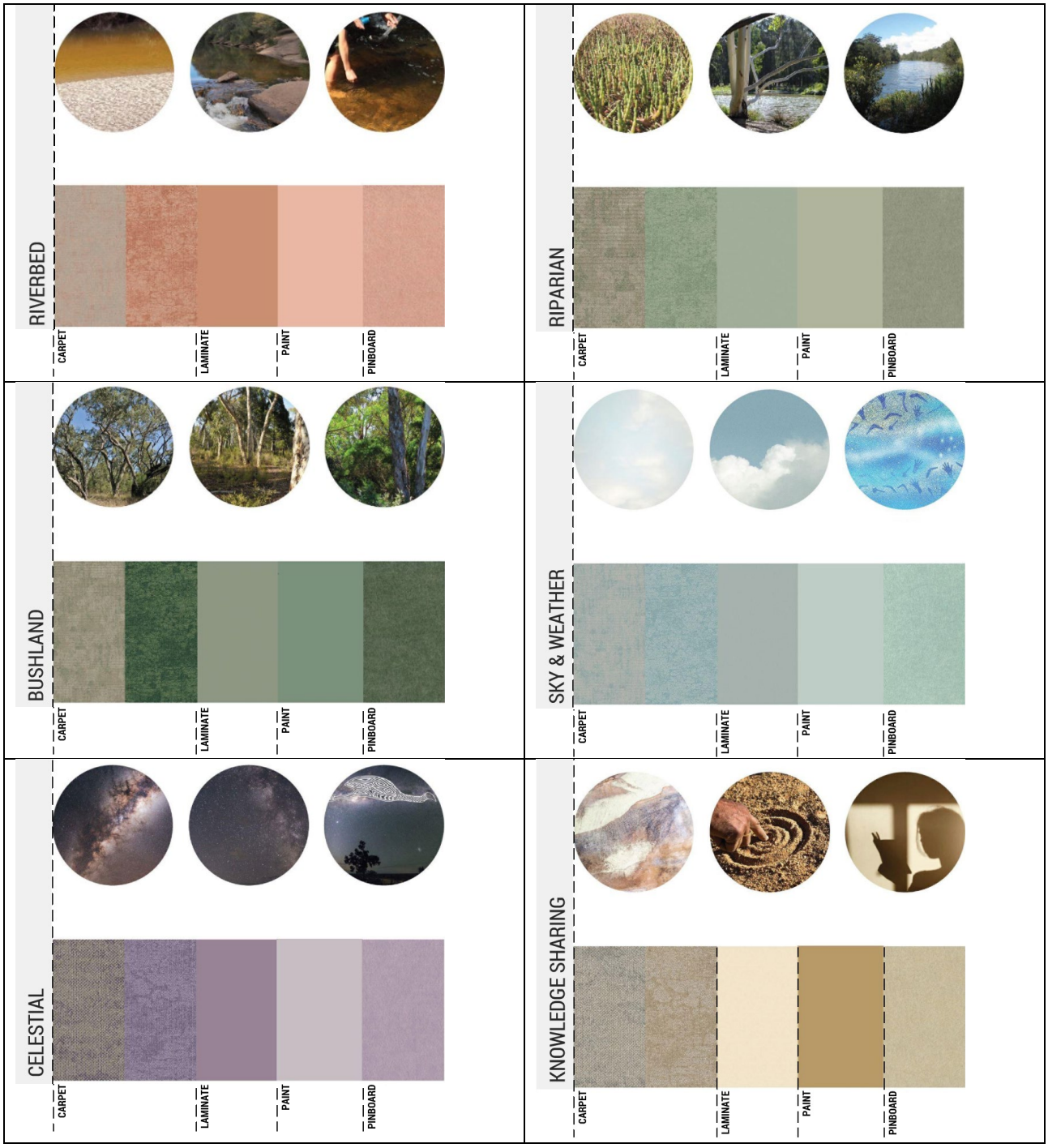


Figure 74. Interiors Colour Palette that responds to overall wayfinding strategy (Source NBRS)

5 Environmental Design Influences

This section of the report addresses various environmental design influences that have shaped the high school design.

5.1 Entries and Access – External Circulation

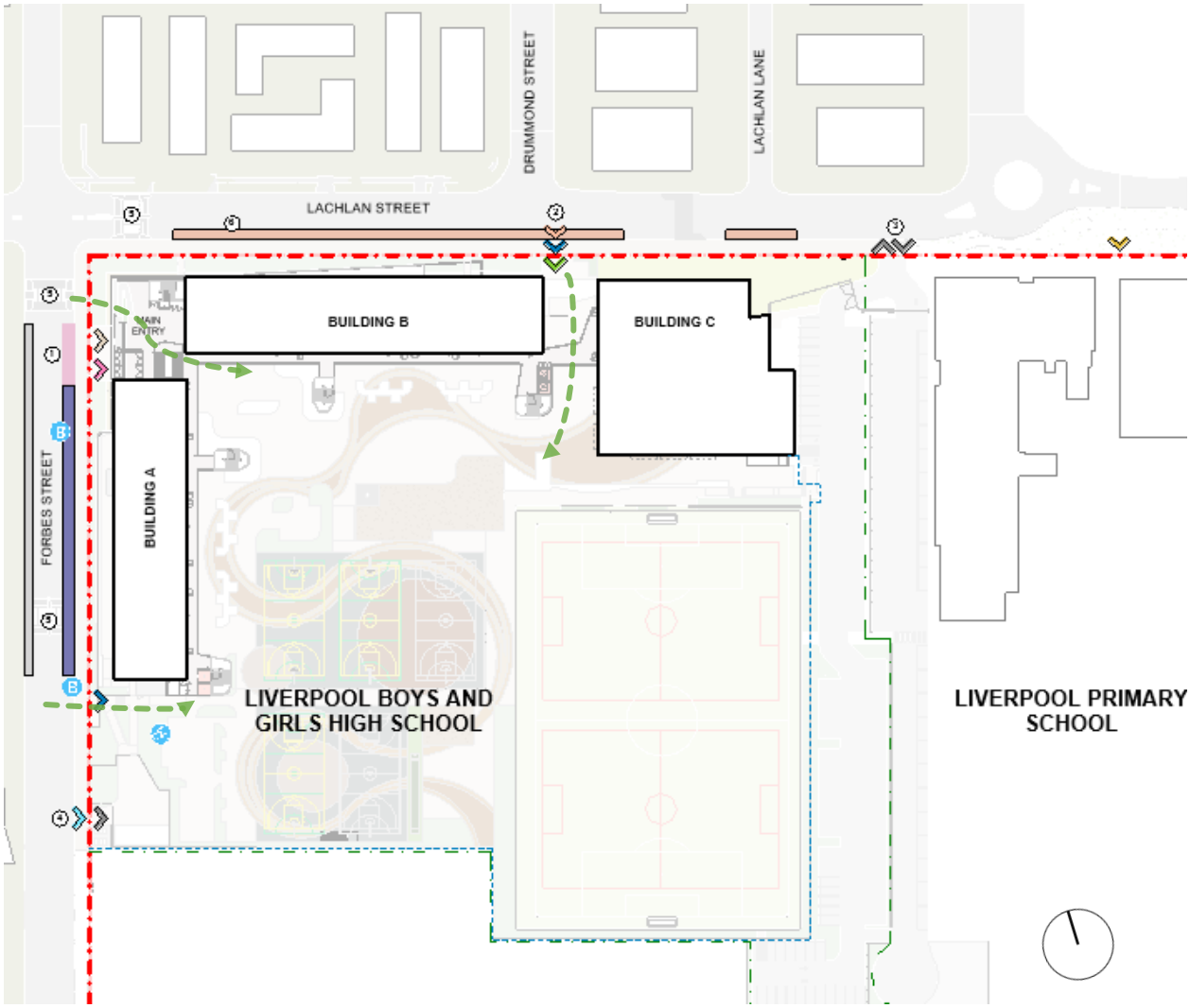
The main school entry addresses the corner of Forbes Street and Lachlan Street. The covered circulation space provides a temporary mass gathering point when students are funnelling through the main entry.
There are two other pedestrian access point to the school.

- A secondary entrance on Lachlan Street
- Another secondary entrance further south on Forbes street

Access to the staff carpark is further east via Lachlan Street, allowing the use of Forbes Street and Lachlan Street for the safety of pedestrian access only. Staff on-site parking facility includes 112 car bays which is equivalent to 75% of the staff capacity. A service vehicle entry to the waste collection area is through the staff car park. The delivery access is from Forbes Street and is separate from the staff car parking and waste access.

The high school design has incorporated approximately 85m for high school pick up and drop off (PUDO) on Lachlan Street and converted the existing (PUDO) on Forbes Street to 80m of street parking. Also available on Forbes Street are two accessible street bays complete with ramps for direct access to Supported Education Learning Unit. Existing public bus stops are positioned on Forbes Street. The proposed school bus zone will be located on Forbes Street

Refer to the School Transport Plan prepared by TTW, Traffic Engineer for the detailed assessment and design of school traffic management strategy.



LEGEND

- BUS STOP
- CAR PARKING
- BICYCLE PARKING
- PROPOSED HIGH SCHOOL SITE
- EXISTING BOUNDARY
- PROPOSED FENCE
- PICK UP AND DROP OFF
- ACCESSIBLE PICK UP AND DROP OFF
- POTENTIAL BUS ZONE
- EXISTING PICK UP AND DROP OFF
- MAIN ACCESS
- SECONDARY ACCESS
- SELU ACCESS
- VEHICLE ACCESS
- STUDENT ACCESS
- PRIMARY SCHOOL ACCESS
- DELIVERY ACCESS
- AFTER HOURS COMMUNITY ACCESS

NOTES:

1. Main School Entry
2. Pedestrian Entry & Main Community Access From Lachlan Street
3. Vehicular Access for PS And HS from Lachlan Street
4. Service Loading & Delivery Entry
5. Proposed Upgrade of Existing Pedestrian Refuge to be discussed with SINSW
6. School Pick-Up & Drop-Off Area

Figure 75. External and Internal Circulation Diagram (source: NBRS)

5.2 Internal Circulation & Egress & Evacuation Strategy

The design meets the requirement for equitable access and emergency evacuation routes in accordance with 'AS1428.1-2009 Design for access and mobility' requirements. The design includes the following campus wide access and egress strategy:

Access compliant path by use of 1:20 walkway and up to 1:14 gradient ramps to address level changes across the site.

- The buildings are connected via external walkways that have been set at the same relative level at each floor.
- Stairs are strategically positioned at equal distance from various exit points.
- Lifts available at a central location of each building with a rise over 1 storey.
-

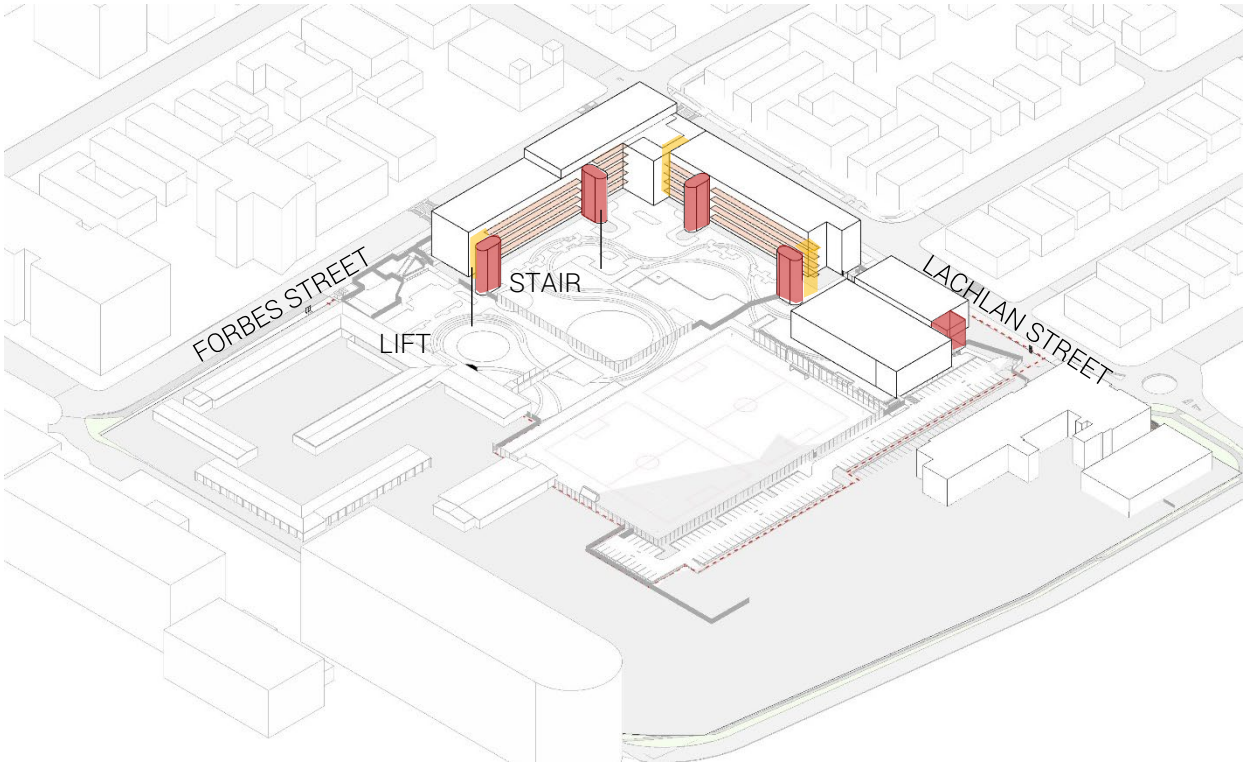


Figure 76. Diagram to highlight the extent of vertical and horizontal internal circulations (Source: NBRS)

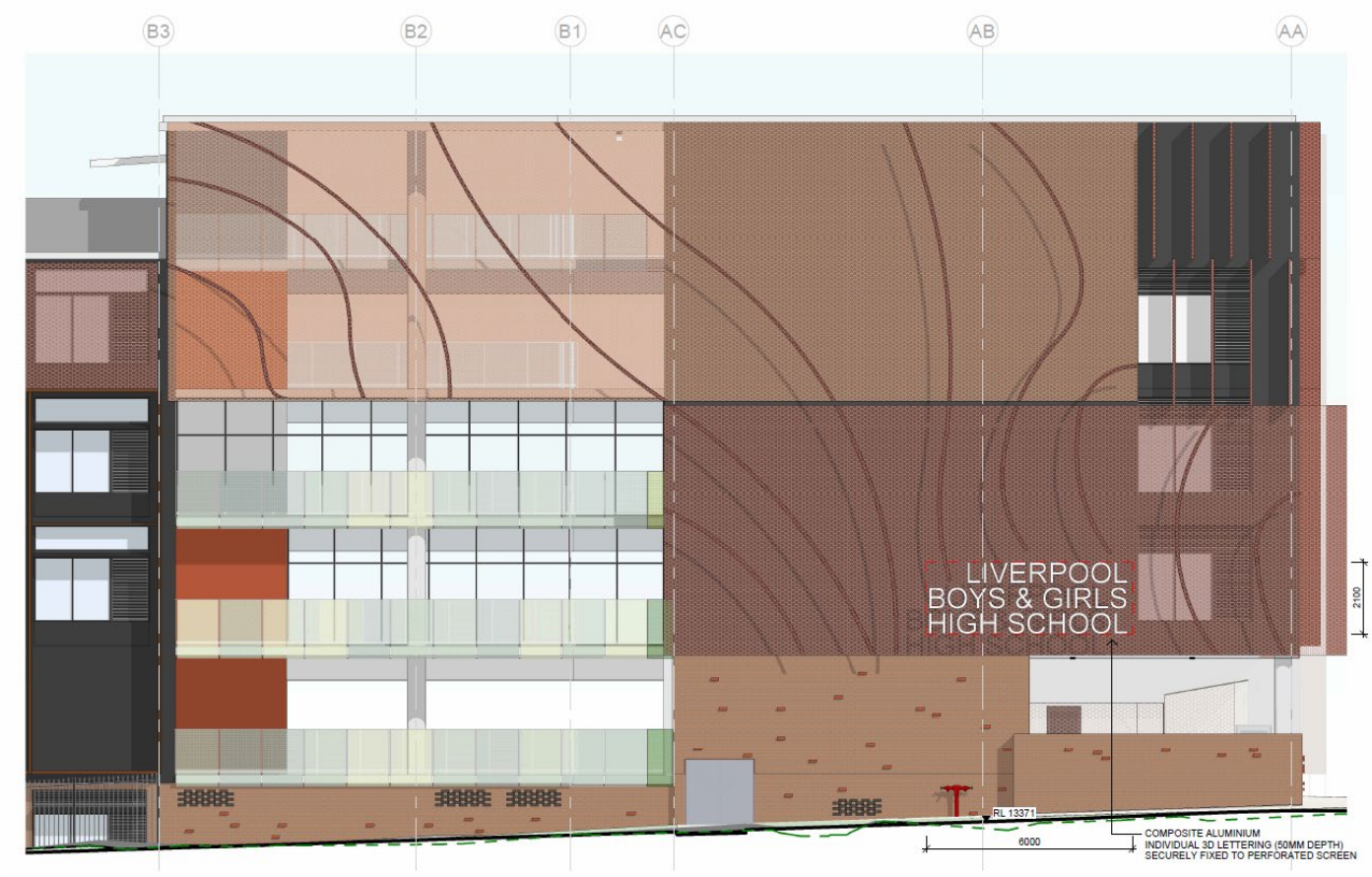
The high school design adopts the standard hub layouts which commonly feature ground level & elevated external walkway as the main egress routes connected to open & enclosed stairwells. Extended travel distance to a point of choice and extended distance between exits are to be addressed as performance solution as outlined in section 5.3 of this report and in the accompanying BCA & Fire Engineer Report.

5.3 Signage

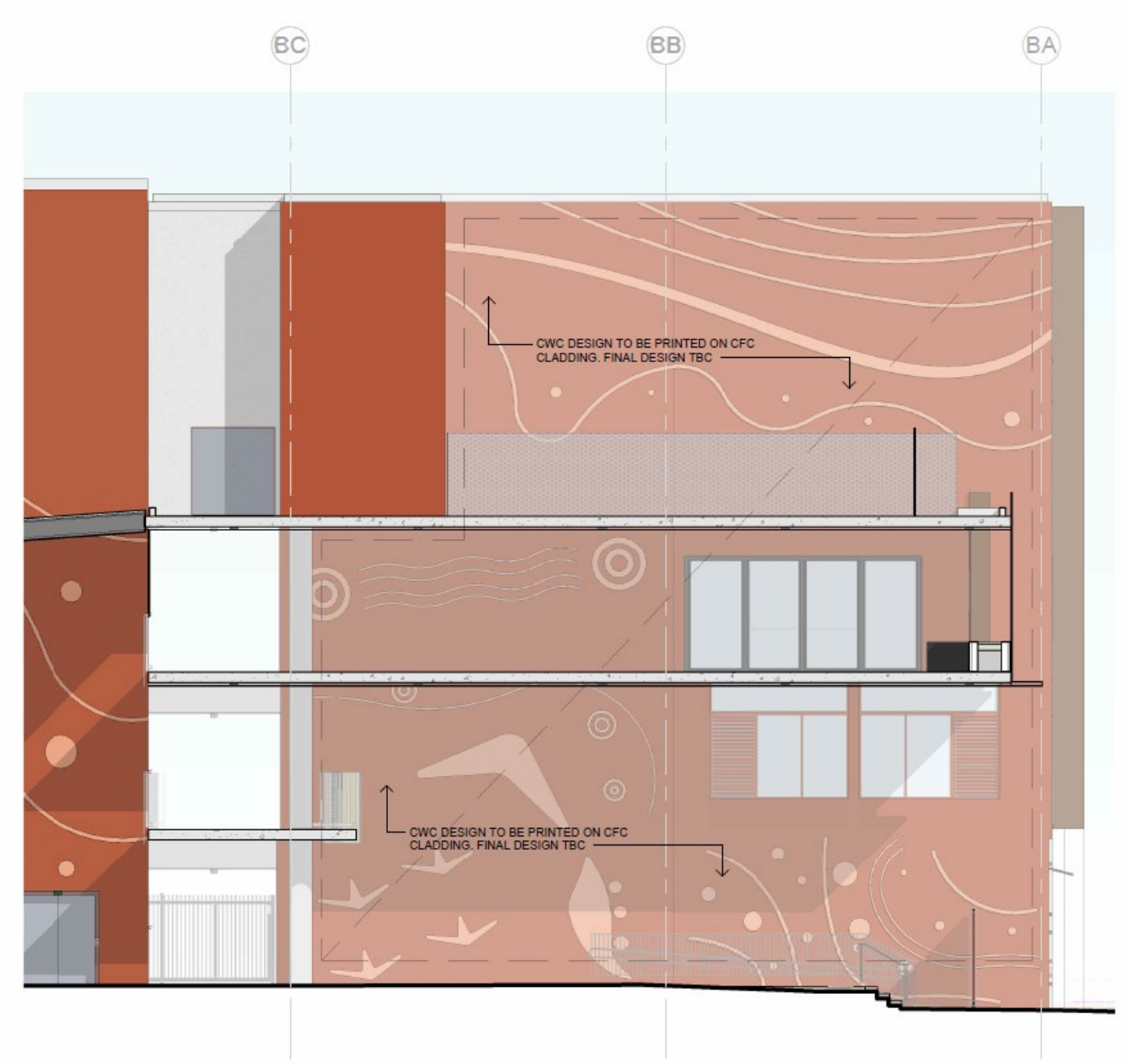
Signage to be provided:

- Main School Signage: Aluminium block letters to façade *(Final school name yet to be confirmed)*
- LED signage to main entries
- Wayfinding Signage
- Statutory Signage

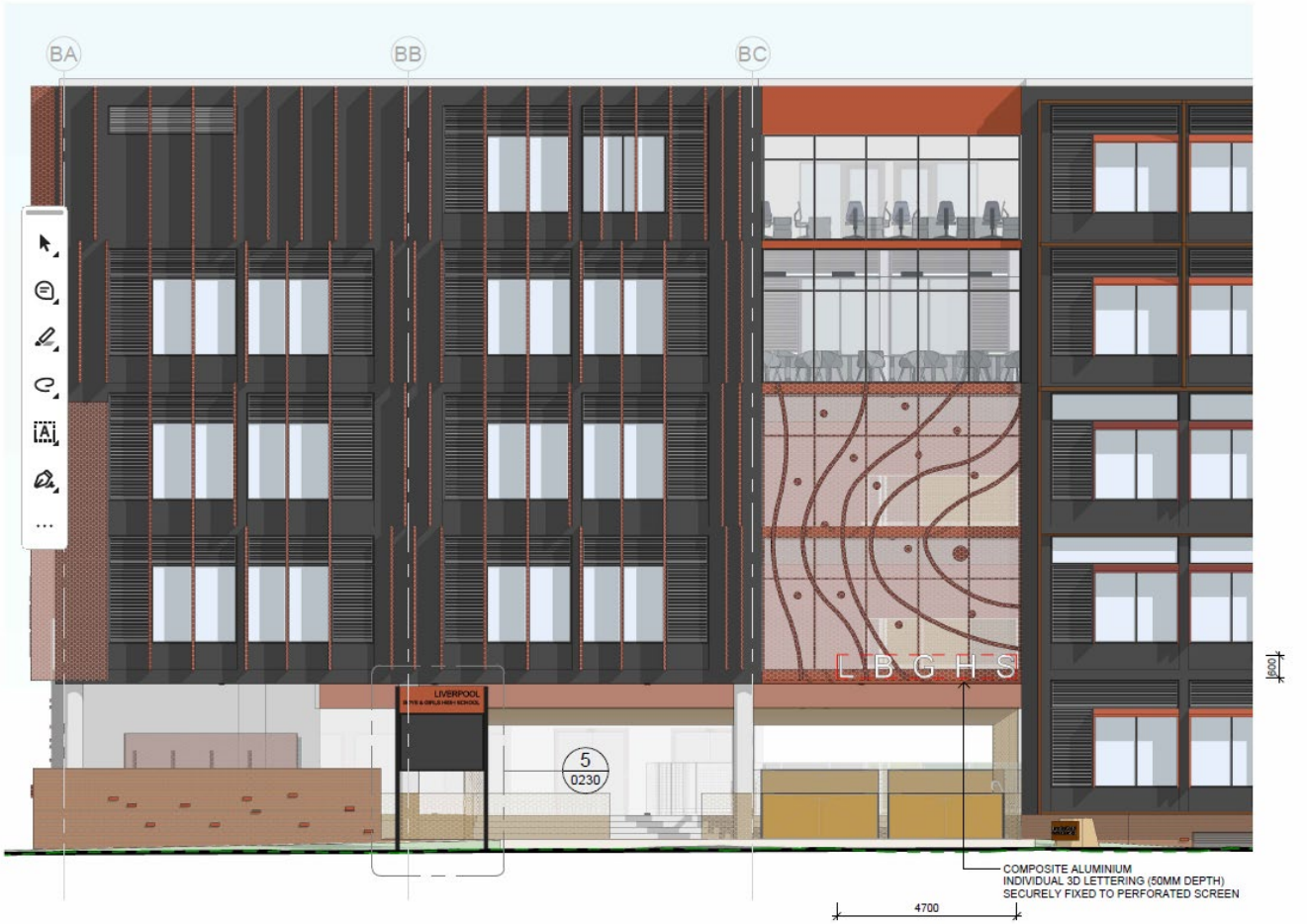
- Acknowledgement of Country Signage/ Artwork



1 SGN01 - REF MAIN ENTRY SIGNAGE
1 : 100



2 SGN04 - REF
1 : 100



3 SGN02 - REF MAIN ENTRY SIGNAGE
1 : 100

4 SGN03 - REF BUILDING C
1 : 100

5.4 Site Emergency Access

Access for emergency services such as ambulance and fire brigade are positioned as close as possible to the entrances available along the site boundaries as outlined below.

- Fire Service and Ambulance access via street parking & via carpark if required.
- Stretcher access provided to all main entry points.
- No Ambulance or Ute access provided to central courtyard due to civil RL site restrictions.

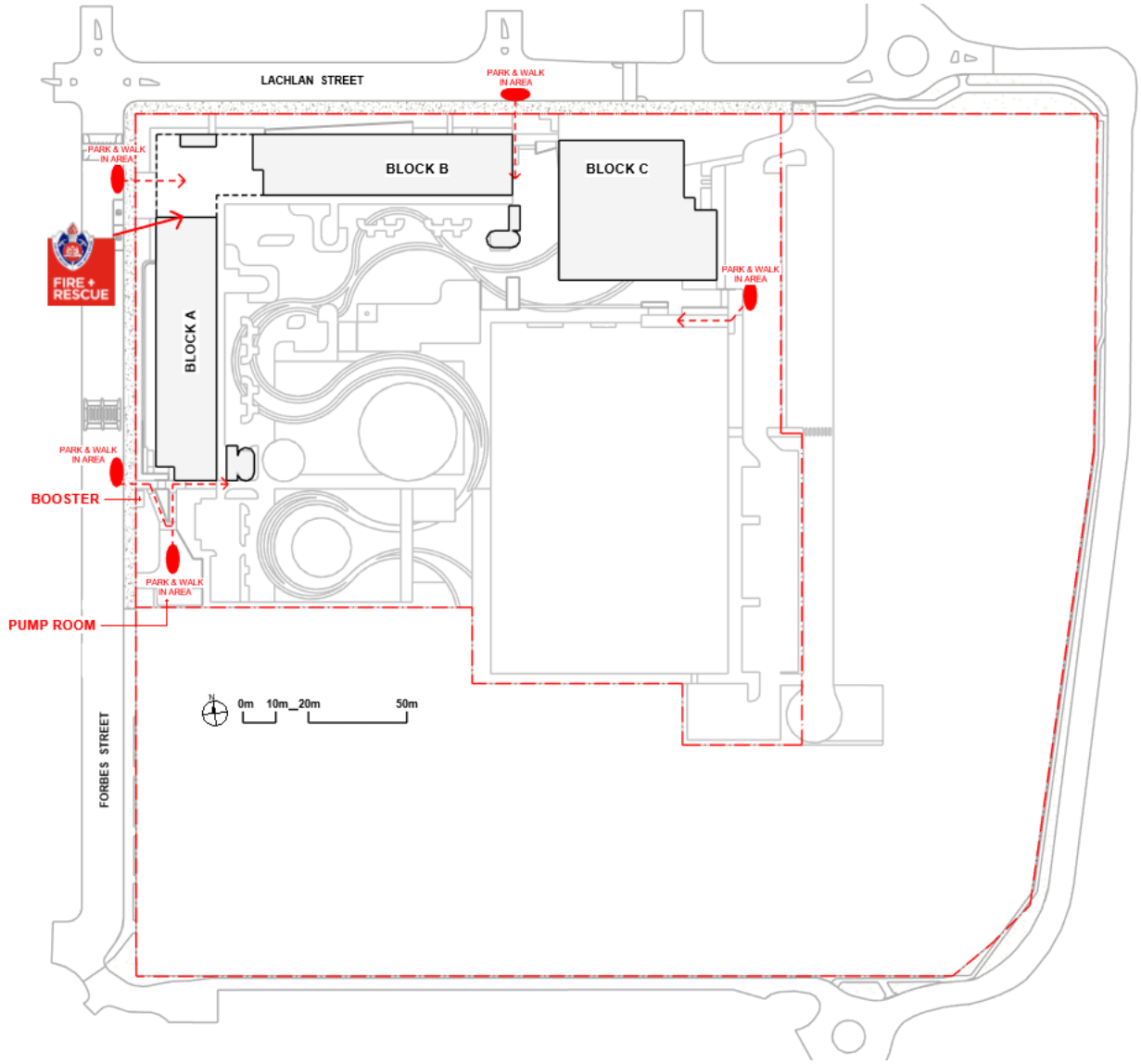


Figure 77. Emergency access plan (Source: NBRS)

5.5 Site Security

The perimeter security fencing complies with the requirements of the SINSW – Asset Management Unit (AMU) and the School Security Unit (SSU). Simple metal posts & steel mesh fencing system are being used to deter unauthorised access.

Several perimeter gates are equipped with electronic access systems, which include intercoms and electronic key card access. The intercoms facilitate communication between visitors and school administrative staff, enabling them to request access and identify themselves before entry is granted. The electronic key card access system further ensures that only authorised personnel can gain entry, thus reducing the risk of unauthorised intrusion. Predominantly, all guests to the school would be directed to the admin at the main entry.

The proposed high school and the existing Gulyangarri Public School are separated by the carpark and their respective fence lines.

Fencing security plan refer to Fencing strategy of Landscape drawings appendix A.

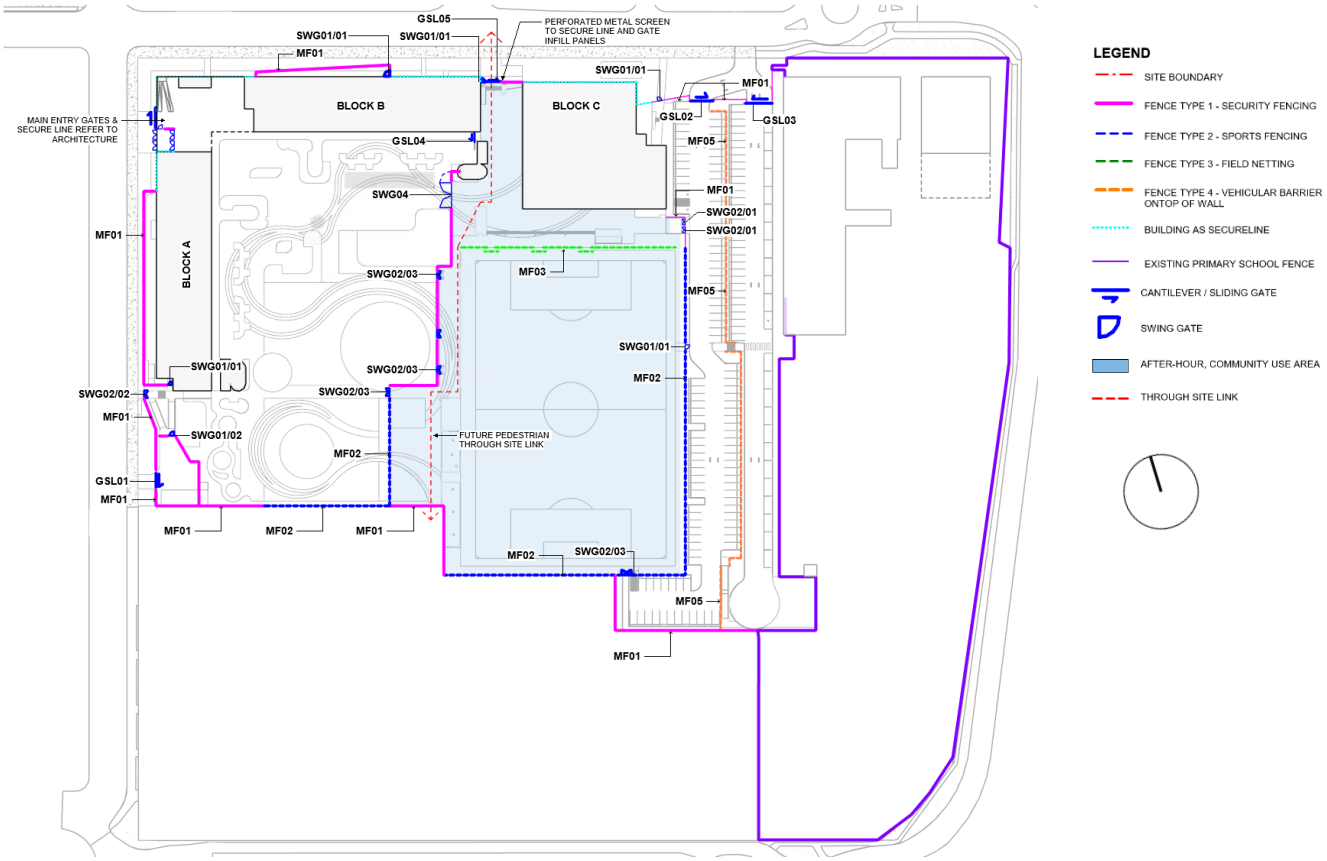


Figure 79. Site Security Plan (Source: NBRS)

5.6 Environmental Amenity

5.6.1 Public Domain

The proposed public domain works have been divided into the following zones, complete with the corresponding key plan:

Note: Refer to public domain drawings from Landscape package and Traffic management Plan for signage and line marking.

Table 5. Breakdown of public domain works

AREA	SUBCATEGORY	SCOPE
1	Lachlan Street	• Provide refuge islands to North, East & west intersections
2	Lachlan Street	• Provide line marking and signage. • Upgrade existing footpath from 1.2m to 2.5m • New full width footpath from kerb to boundary • ~85m street parking converted to Kiss & Ride to better suit arrival routes • Existing Driveway entry at Primary school Carpark widened
3	Forbes Street	• Design the kerb-work to accommodate an accessible ramp suitable to accommodate 2 accessible bays. • Line marking and signage. • Removal of Existing pedestrian crossing and replaced with new crossing • Provide adequate lighting at new pedestrian-crossing(s). • New full width footpath from Kerb to boundary • Existing ~85m Kiss & Ride converted to street parking, Kiss & Drop to Lachlan Street

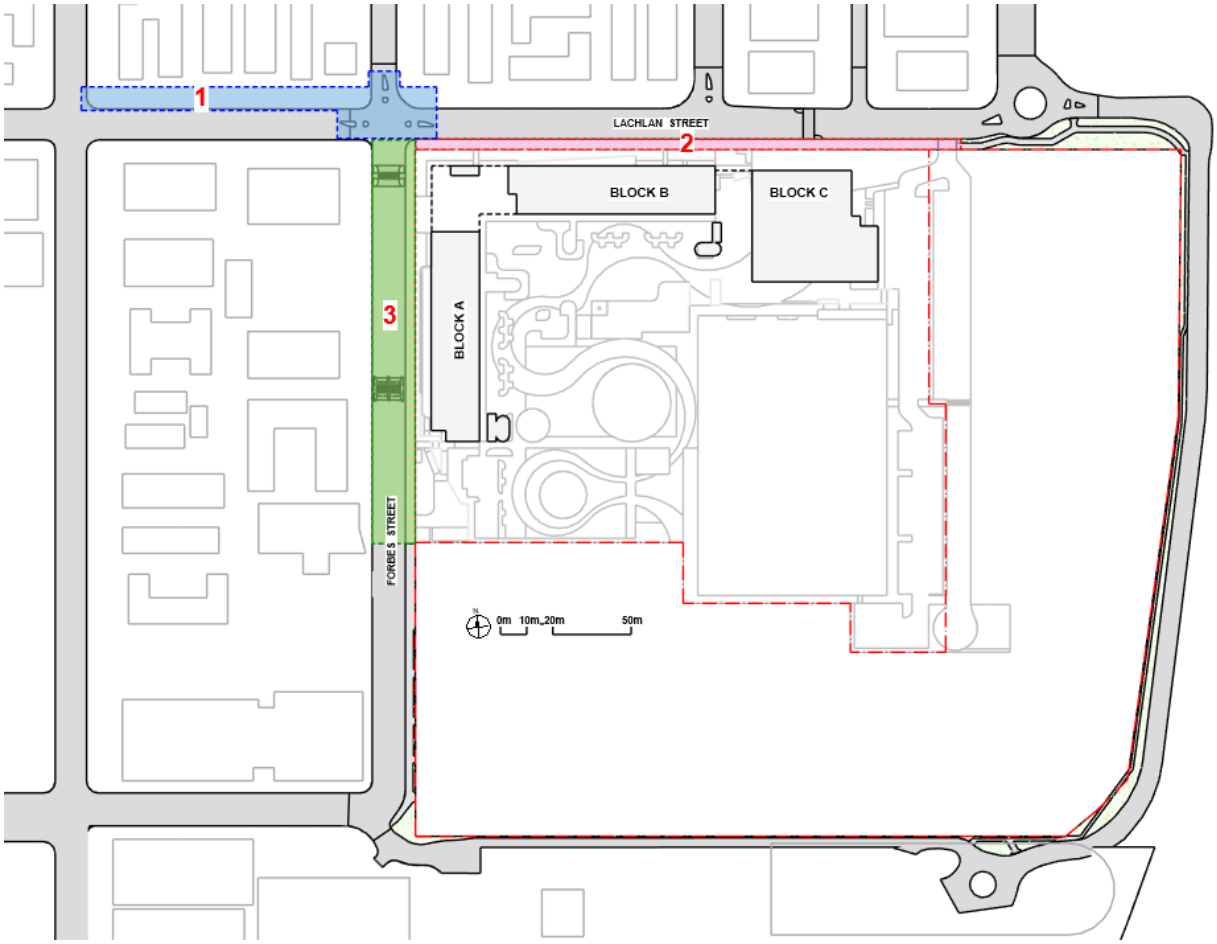


Figure 80. Key plan - area delineation of the various Public Domain works (Source: NBRS)

5.6.2 Setbacks

Building A, B and C sit along Forbes Street and Lachlan Street maintaining a consistent external wall setback of 6.2m to create a good streetscape and to maximise outdoor play space within the internal courtyard. However, some façade elements such as shade sunhoods protrude past this setback. The setback ensure good amenity to the streetscape, provides a landscape buffer zone and transition between the building and the road as well as greater visual separation between the residential and school buildings.

In accordance with Liverpool Development Control Plan 2008 (DCP) Part 4.2.7 Street Alignments and Street Setbacks, the site requires a 0m setback on Lachlan Street and Forbes Street.

The TI SEPP has been revised and the 5-metre setback is no longer applicable to the proposed works.

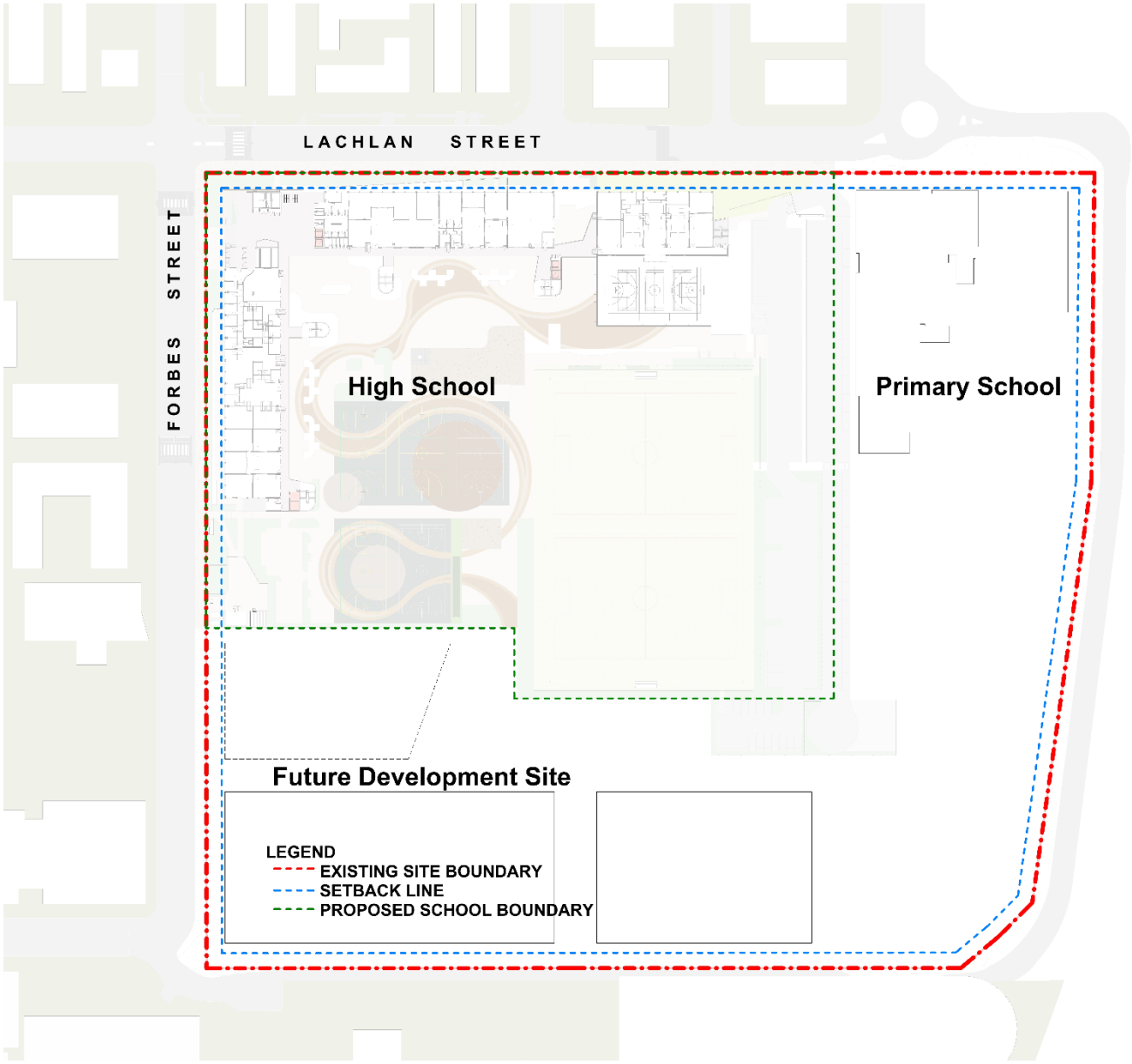


Figure 81 Setbacks Diagram (Source: NBRS)

5.6.3 Bulk & Scale

The proposed Urban high school design varies from 3-6 storeys stepping up from the east to west responding to the 3storey scale of the public school on one side and the existing and future urban context of Liverpool CBD. The building steps up in height to address the Forbes and Lachlan street corner to 6 levels however as the lower ground level is dug into the site to address the school courtyard level the building scale from the street is that of a 5storey building.

The development has minimised bulk and scale through stepping of the building form, recesses at arrival points and façade articulation that is in keeping with the surrounding built form context of the medium density residential developments.

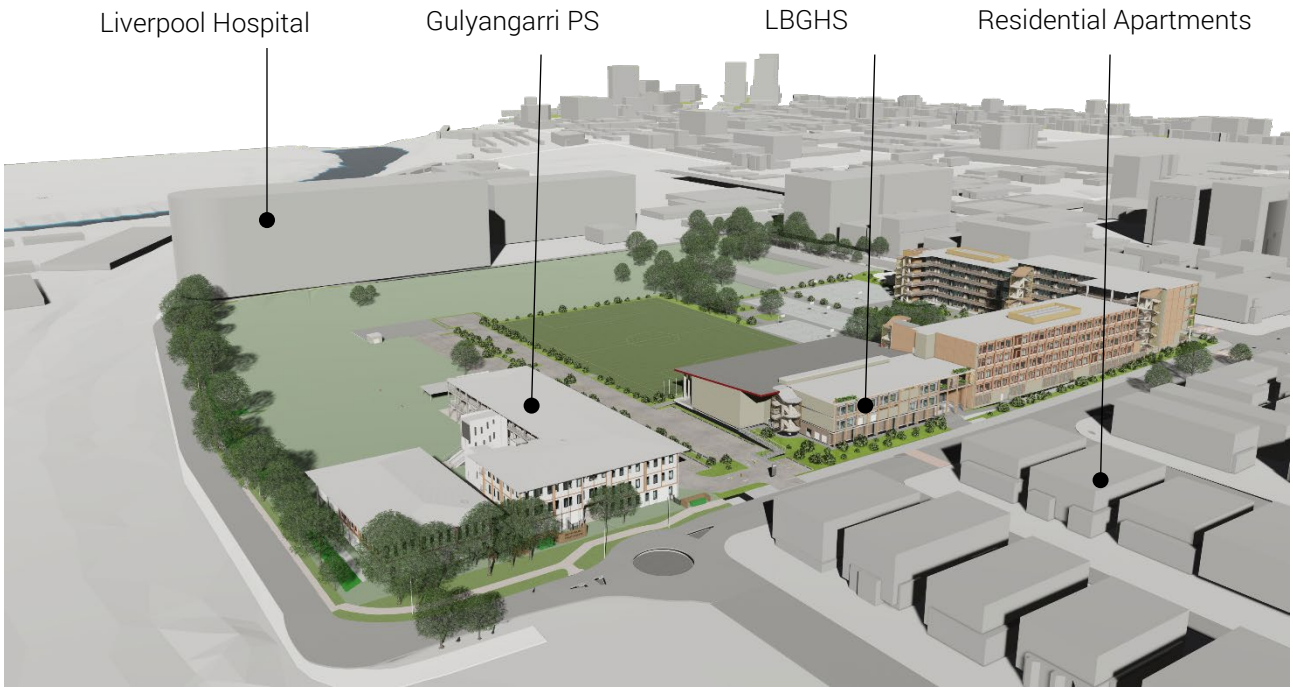


Figure 82 Overall bulk and scale of the proposed high school in the immediate local context (Source: NBRS)

Building A is a 5 – 6 storey building, its highest point on the corner of Forbes Street and Lachlan Street. Building B is a 5-storey building that connect with Building A on all levels through external walkways and a central service core.

Building C is a 3-storey building that site on Lachlan Street that is separated from Building B by a secondary entry and canopy.

The break between Building B and C on Lachlan Street minimizes the bulk and length of the façade on this street. The change in height also contributes to this. All buildings are connected via covered links, which includes recessed spaces from the street front façade enhancing building bulk minimisation.

The scale of the proposed high school buildings aligns with the scale of the surrounding existing and future developments, which includes existing 3-4 storey apartments and a redeveloping Hospital Precinct. The high school buildings maintain a suitable scale as an educational facility within a medium density residential area.

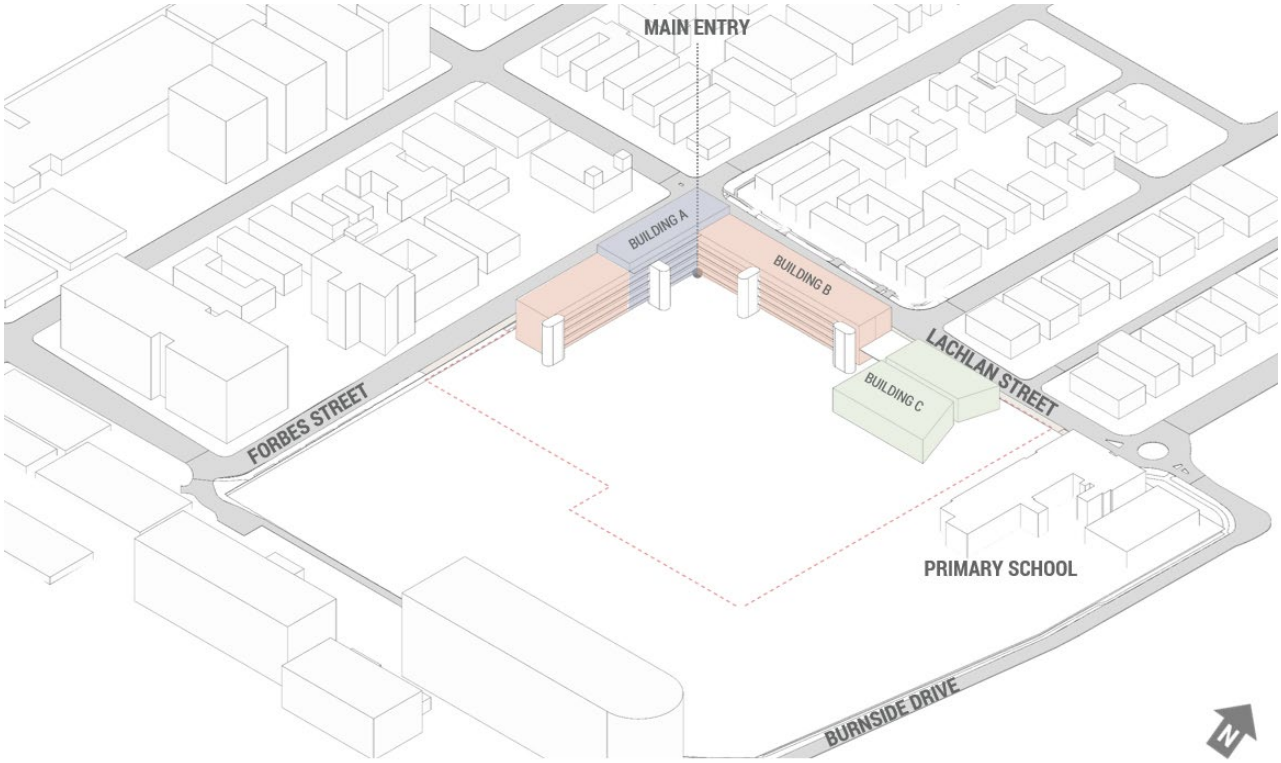


Figure 58, Building bulk breakdown diagram (Source: NBRS)

5.6.4 Building Height

The height limit that applies to the site is 35m under the LEP as shown below. At six storeys', Building A is the highest at 23m above natural ground.

The proposed heights of the high school building are variable but in keeping with other existing and future developments.

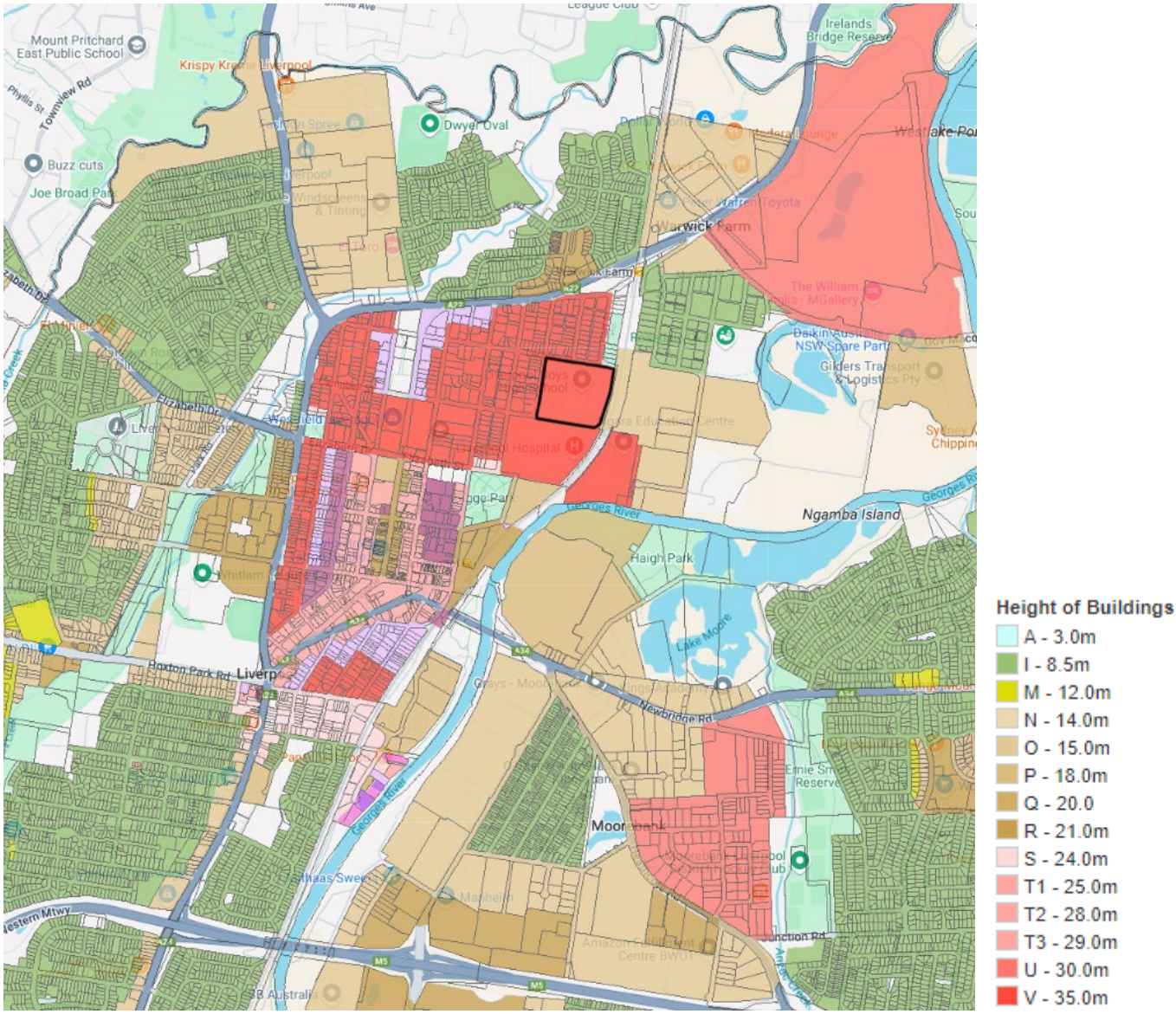
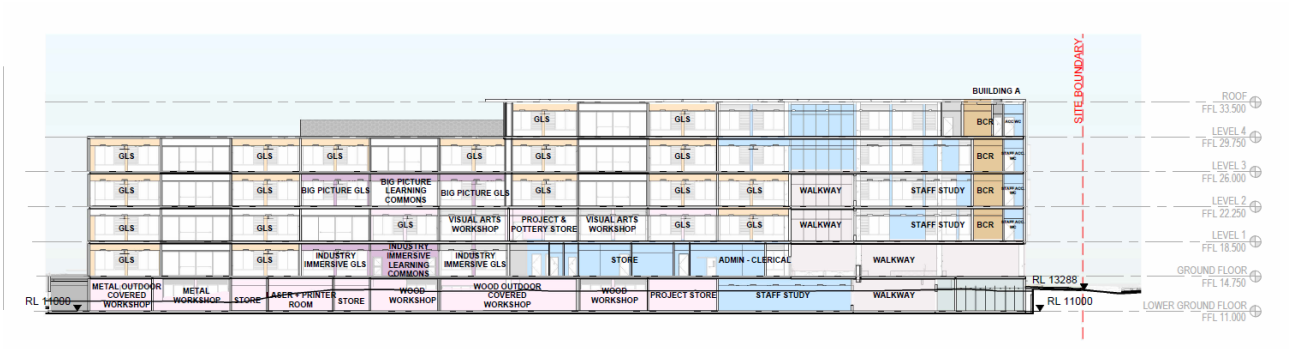


Figure 83. Height of Building Map with the high school site marked 'V' (Source: ePlanning portal Liverpool City Council)



2 NORTH-SOUTH SECTION
1 : 400

5.6.5 Solar Access Analysis

The following shadow diagrams clarify the following:

- Winter, 21st June, at 9am, the shadow of Building A will cast a shadow over Forbes Street. It will be in full sunlight by midday.
- Winter, 21st June, at 3pm, Building A and B will cast a shadow over the school internal courtyard.
- The school internal courtyard will have ample direct sunlight at various times of the year. In winter Between 9am and 1pm large areas of the courtyard have direct solar access.
- Based on our analysis there is no major overshadowing impact on adjacent residential apartments.

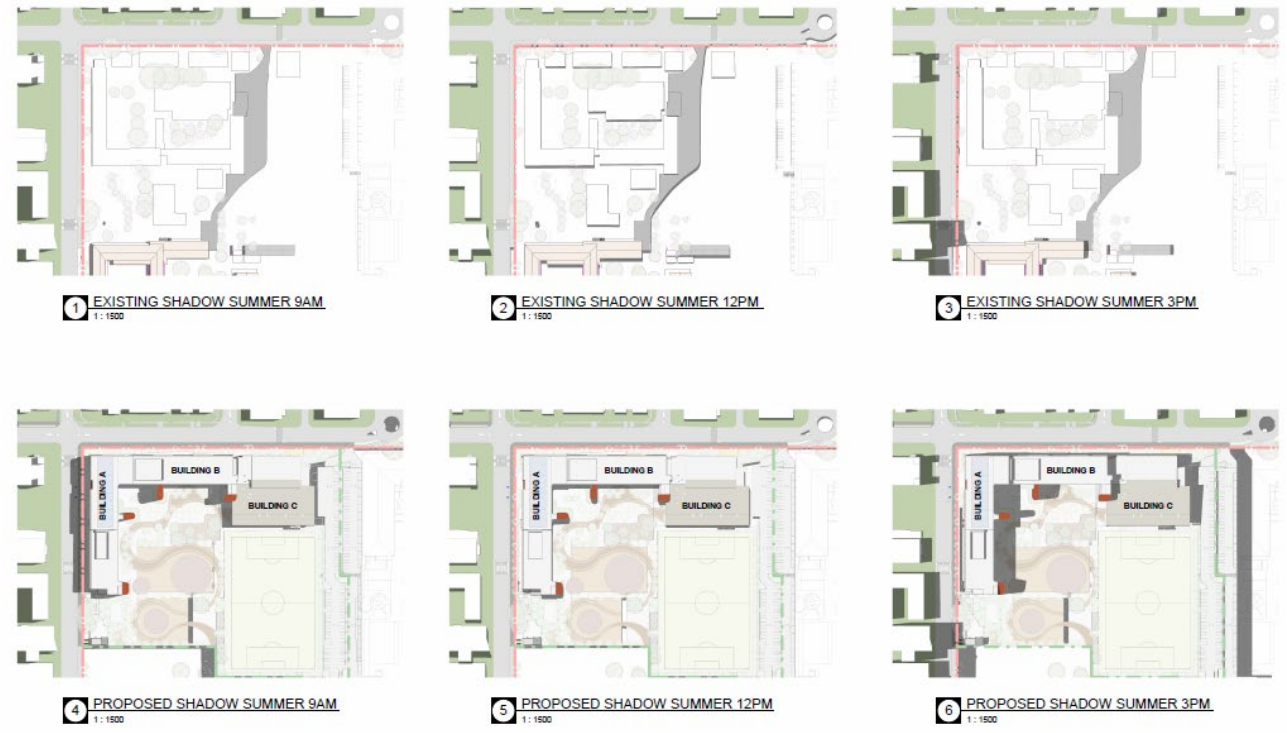


Figure 84. Summer and Winter Shadow Diagrams (Source: NBRS)

5.6.6 Visual Privacy and Amenity

The proposed high school buildings create a protected courtyard of play spaces, ensuring privacy for both students and neighbours.

It is important to acknowledge and understand the following.

- External sunshades have been designed to the minimum required for shading.
- Sunshades offer some cone of vision reduction into and out from the teaching spaces.
- Placing a privacy device over a window is an impractical solution as it will reduce daylight intake and subsequently requiring significant additional glazed façade to compensate daylight loss.

The residential apartments on Lachlan street sits a nominal 32m away from the proposed Building A, B and C facades. The Church and residential apartments on Forbes Street sit a nominal 35m away from the proposed Building A façade.

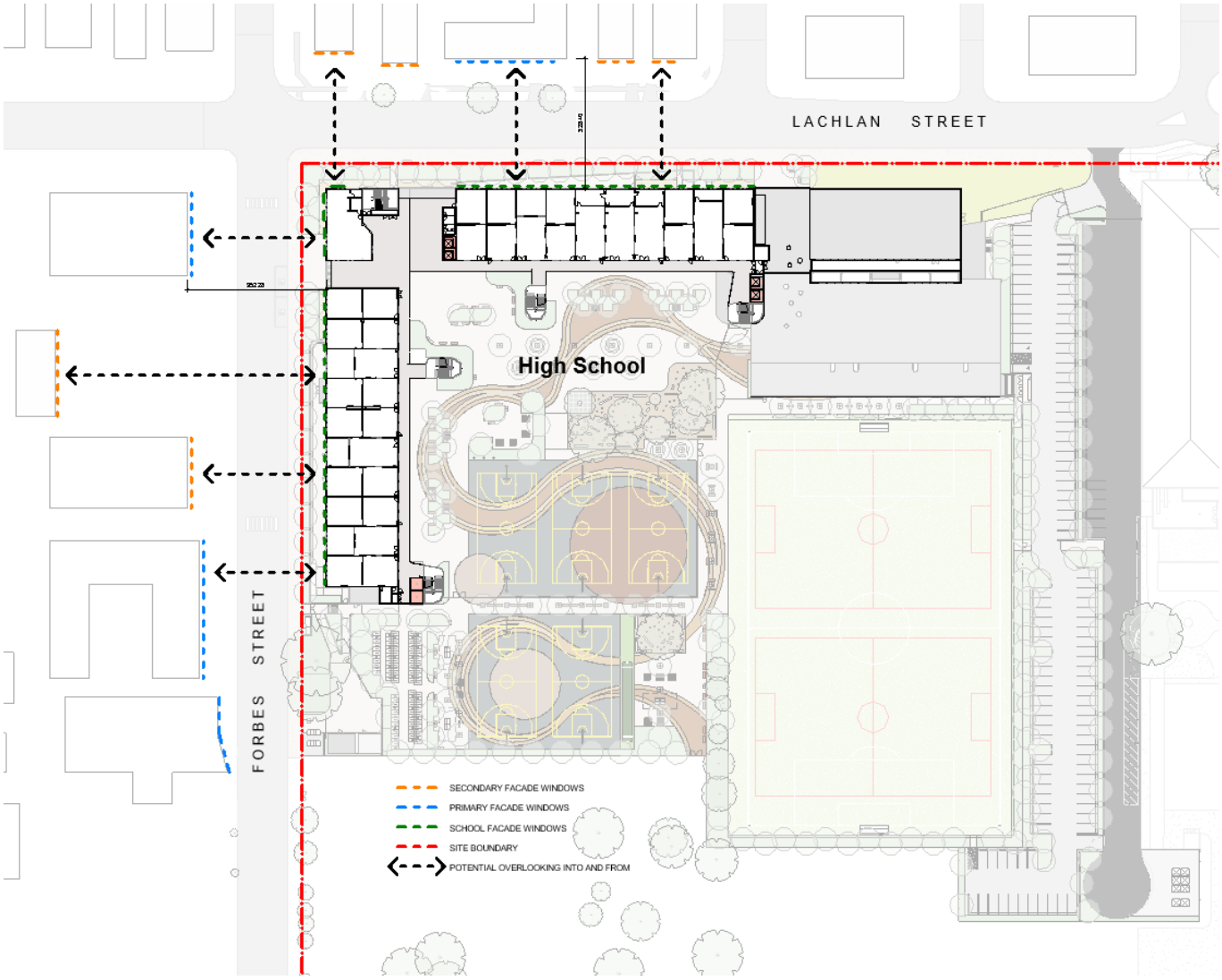


Figure 85. A diagram to highlight location of windows in the facade of the high school and adjacent mid-rise residential apartments and buildings.

Outlook to the outdoor environment is an important aspect in creating a positive atmosphere that fosters student well-being, concentration, and overall academic performance. Vertical screens directly in front of windows or any type of visual obstruction would significantly compromise the outlook from the learning spaces and reduce natural light, thereby creating a highly undesirable learning environment.

In addressing concerns related to overlooking, it's important to understand that privacy works both ways. If you can see into a neighbouring property, it's highly likely that they can also peer into yours which is a common issue in high-density areas. However, the effective strategy for mitigating such concerns lies in the ability to limit / reduce the line of sight by incorporating sunshades.

5.6.7 Acoustics Considerations

The school buildings are arranged in a linear arrangement to predominantly address Forbes Street and Lachlan Street. The building shape acts as a noise barrier to prevent noise transmission from inside the school ground to the surrounding residential developments.

The school hall takes a similar approach to the above buildings, located on the south side of block C with openings facing towards the school courtyard.

The building condenser units are generally located at roof level, inside screened plant areas open to the air from above. Building A and B so to be on par or above the roof levels of the neighbouring developments.

The Wood and Metal machinery in workshops generate significant noise, necessitating strategic placement away from residential areas. At LBGHS, these workshops are situated on the lower ground floor of Building A, oriented towards the retaining wall and external covered walkway. And lower than the neighbouring residential areas to minimise noise impact. Associated plant has been located inside the building with acoustic louvre treatment.

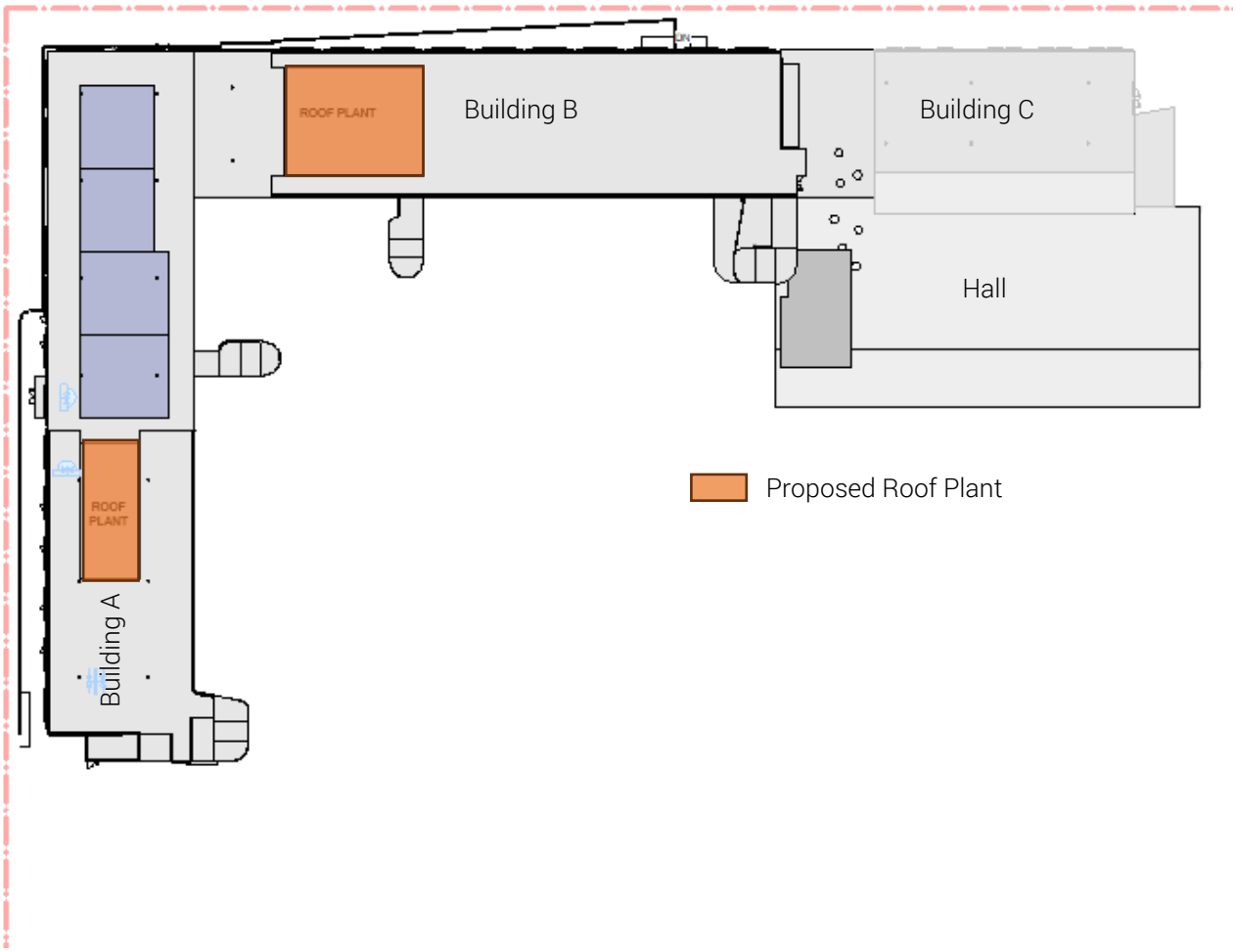


Figure 86. Strategic placement of rooftop mechanical area for effective noise attenuation. (Source: NBRS)

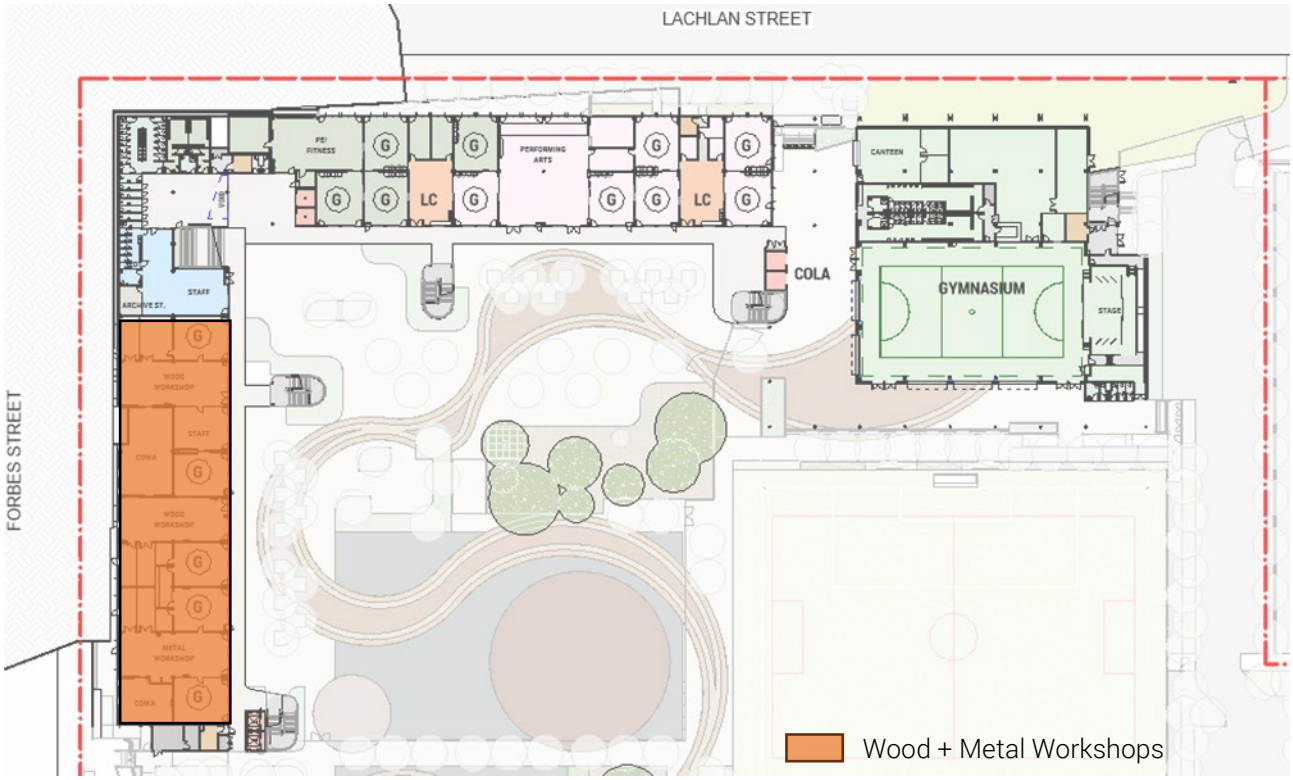


Figure 87. Strategic placement of Wood & Metal workshops for effective noise attenuation. (Source: NBRS)

5.7 Safety in Design

Safety in Design (SID) workshops have been carried out to identify the potential project risks from inception to completion. The SID assessment result in a list of potential project risks and the mitigation strategy. Project risks will be mitigated, design out or managed throughout the subsequent stages of the project.

For further information refer to Appendix - Safety in Design Register and Safety in Design Report prepared by NBRS.

5.8 Site Risks

The following is a list of key site risks:

1. Flood Zone:

Located approximately 0.31 km south from the site boundary and 0.4km south of the LBGHS building site, Georges River is the closest major waterway to the high school site. LBGHS is impacted by Georges River flooding and is affected by a Probable Maximum Flood (PMF). NSW SES has advised to prepare a Flood Emergency Management Plan for the school.

For comprehensive flood risk assessment, refer to the accompanying Flood Emergency Management Plan and Flood Risk Assessment prepared by Woolacotts.

5.9 Environmental Sustainability (ESD)

5.9.1 Energy Strategy

One of School Infrastructure NSW's sustainability initiatives includes 100% electrification of high school projects. LBGHS is amongst the public high schools to be 100% electric powered. At completion, the high school development has been allocated 99 kW photovoltaic (PV) system in the electrical services design scope.

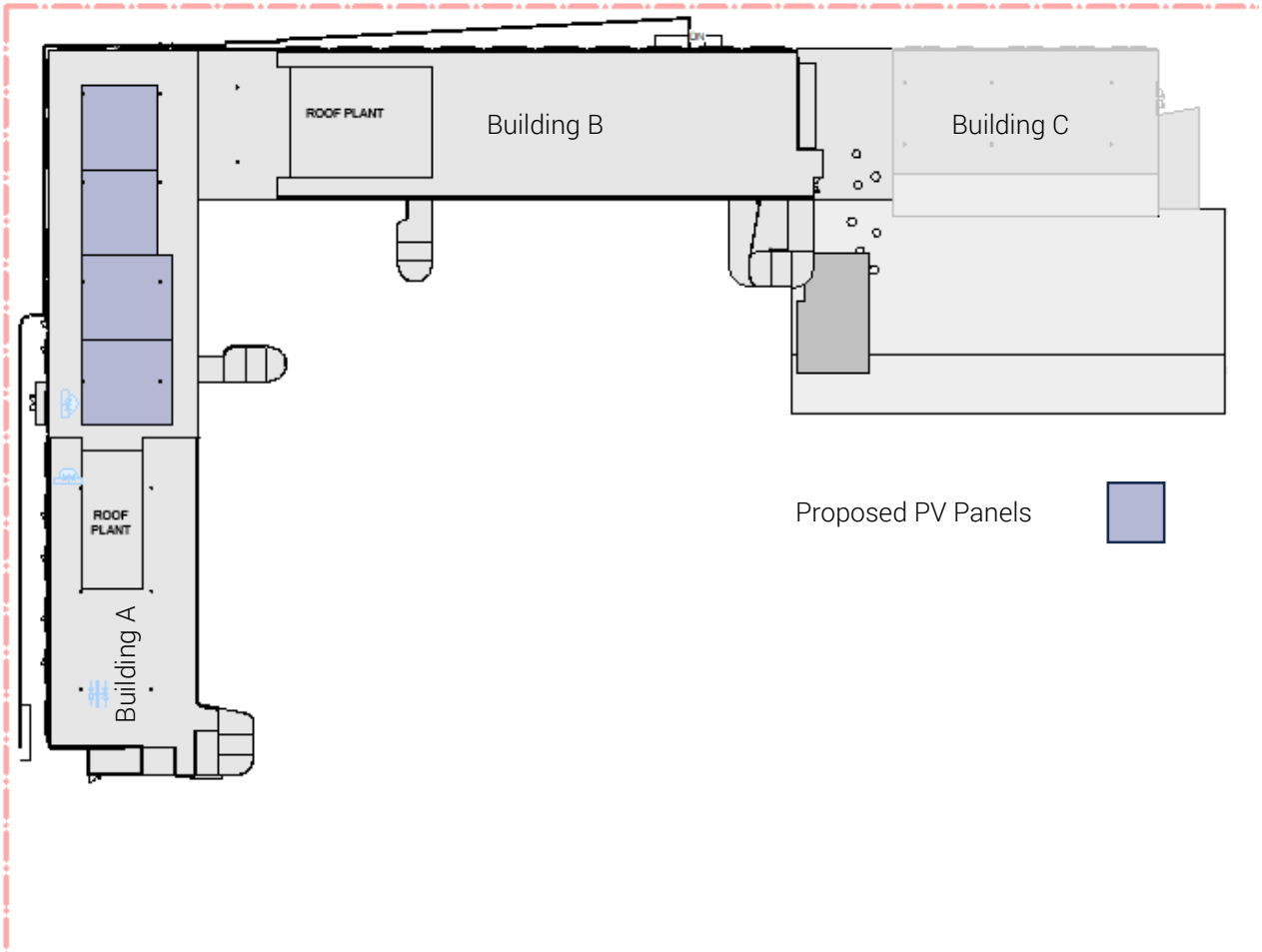


Figure 88. Roof plan showing the extent of the proposed solar panels and provision for future integration for up to 20% of the total roof area. (Source: NBRS)

5.9.2 Waterwise Innovations

The project is committed to implementing a range of waterwise initiatives designed to promote sustainability and responsible water usage. These initiatives will not only minimize the environmental impact but also contribute to the overall well-being of the users.

Rainwater Harvesting: One of the integral components of this initiative is the inclusion of a rainwater harvesting system. The roof catchment area is approx. 7000 m2 going into the rainwater tank. The average rainfall captured over 12 months is 4423 kL. The estimated monthly average usage will be 200 kL. The estimated rainwater (recycled) usage over 12 months is 2403 kL. Based on the figures above, we sit at a reduction of 54.3% in water usage.

The rainwater tank size proposed is 200 kL. The rainwater will be reused (recycled) to supply all toilets and 150m2 of irrigation for the new school.

Waterwise Landscaping: Careful consideration has been given to the selection of waterwise plants for landscaping. This not only enhances the project's aesthetics but also aligns with sustainable principles. Waterwise plants are resilient, requiring less irrigation and maintenance while contributing to the overall green and inviting ambiance of the site.

5.9.3 Waste Management

SINSW's sustainability initiatives in waste minimisation and management include the following practical approaches:

- Staff and kitchen areas will have dedicated source separation bins, including general waste and recycling bins.
- A waste minimisation strategy see washroom facilities will be equipped hand dryer in lieu of paper towels.
- Printing and photocopying areas will have bins for collecting paper.
- Separate receptacles for ink toner cartridges will also be provided for recycling.
- Recycling stations will be strategically placed throughout the school to facilitate source separation.
- A learning common, a student area will be equipped with a recycling station will include a general waste bin and separate categories for recycling.
- Ensure that the waste storage area accommodates all waste streams listed in the table.
- Consider using the collection services provided by the SINSW waste contract.
- Implement practices to manage the interim collection and transportation of waste streams, including:
    1. Obtaining support from the Principal and Staff.
    2. Placing labelled bins in playgrounds, classrooms, canteens, staff rooms, and offices, considering the different types of waste generated.
    3. Providing hygienic storage options for organics to prevent odours and vermin.
    4. Establishing programs to promote correct usage and minimize accidental contamination.
    5. Including the collection of multiple streams within the daily responsibilities of the cleaning staff.
- Design the waste area to accommodate future mandates for waste separation, even if not implemented from day one.

These waste management practices are tailored to the specific needs of the development, ensuring responsible waste handling and recycling throughout the school.

5.9.4 Climate Change Risk Responses

A Climate change workshop was conducted during the early design stage to discuss the Climate Change impacts/ risks on the design and to assess how the design and services strategy will respond to future expected climate conditions or develop risk mitigation strategies. This will be detailed in a Climate Change adaptation Plan by Steensen Varming.

The table below summarises the list of climate change risks and a review of how the design has addressed these risks based on the discussions at the Climate Change workshop held on 14.10.2024. The climate change risks/ impacts in the table below are gathered from Adapt NSW and Steensen Varming has developed the responses against each upon discussion with all the design consultants during the climate change workshop held.

Climate Impact	Risk	Response / Design Considerations
 Increase in **hailstorms**	Blocking gutters / Damage to buildings / Injury to visitors	**Passive design optimisation** to reduce impact of extreme temperatures
 Increase in **extreme hot days and average temperatures**	Stress on electricity network / **blackouts** Increased **internal temperatures** Greater **energy consumption** Higher **peak loads** Accelerated **degradation of materials.**	**Redundancy** built into cooling capacity. **Durable materials** selection **Mechanical System** to be able to respond to extreme temperatures.
 Increased **drought duration**	Restrictions to **water supply** **Damage to landscape** and higher maintenance costs	**No water-based heat rejection** to be used **On-site efficiency measures** to reduce potable water demand **Drought resistant planting** selection
 Increased **fire weather**	**Smoke from bushfires** causing health impacts **Damage to powerlines** impacts supply	**Onsite generation** (Solar PV) Provision to connect a **temporary generator** during power outage. **Filtration** for air intakes into buildings.
 Increased **rainfall variability And flooding**	**Damage to buildings**, landscape, and infrastructure. **Flooding impacts**	**Sustainable urban drainage** features will capture, treat, store stormwater, and reduce outflow. **Predictive / forecast management** of water storage
 Increased **storm intensity**	Blowing debris causing property damage and safety risks Interruption of waste collection services	**Durability** of materials selection **Predictive management** planning in even of large storm events

Figure 89. List of climate change risks and design responses (Source: Steensen Varming)

5.10 End Of Trip Facilities

Cycling is encouraged as one of the best modes of transport for students and staff travelling to and from school. Cycling promotes health and wellbeing. The high school will be equipped with student bike parking spaces at main entry points around the school as well as end of trip facilities and bike parking for staff.

5.10.1 Student EOT

LBGHS applies an effective strategy to encourage students living within a cycle-able distance to ride to school. Bike parking is located inside the perimeter fencing line offers a secure and convenient place for students to store their bicycles, eliminating worries about bike security and theft. This convenience makes cycling to school a more attractive option, promoting active transportation.

In addition to convenience, biking to school has numerous benefits. It promotes physical activity and exercise, contributing to students' well-being. Furthermore, it aligns with sustainability and environmental awareness, reducing the carbon footprint associated with car travel and teaching the importance of eco-friendly transportation choices.

Encouraging cycling also has broader community advantages. It reduces traffic congestion during drop-off and pick-up times, making the school environment safer and more pleasant for all students and their families. Additionally, it fosters a sense of independence and responsibility in students, as they learn to navigate their neighbourhoods and follow road safety rules.

Biking to school can be a social activity for students living nearby, as they may ride together, strengthening the sense of community and camaraderie among classmates. The school has been designed with 102 bike racks providing spaces for 204 parked bikes. Student shower facilities are available in the Gym.

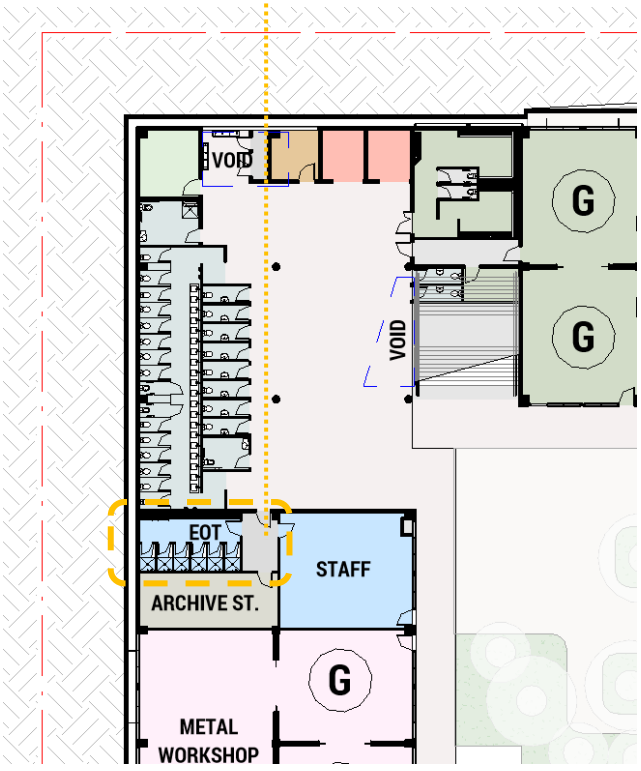
5.10.2 Staff

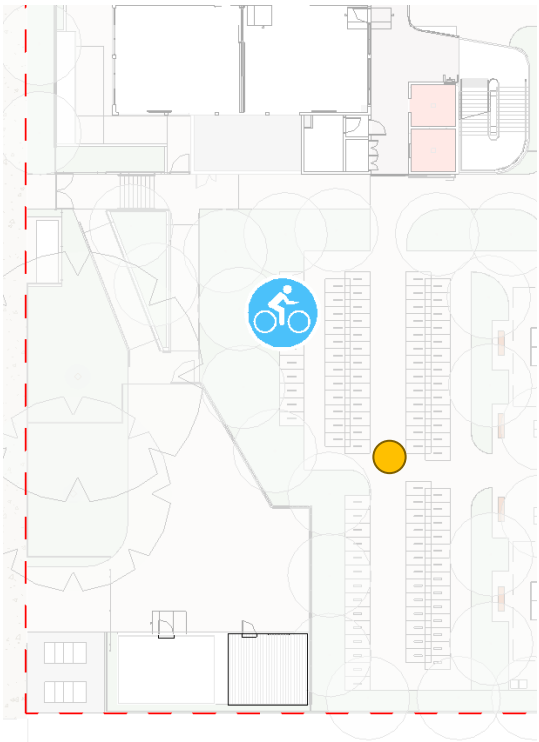
End-of-trip facilities, such as showers, change rooms, and secure bike parking, are essential for school staff as they encourage sustainable commuting options like cycling or walking to the school instead of driving. Staff members are more likely to choose active transportation when they know they can freshen up upon arrival.
The following staff end of trip facilities have been allocated on the lower ground floor of building A to meet the Green Star Guidelines.

- 5 X Unisex staff showers facilities + Changing space
- 27 Lockers
- 11 bike racks for 22 parked bikes

Figure 90. Staff EOT Facilities (Source: NBRS)

BIKE RACKS (Staff + Student)





6 Staging (including Decanting)

The REF submission pertains to the complete development of LBGHS, enabling the staged construction approach and operation. The following details and diagrams explain how the high school development would be staged to satisfy SEARs item no 27. Staging – construction and operation.

Stage 1 works are under a separate planning pathway & does NOT form part of this REF. This includes delivery of a temporary school and associated outdoor spaces for the existing students and staff of LBHS to allow the operation of the school whilst the new high school is built. Works also includes demolition of the existing LBHS buildings.

Stage 2 sees construction of LBGHS and associated landscape works. It also includes public domain works. Two pedestrian crossing will be demolished, and two new pedestrian crossing will be constructed.

Stage 3 sees the demolition of the temporary school, and commencement of operation of the school buildings, reinstating the Gulyangarri Public School fence and fencing the LGHS site. Final works will be undertaken on the LBGHS car park and bio-basin.

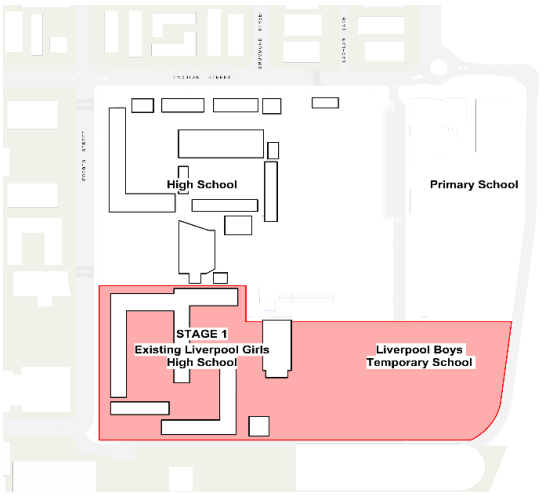
The complete high school development is designed for 2000 students. The complete school comprises of 2,000 students, approximately 130 FTE (Full-time equivalent) staff, 21 FTE support staff and 4.4 FTE Executive Staff.

Development consent is sought for all stages. The proposed staged construction strategy has been designed to maintain the operation of LGHS and LBHS. This is reflected in the PCEMP and Staging Management Plan, both prepared by Colliers.
The construction and operation of the proposed high school will be staged as follows:

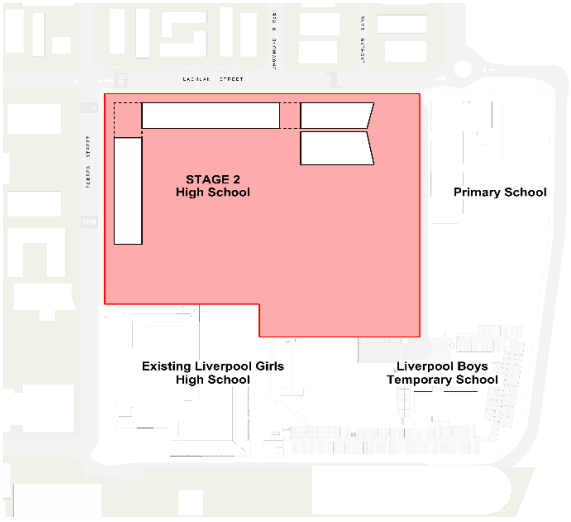
STAGE	INTENT	GENERAL DESCRIPTION
Stage 1	**Works under a separate planning pathway. NOT part of this REF.** Construct Stage 1 works to provide a temporary school accommodating existing students and staff of Liverpool Boys High School & demolish all existing LBHS buildings.	Construction of Stage 1 works including: ▪ Earthwork to be undertaken across the entire extent of the site. ▪ The construction of Temporary School ▪ The construction of landscape works for the Temporary School ▪ The waste collection area and the staff carpark. ▪ Operation of the Stage 1 school with approximately 2000 students and 151 staff. ▪ Demolition of the existing LBHS buildings.
Stage 2	Construct Stage 2 works to provide a school accommodating approximately 2000 students and 151 staff.	Construction of Stage 2 works including: ▪ Earthwork to be undertaken across the entire extent of the site. ▪ Public domain works that will occur outside the high school site boundary. ▪ The construction of Building A, B and C ▪ The construction of landscape works. The waste collection area and the staff carpark.
Stage 3	Decant LGHS and LBHS into LBGHS	Construction of Stage 3 works including: ▪ Disassemble Temporary School ▪ Fence off LGHS site for Future Development

Table 6. Staging breakdown and general description

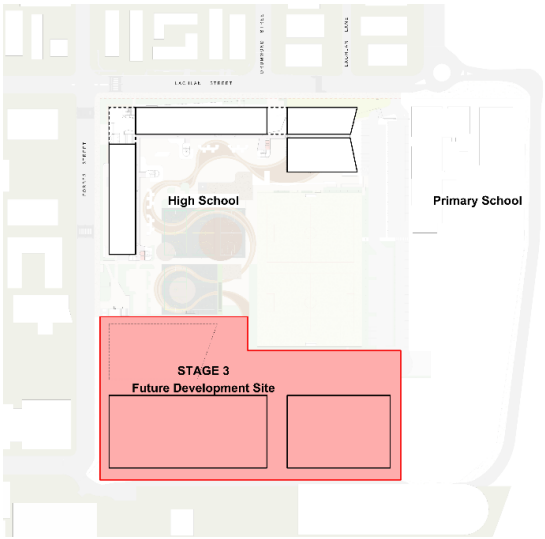
6.1 Staging Plans



STAGE 1 DIAGRAM *(under separate planning pathway)*
Construct Temporary School
Decant LBHS into Temporary School
Demolish existing LBHS

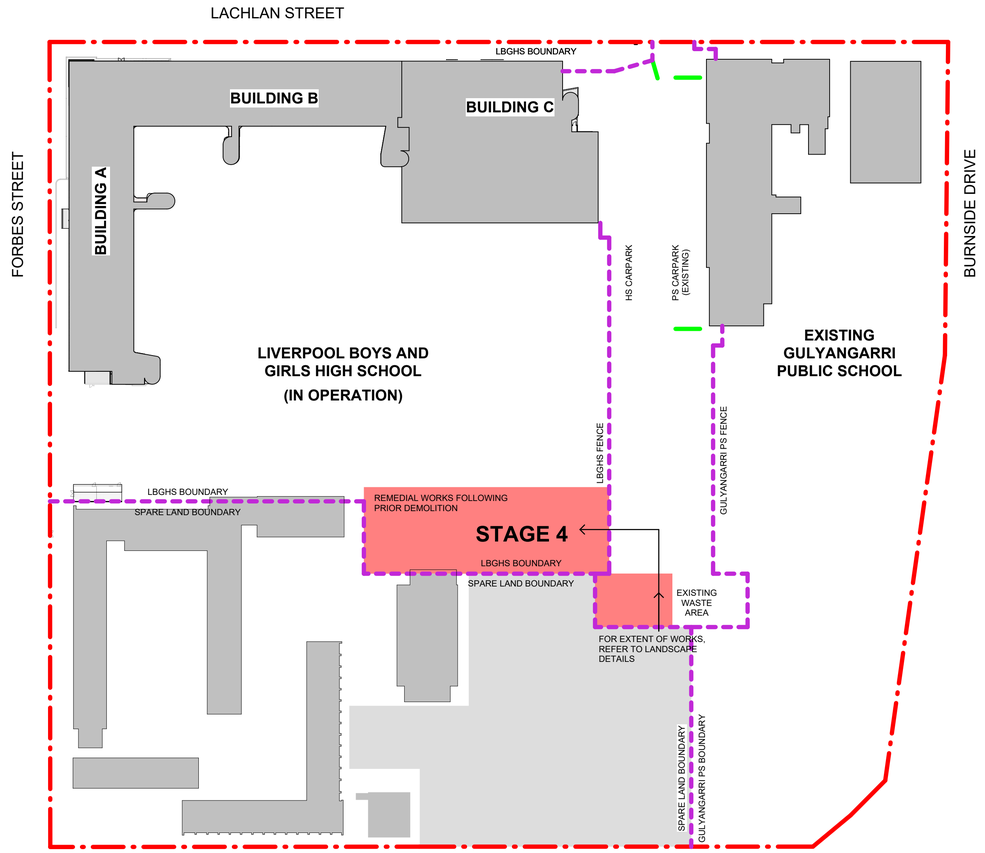


STAGE 2 DIAGRAM
Construct LBGHS



STAGE 3 DIAGRAM
Disassemble Temporary School
Fence off LGHS site for Future Development

Figure 59. Staging diagrams (Source: NBRS)



1 STAGE 4
1 : 1000

Works to make good area of Temporary School demolition from previous stage

STAGE 4 DIAGRAM

Construction of fence between LBGHS and decanted LGHS and vacant land

Final works undertaken on LBGHS carpark and associated landscaping and completion of Liverpool Boys & Girls High School sports field

Construction of Liverpool Boys & Girls High School staff carpark extension

NBRS

LEGEND

- CIRCULATION
- CONSTRUCTION ROAD ACCESS FOR TEMP SCHOOL
- EXISTING LOT BOUNDARY
- EXISTING FENCE LINE
- TEMPORARY / CONSTRUCTION SITE FENCE
- INTERNAL SITE FENCE
- VEHICLE GATE

SCHEMATIC

Issue

No.	Date	Description	Chkd
1	21.02.2025	Issue for Tender	EK

Changes to this Revision

NBRS
+61 2 9922 2344 nbrs.com.au
Nominated Architects:
Andrew Duffin NSW 5602
Jonathan West NSW 9899
NBRS & Partners Pty Ltd VIC 51197 ABN 16 002 247 565

Project
Liverpool Boys and Girls High School Upgrade Project
at
Forbes St Liverpool

for
SINSW

Drawing Title
STAGING PLAN - SHEET 3

Date 21/02/2025 3:45:57 PM
Scale 1:1000 @ A1
NBRS Project # 24089
Drawing Reference LBGHS-NBRS-00-ZZ-DR-A-01003
Revision 1

0 10m 20m 30m 40m 50m 60m 70m 80m 1:1000

7 Mitigation Measures

The mitigation measures noted in the table below address the impacts of REF requirements.

PROJECT STAGE DESIGN (D) CONSTRUCTION (C) OPERATION (O)	MITIGATION MEASURES	RELEVANT SECTION OF REPORT
D / C / O	Mitigation Measures for the Lower Ground Level and The Ground Level: • Retention of the proposed trees throughout the development (north, west and central courtyards), ensuring that the trees are of an evergreen and densely foliating species capable of growing to a height of at least 3-5m, with 3-5m wide canopies. • Retention of the proposed full-height porous screens (max. porosity = 30%) around the stairwells. • Retention of the proposed 1.4m high porous screens (max. porosity = 30%) along the exposed edges of the walkways Retention of the proposed porous fencing (max. porosity = 30%) along the north facing entrance at the Lower Ground Level.	WINDTECH assessment: Refer to the Pedestrian Wind Environment Statement prepared by WINDTECH, for the detailed assessment of the local wind environment.
	Mitigation Measures for Level 1 to Level 4: • Retention of the proposed full-height porous screens (max. porosity = 30%) around the various stairwells. • Retention of the proposed 1.4m high porous screens (max. porosity = 30%) along the exposed edges of the walkways. • Inclusion of full-height impermeable screens on the open façade areas on the northern and western aspects of the floor plans.	WINDTECH assessment: Refer to the Pedestrian Wind Environment Statement prepared by WINDTECH, for the detailed assessment of the local wind environment.

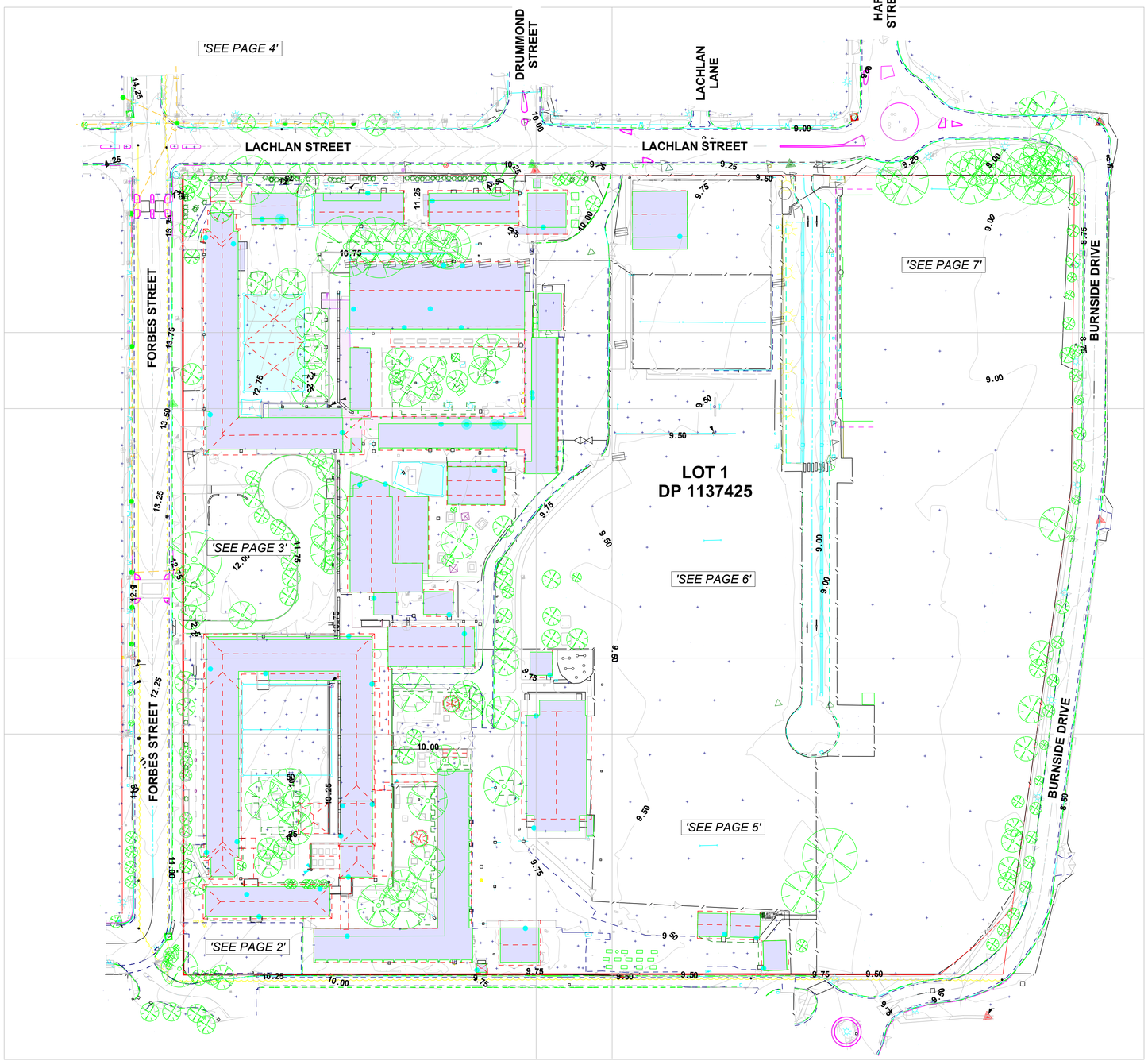
8 Appendices

Appendix A - Existing Deposited Plan & Feature Survey

Appendix B - Connecting With Country Report

Appendix C - Signage Package

Appendix D - Renders



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CLIENT : DoE NSW		DATE OF SURVEY 19.10.18 - 2.12.18 ORIGINAL SURVEY, 06/07 2021 REVISION 1 13.08.2024 REVISION 2
L.G.A. : LIVERPOOL		DATUM : AHD
SCALE : 1:800	SHEET SIZE: A1 SHEET: 1 OF 1	DRAWN BY : CL/SW

PLAN OF DETAIL SURVEY OVER LOT 1 IN DP 1137425 AT LIVERPOOL BOYS & GIRLS HIGH SCHOOL

Candice Lowe

CHECKED BY JOHN LOWE/CANDICE LOWE REGISTERED SURVEYOR UNDER THE SURVEYING ACT 2002

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LACHLAN STREET

FORBES STREET

DRUMMOND STREET

TWO STOREY BRICK BUILDING

SINGLE STOREY CLAD BUILDING ON BRICK PIERS

CONCRETE AREA

TWO STOREY (SPLIT LEVEL/GROUND FLOOR) BRICK BUILDING

SINGLE STOREY CLAD BUILDING ON BRICK PIERS

BRICK BUILDING METAL ROOF

DEMOUNTABLE BUILDING

ASTRO TURF

TWO STOREY BRICK BUILDING

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JOB No. : 101526 - 38252			PLOT DATE : 29.08.2024
CLIENT : DoE NSW			DATE OF SURVEY : 19.10.18 - 2.12.18 ORIGINAL SURVEY, 06/07 2021 REVISION 1 13.08.2024 REVISION 2
L.G.A. : LIVERPOOL			DATUM : AHD
SCALE : 1:250	SHEET SIZE: A1	SHEET: 5 OF 7	DRAWN BY : CL/SW

PLAN OF DETAIL SURVEY OVER LOT 1 IN DP 1137425 AT LIVERPOOL BOYS & GIRLS HIGH SCHOOL

Candice Lowe

CHECKED BY JOHN LOWE/CANDICE LOWE
REGISTERED SURVEYOR UNDER THE SURVEYING ACT 2002

JOHN LOWE & ASSOCIATES (LIVERPOOL) PTY LTD
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LEGEND

LNL - LID NOT LIFTED. AN ATTEMPT WAS MADE TO LIFT ALL PIT LIDS HOWEVER A NUMBER OF PIT LIDS COULD NOT BE LIFTED. SOME DRAINAGE PITS ARE TO FULL OF DEBRIS AND RUBBISH TO ENABLE MEASUREMENTS TO BE ACHIEVED.

PIPE DIRECTION LINES ARE INDICITIVE ONLY AND DO NOT REPRESENT THE EXACT LOCATION OF ANY PIPE.

ANY UNDERGROUND SERVICE LINE SHOWN HAS BEEN PLACED USING A DIAL BEFORE YOU DIG SEARCH. NO UNDERGROUND SERVICE LINES HAVE BEEN PHYSICALLY LOCATED.

- OVER HEAD POWER LINES
- WATER SERVICE LINE
- SEWER SERVICE LINE
- TOP OF KERB LINE
- INVERT OF KERB
- LINTEL
- ROOF OUTLINE/RIDGE
- EDGE OF BITUMEN
- FENCE
- INDICITIVE PIPE DIRECTION
- SCHOOL SEATS

NOTE: ONLY THE BOYS HIGH SCHOOL HAS BEEN UPDATED DURING THE LATEST REVISION AS PER REQUEST. THE GIRLS HIGH SCHOOL AND NEW PRIMARY SCHOOL HAVE NOT BEEN INSPECTED. ANY DETAILS SHOWN WITHIN THOSE AREAS ARE FROM THE INITIAL SURVEY UNDERTAKEN IN 2018.

MGA GDA 2020

ALL COORDINATES SHOWN ARE MGA 2020.
PM 51954 HAS BEEN ADOPTED AS TRUE COORDINATES.
ALL OTHER COORDINATES HAVE BEEN REDUCED TO GROUND.

NOTES: - DO NOT SCALE OFF THIS PLAN.
- ALL LEVELS SHOULD BE TAKEN FROM THE BENCHMARK SHOWN ON PLAN.
- NO BOUNDARY DEFINITION HAS BEEN MADE, THIS PLAN HAS BEEN PREPARED UNDER cl9 OF THE SURVEYING & SPATIAL INFORMATION REGULATION 2017.
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LEGEND

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- ROOF OUTLINE/RIDGE
- EDGE OF BITUMEN
- FENCE
- INDICITIVE PIPE DIRECTION
- SCHOOL SEATS

LACHLAN LANE

LACHLAN STREET

HART STREET

BURNSIDE DRIVE

BRICK BUILDING METAL ROOF

GROUND FFL 10.57

COVERED CONCRETE PORCH

METAL BUILDING METAL ROOF

GROUND FFL 9.75

CONCRETE (AWNING OVER)

CONCRETE SURFACE

BITUMIN SURFACE

DEMOUNTABLE BUILDING

TWO STOREY BRICK BUILDING

TENNIS COURTS

TENNIS NET

MULTI LEVEL BRICK BUILDING METAL ROOF

'GULYANGARRI PUBLIC SCHOOL'

LOT 1

DP 1137425

NOTE: AREA OF NEWLY CONSTRUCTED SCHOOL NOT SURVEYED. LEVELS SHOWN REFLECT LEVELS TAKEN IN 2018.

CONCRETE DRIVEWAY

CONCRETE PATHWAY

VISIBLE CROSSING

GOAL POSTS

TRAFFIC ISLAND

ROUND ABOUT SIGN

KEEP LEFT & ROUND ABOUT SIGN

DIRECTIONAL ARROW INDICATOR SIGNS ON LOW PROFILE CONCRETE ROUND ABOUT

8°33'40" 102.195

5.41m x 0.9m CONCRETE PIPE DRAIN RUNNING BACK TO DRAINAGE PIT BENEATH NATURE STRIP

6245200.00
6245150.00
6245100.00
308850.00
308900.00
308950.00
309000.00

NOTES: - DO NOT SCALE OFF THIS PLAN.
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Final Engagement Report

LIVERPOOL BOYS & GIRLS HIGH SCHOOL

Connecting with Country
First Nations Community Engagement Draft Report

Client: Schools Infrastructure NSW

Date: December 2024

*Cover images taken from Boys High School Handbook 20218 and The Australian: https://www.theaustralian.com.au/southwestsydney/news/1/?sourceCode=TAWEB_WRE170_*

Acknowledgement

We extend our deepest gratitude to the Cultural knowledge holders and to those who possess specialised knowledge of the Traditional lands and culture of the Liverpool area.

The generosity of the local Cabrogal, Dharug and first Nations Community Elders in sharing their stories, culture, and time has been invaluable in the creation of this report and associated reports.

Their contributions have not only enriched this work but have also deepened our understanding and appreciation of their rich heritage.

Connecting with Country

Connecting with Country is a gift from First Nations People to help us understand that we are not separate from Country. We are a part of Country and a larger ecosystem and cycle of life which encompasses the physical, sacred, and spiritual. When Country becomes unbalanced or sick, we all suffer.

Table of Contents

Terminology use

In this report, the terms "First Nations" Indigenous and Aboriginal is used interchangeable but respectfully to refer to Indigenous people and communities, as well as various other nations and clans, within the scope of this document. This usage aligns with Indigenous Lead Facilitation principles, ensuring that the terminology employed throughout the report honours and recognises the independence and diversity of these groups.

Executive Summary

When guided by appropriate First Nations communities, the practices for enabling a Country-centred design approach to support community development projects, will ultimately produce healthy and sustainable environmental outcomes.

The Connecting with Country Framework is a guide for good practice to help project teams, developers, planners and architects respond to Country when they plan, design and deliver built environment projects.

The term ‘Country’ for First Nations people in Australia does not simply mean land, it takes into consideration all the physical, spiritual and cultural aspects of one’s identity. It is who you are and where you come form and eventually where you return. Country has no beginning and no end; it is the foundation for the cycle of life.

This Connecting with Country Report has been prepared by Indigenous Lead Facilitation for the School Infrastructure NSW and NBRS Architects. The purpose is to guide the development for the combined Liverpool Boys and Girls High School (LBGHS) to create the new Liverpool High School. The goal is to create spaces that promote connection to land and culture, supporting sustainability so that the school reflects the First Nations cultural heritage of the Cabrogal people and Dharug culture.

The report also serves as a guide for future discussions, prioritising the voices of direct custodians and communities in shaping the cultural narratives for the Liverpool Boys and Girls High School and surrounding country.

The diverse insights gathered from various First Nations consultations, will offer a roadmap for a culturally rich, sustainable, and community centred focus for the new school. This ensures that the cultural identity of the school is authentically represented, fostering a deep connection with the land while honouring the continued culture of local First Nations peoples.

Introduction

Connecting with Country is a framework to care for Country when designing built environments. It embraces the First Nations philosophy that 'If we care for Country, Country will care for us'. To ensure there is a strong connection to the traditional First Nations land, people, and culture, a Connection with Country concept was introduced by the NSW Government Architects and School Infrastructure NSW (SINSW).

The community engagement undertaken by the Indigenous Lead Facilitation team to create this report draws from the cultural expertise and advice of local Cabrogal and Dharug people and other First Nations Community Elders.

This report represents their advice and design suggestions which are summarised in a series of recommendations.

The goal is to create spaces that promote connection to land and culture, supporting sustainability so that the new Liverpool High School reflects the First Nations cultural heritage of the Liverpool area. This will be achieved by:

- Entering creative dialogue sessions with First Nations people,
- Finding consensus building,
- Integrating First Nations cultural considerations into designs,
- Incorporating truth telling, storytelling, significant places, native flora and fauna, and
- Collaborating with local First Nations communities, Elders, and Knowledge Holders.

The '*Connecting with Country Framework'* aims to encourage collaboration and knowledge-sharing between First Nations people and the wider population to create shared and sustainable environments. It recognises that both perspectives can offer valuable insights and strengths. Beng guided by a Connecting with Country framework, communities can combine knowledge to help shape the Liverpool Boys and Girls High School (LBGHS) environment that is inclusive, educational and reflects the rich diversity of the Local Cabrogal and Dharug heritage.

Site Description

The site is located at 18 Forbes Street, Liverpool, within the Liverpool Local Government Area (LGA). The site is legally described as Lot 1 DP1137425 and has a total area of approximately 74,973m2. The site comprises a broadly rectangular portion of land which currently contains the existing Liverpool Boys High School, Liverpool Girls High School, and the Gulyangarri Public School, which commenced operations in January 2024 and is located to the east of the wider site. The site's western portion contains Liverpool Boys High School and Liverpool Girls High School. Liverpool Girls High School in the site's southwest comprises three, two-storey buildings. Liverpool Boys High School in the site's northwest, comprises approximately four, two-storey buildings, with adjacent at-grade carparking and various sports courts. The proposed new school site will be located on a portion of this lot in the Northwest corner currently occupied by the Boys High School. The new Urban High school will accommodate 2000 students and range in height from 3-6 levels.

Background

As part of the NSW Government's plan to rebuild public education, the 2024-25 Budget is delivering record education funding, including $3.6 billion for new and upgraded schools in Western Sydney. This targeted investment will ensure growing communities get access to a world class public education.

The NSW Government will deliver a new co-educational high school in Liverpool by bringing together the existing LBGHS, following extensive consultation with the community.

Constant change demands that we keep reimagining our way of living. And it takes leadership to think about renewal and change in this way. We must be willing to challenge the usual way of doing things. One challenge is embracing the First Nations concept of Country.

The NSW Government is committed to protecting Country, community and First Nations sites of significance in the planning and design of places by working in partnership with local First Nations Communitas in planning and designing.

Since the announcement of the LBGHS upgrade there has been several key Connecting with Country initiatives undertaken to research First Nations connections and stories associated to the school grounds and wider landscapes.

These included:

- 2023, Connecting with Country community consultations and research by Unearthed Archaeology and Heritage. (for the alternative school development project by TKD Architects that was put on hold).
- 2024, a change in project direction to the LBGHS Urban School Brief, NBRS and Indigenous Lead Facilitation was engaged.
- 2024, Walk on Country with Elders and facilitated by Indigenous Lead Facilitation.
- 2024, Connecting and Designing with Country Elders workshop.

Liverpool First Nations Demographics

Liverpool is home to a diverse community, including a notable First Nations population. According to the 2021 Census data from the Australian Bureau of Statistics (ABS), 1.6% of Liverpool's population identified as Aboriginal and/or Torres Strait Islander, amounting to 3,838 individuals.

Age Distribution First Nations Liverpool LGA Population

AGE RANGE	PER CENTAGE (%)
0-4 years	10.6
5-14 years	22.9
15-24 years	19.6
25-34 years	14.2
35-44 years	10.3
45-54 years	9.2
55-64 years	7.3
65 years and over	5.9

The High School age of First Nations population in the Liverpool LGA

AGE RANGE	PERCENTAGE (%)
10-14 years	17.2
15-19 years	13.8
13-18 years	18.6 (average)

Liverpool Boys (LBHS) and Girls High (LGHS) School First Nations students

HIGH SCHOOL	TOTAL STUDENTS	FIRST NATIONS	PER CENTAGE
LGHS	700	13	1.9
LBHS	550	21	3.8

Historical Context

The Liverpool Boys (LBHS) and Liverpool Girls High (LGHS) are two educational institutions with significant roles in the development of secondary education in the Liverpool region of Sydney. These schools, established in the mid-20th century, have adapted to the needs of a diverse and growing multicultural community, offering opportunities for academic and personal development.

LGHS was the first high school established in Liverpool, opening its doors in 1954. Catering exclusively to female students, the school has grown to serve a highly diverse student body, with over 89% of students coming from language backgrounds other than English. The school currently caters for 700 students, consisting of 13 First Nations students.

LBHS followed shortly after in 1955, created to provide tailored education for male students. The school currently serves approximately 550 students, consisting of 21 First Nations students.

Both schools share extensive facilities, including sporting fields, a hall, a library, and a gymnasium, fostering a supportive and resourceful environment for their students.

Notably, LBHS has produced several distinguished alumni, including prominent athletes such as Mark Bosnich (Soccer), Michael Clarke (Cricket), Eric Grothe Sr (Rugby League) and Steve Smith (Cricket).

Liverpool also was home to First Nations sportsperson Nicole Cusack who became the second Indigenous Australian to represent the Australian Diamonds netball team in 1989.

School redevelopment benefits

As previously stated, part of the NSW Government's plan to rebuild public education, the 2024-25 Budget is delivering record education funding, including $3.6 billion for new and upgraded schools in Western Sydney. This targeted investment will ensure growing communities get access to a world class public education.

The NSW Government will deliver a new co-educational high school in Liverpool by bringing together the existing LBHS and LGHS, following extensive consultation with the community.

The benefits:

- The new school will cater for up to 2,000 students, with facilities including new teaching spaces and specialist facilities, as well as a new library, hall, and sport field.
- The school will offer an expanded range of subjects for students, with purpose-built facilities to deliver specialised pathways into health and higher education.
- In recognition of the preferences of some students and families, the co-educational schools will also provide opportunities for single-sex-focused classes and activities.

Cultural Lands

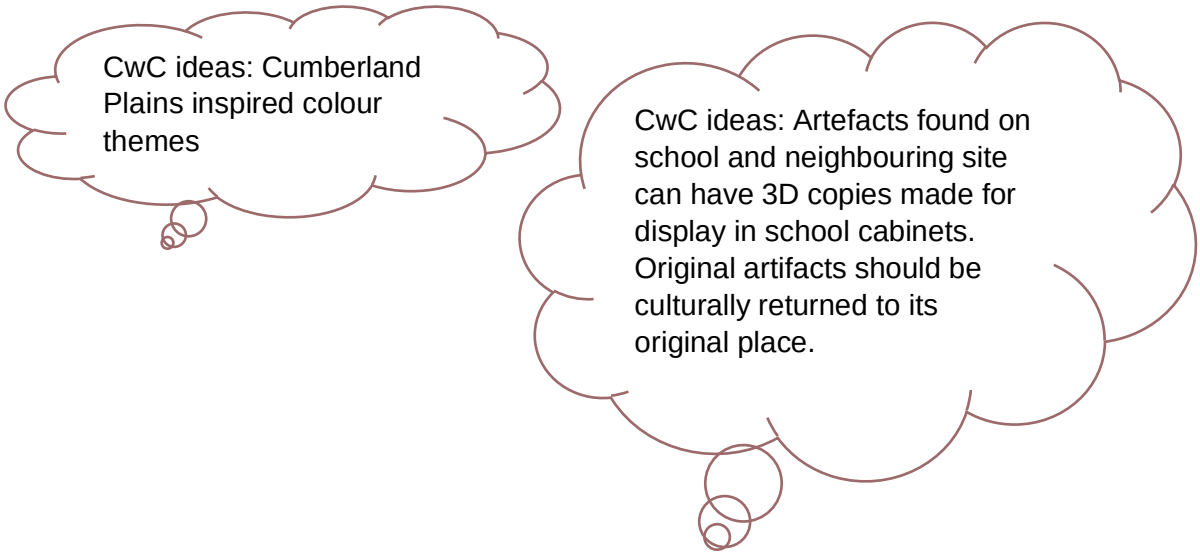
The LBHS and LGHS share the same Dharug Land as the neighbouring Gulyangarri (Dharug word for Children) Public School.

In 2023 an Aboriginal Cultural Heritage Assessment Report was undertaken by Comber Consultants and showed that artefacts uncovered during construction highlight the enduring connection the Cabrogal People have with the land and serve as a direct link to their ancestors.

Most of the stone tools found were made from silicrete, showcasing trade between the Cabrogal Clan and neighbouring clans. These artefacts provide valuable insights into survival techniques, Cabrogal history, and cultural values.

The school is situated in an area that was once abundant for the traditional Cabrogal people with natural resources along the Georges River and surrounding bushlands. The land around Liverpool featured open forests, characteristic of the Cumberland Plain Woodland, which provided diverse plants for food, toolmaking, and habitats for animals. The school is also near the wetlands surrounding Lake Moore. Connecting with Country design inspiration can also be taken from the Cumberland Plain and Georges River, reflected in its richness in colours and landscapes.

Source: https://gulyangarri-p.schools.nsw.gov.au/about-our-school/school-name.html



Project Scope

In Scope

This report aims to summarise consultations, conversations and ideas from initial First Nations consultations and reports including:

- Aboriginal Cultural Heritage Assessment Report, undertaken by Comber Consultants on neighbouring land.
- Connecting with Country community consultations and research by Unearthed. Archaeology and Heritage.
- Connecting with Country project by TKD Architects.
- Walk on Country by Elders, NBRS and LBGHS staff and students
- Connecting with Country Design ideas Elders workshop.
- AECG Consultations and information sharing.

Out of Scope

The report focussed only on Connecting with Country Schematic Designs and does not include curriculum advice.

Historical Context of Dharug People

The Dharug and Cabrogal people have a long history of inhabiting the Liverpool region, dating back around 60,000 years. They experienced significant disruption with the arrival of European settlers, which led to frontier wars, dispossession, and the forced removal of families and children. Despite these challenges, Cabrogal and Dharug people have maintained a continuous presence and cultural connection to their lands.

The broader Dharug Nation and people are the traditional custodians of a large area that encompasses what is now known as the Greater Western Sydney region. Within this region, the area of Liverpool holds significant cultural and historical importance. The Dharug First Nation's connection to the Cumberland Plains, and major water ways including but not limited to the Georges River and Cabramatta Creek highlights their deep-rooted presence and the rich cultural heritage of the area.

Clans and Boundaries

The Dharug Nation, traditional lands encompass much of what is now Western Sydney, extending from the Hawkesbury River in the north, west to the Blue Mountains, and south to the Georges River. Some notable clans and their corresponding areas include:

Name	Area/Location
Bediagal	Georges River area
Bidjigal	Castle Hill
Boolbainora	Wentworthville
Boorooberongal	Richmond
Burramattagal	Parramatta
Cabrogal	Liverpool
Cannemegal (Warmuli)	Prospect
Cattai	Windsor
Gomerrigal (Tongara)	South Creek
Kurrajong	Kurrajong
Mulgoa	Penrith/Mulgoa
Tunggal	Toongabbie
Wandeandegal	Eastern Creek/Blacktown

Creation Stories

The Dharug people possess a rich tapestry of creation stories that explain the origins of the cosmos, the landscape, and their community. These narratives are not only foundational to their cultural and spiritual identity but also offer insights into their relationship with the natural world.

CwC ideas: Wall murals showing Tribal names and Locations

Examples of Dharug Creation Stories are noted in Appendix 7

CwC ideas:

Mariong -The Emu and the Milky Way story designed as night theme inside walkways

Kurrobori, the Spirit Woman: Glass etching or concrete design depicting the spirit lady flying over her creations in the land.

Gurrangatty the Eel/Serpent: Image depicting the giant eel moving through the land creating rivers and streams

Connection to the Land

Liverpool is part of the Cumberland Plains and the Georges River system which has traditionally been a cultural connection between the people of Botany Bay or Kamey (traditional name of Botany Bay).

CwC ideas:

Acknowledgement of Country can be done creatively on carved wood including a plaque.

Note: Dharug wording will need to be sourced from Dharug language speakers

Liverpool is located within the Western Sydney region and on traditional lands of the Dharug Nation and the Cabrogal people.

The Cabrogal clan's territory included significant waterways such as Georges River and Cabramatta Creek, which provided essential resources for sustenance and cultural practices.

The cultural practices of tool making, bark removal, storytelling, controlled burning, and ceremonial rituals demonstrate the enduring traditions that have shaped and continue to influence the cultural landscape of Liverpool.

Acknowledgement of Country

'The Liverpool High School respectfully acknowledges the traditional custodians of the land on which our school is built, the Cabrogal people of the Dharug Nation and also pay respect to Elders both past and present'.

Historical Context

- Pre-European Contact: Dharug people managed the land through practices such as controlled burning, which shaped the landscape seen by early European settlers.
- Early European Contact: Introduced diseases and conflicts significantly impacted the local First Nations population, yet Dharug people continued to live and work within the area, adapting to new circumstances.
- Post-World War II: Government housing schemes brought many First Nations families to the Liverpool and surrounding areas, creating a unique community with a diverse range of experiences and histories.

CwC ideas: Timelines to show Pre and Post Colonisation with details of traditional life and post colonisation policies and significant events

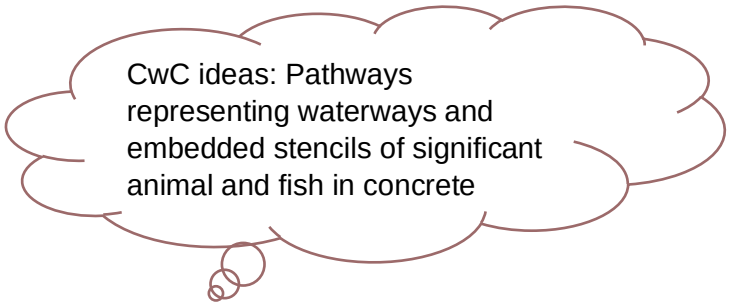
Historical Timeline of significant events attached at Appendix 4

Significant Waterways for Dharug and Cabrogal People

Georges River: The Georges River system was a significant water way for the connection of the people of Botany Bay (Kamay) and the Liverpool area. The river itself provided such foods as Fish, Eels, shellfish and birdlife. Along the shores the Cobra Worm (Significant food source for the Cabrogal people) was plentiful within the mangroves. While the Mangroves provided wood for boomerangs and other carved tools.

Cabrogal people relied heavily on the Georges River for survival and cultural sustainability. The Georges River is still rich with cultural evidence of shell middens, scar trees, groove marks, engravings and hand stencils which are spread widely across the suburbs along the Georges River.

Cabramatta Creek: The Cabrogal clan whose traditional lands were around Cabramatta Creek used the creek for fish, eels and shellfish. The creek was also known for reeds used for weaving by woman.



The creek was also significant as a resource-rich area for the Cabrogal clan, used for food and other resources. It also played a role in social gatherings and ceremonies.

Source: Aboriginal culture of the Georges river, https://georgesriver.org.au/learn-about-the-river/aboriginal-culture

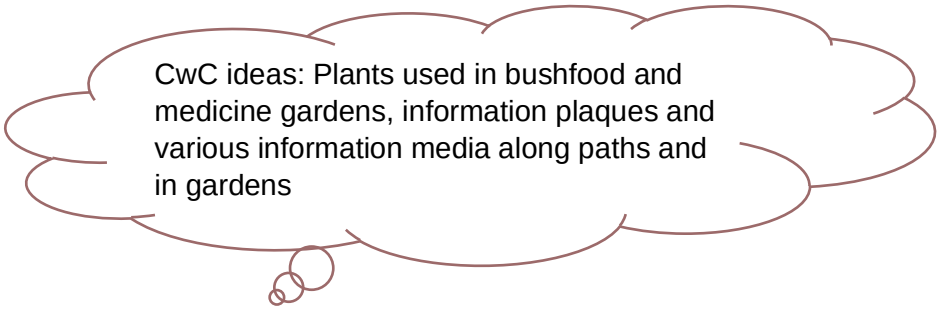
Flora and Fauna of the Liverpool area

Flora species

The following flora can be found throughout the Cumberland Plains and have an association with Dharug people and culture. They can serve as inspiration for landscapes, facade and graphic designs at the new school:

Plant Name	Cultural Uses
Grass Tree	The soft wood provided the base for a fire-drill in making fire. Spear main grass tree stalk. Super glue Adhesive from resin at base of grass tree. Fire stick for walking in the country at night made from fronds.
Paper Bark	Paper bark had many purposes such as wrapping food, covering injuries, wrapping deceased, bedding, leaves used in ground oven cooking and basket lining for babies Support for Gunyah (Shelter), wind break and warmth

Casuarina	Wood carved for weapons, boomerangs, spears, clubs, wood and leaves used for fires. Young shoots and cones can be eaten. No coals when burnt and makes good ash
Wattle Seeds	Wattle Seeds roasted and ground to flour
Lamandra	The base of the steams is starchy and have a slightly sweet green pea taste and leaves are used for weaving and making Dilly bags. Seeds was also ground for dough and cooking making.
Native Cherry	The fleshy pedicel, the "cherry", is edible. Sometimes the wood is used in smoking ceremonial events, as it burns without flames
Tee Tree	Tea tree Antiseptic, Insect repellent, burnt leaves and branches in a fire can also ward off insects
Snake Whistle (Dianella)	Snake Whistle - Dianella (native flax lily) has sweet purple berries, consumed during the summer months. The strappy leaves are also suitable for weaving to produce nets, bags and other materials. The plant was also used as a snake whistle to warn off snakes.
Warragal Greens	Warragal greens. Edible leaves, like spinach. It must be cooked properly before eating
Native Hibiscus	Selected by the Stolen Generations as official symbol of National Sorry Day and is used to honour the Stolen Generations:
Mangroves	Boomerangs made from mangrove tree branch with knee and elbow like bend, timber needs to dry out before carving and use.
Gum Trees (Eucalyptus)	Gum tree bark and wood are carved to make coolamons and bowls which are used in various applications including cradle and food, Bulbs are carved for dishes and bowls. Wood is also shaped for spears and shields and clap sticks,



Use of Native Flora by Dharug Peoples on the Cumberland Plains extended list attached at Appendix 5

Fauna Species

Fauna including Dharug name

NAME	DHARUG NAME
Magpie	Dyarrawunang
Cockatoo	Girrawi
Galah	Galaa
Kookaburra	Gugandi
Long Neck Turtle	Goodugulung

Common Native Birdlife in Liverpool and Cumberland Plains

COMMON NAME	SCIENTIFIC NAME
Gray Teal	*Anas gracilis*
Crested Pigeon	*Ocyphaps lophotes*
Pacific Koel	*Eudynamys orientalis*
Channel-billed Cuckoo	*Scythrops novaehollandiae*
Australasian Swamphen	*Porphyrio melanotus*
Masked Lapwing	*Vanellus miles*
Silver Gull	*Chroicocephalus novaehollandiae*
Little Black Cormorant	*Phalacrocorax sulcirostris*
Australian Ibis	*Threskiornis molucca*
Royal Spoonbill	*Platalea regia*
Australian Pelican	*Pelecanus conspicillatus*
Sacred Kingfisher	*Todiramphus sanctus*
Dollarbird	*Eurystomus orientalis*
Sulphur-crested Cockatoo	*Cacatua galerita*
Australian King-Parrot	*Alisterus scapularis*
Scaly-breasted Lorikeet	*Trichoglossus chlorolepidotus*
Rainbow Lorikeet	*Trichoglossus moluccanus*
Variegated Fairywren	*Malurus lamberti*
Superb Fairywren	*Malurus cyaneus*
Eastern Spinebill	*Acanthorhynchus tenuirostris*
Noisy Miner	*Manorina melanocephala*
Red Wattlebird	*Anthochaera carunculata*
New Holland Honeyeater	*Phylidonyris novaehollandiae*
White-eared Honeyeater	*Nesoptilotis leucotis*
Noisy Friarbird	*Philemon corniculatus*

White-browed Scrubwren	*Sericornis frontalis*
Black-faced Cuckooshrike	*Coracina novaehollandiae*
Eastern Whipbird	*Psophodes olivaceus*
Gray Shrikethrush	*Colluricincla harmonica*
Gray Butcherbird	*Cracticus torquatus*
Australian Magpie	*Gymnorhina tibicen*
Pied Currawong	*Strepera graculina*
Willie-wagtail	*Rhipidura leucophrys*
Gray Fantail	*Rhipidura albiscapa*
Magpie-lark	*Grallina cyanoleuca*
Welcome Swallow	*Hirundo neoxena*
Red-whiskered Bulbul	*Pycnonotus jocosus*
Common Myna	*Acridotheres tristis*
Red-browed Firetail	*Neochmia temporalis*

Source: ebird Liverpool; https://ebird.org/region/AU-NSW-LIV/bird-list

Other species significant to site

NAME	
Fish	Many creek and river fish and ray finned fish such as Brim, Mullet, Flat head, eels, sting rays and sharks was evident in the local water systems pre and post colonisation.
Birds	There are many species of bird life still present in the Liverpool area and with bush regeneration this will attract native bird species assisting in local natural ecosystem
Oysters	Oysters in the Georges River used as food source for thousands of years shells found in shell middens along the lower Georges River and Cooks River and evidence of oyster collecting.
Goanna	The Goanna has various roles in first Nations culture, including totemic relationships, representations in stories, and as an important source of food and an ingredient for bush medicine. The oil from the goanna is also used for art to mix with ochre.
Crustaceans and shellfish	Cobra worm, (Teredinid or Teredo) are collected within mangroves and eaten raw or cooked over fire. Other crustaceans in and around Georges River system. • Blue swimmer crabs • Mud crabs • Soldier • Spiny lobsters or sea-crayfish • Eastern king prawn • Eastern school prawn • Mussels and cockle

Fauna with associated social and cultural uses

Eastern Grey Kangaroo (Macropus giganteus)

- Food Source: A primary source of meat.
- Hides: Used to make cloaks, pouches, and coverings. The fur was used for warmth and clothing.
- Bones: Utilised to make tools like needles, awls, and points.
- Tail Sinews: Employed as binding material for tools and weapons.

Common Ringtail Possum (Pseudocheirus peregrinus)

- Food Source: Consumed for their meat.
- Fur: Highly prized for making possum skin cloaks, which were worn fastened over one shoulder and under the other for warmth.
- Bones and Teeth: Used as tools and ornaments.

Australian King Parrot (Alisterus scapularis)

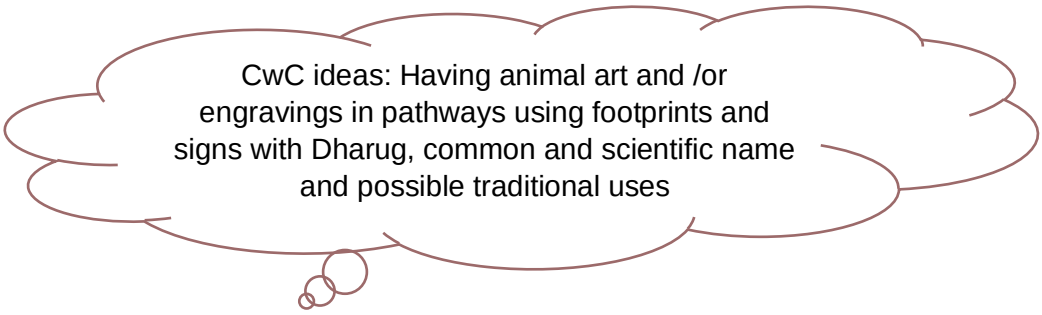
- Food Source: Consumed occasionally.
- Feathers: Used for decorative and ceremonial purposes.

Eastern Water Skink (Eulamprus quoyii)

- Food Source: Occasionally eaten.
- Skins: Used in some traditional clothing and decorative items.

Eastern Blue-tongue Lizard (Tiliqua scincoides)

- Food Source: Eaten for their meat.
- Skins: Used for various purposes, including tool handles and decorative items.



Use of Native Fauna by Dharug Peoples on the Cumberland Plains extended list attached at Appendix 6

Places Spaces and Associations

Specific student study blocks can have a direct association with many Native Plants. Various garden beds can reflect connections to the traditional people and culture of the land.

Examples of these are:

SUBJECT	ASSOCIATION	PLANTS	IMAGE
Science and technology	Aerodynamics	Woods used for boomerang Coolamon and wooden bowl making such as Mangroves and Gum tree elbows.	First Nations Astronomy
Creative arts	Seeds and weaving	Gums nuts and Lomandra for weaving, First Nations jewellery was made from seeds, shells and plant fibres Jewellery also served as trade items, fostering relationships between groups.	Weaving Baskets
Food Tech	Bush foods	Wattle, Warrigal greens, lilly pilly, native raspberry	Bush Food Plants
Creative Arts	Use of Ochre and woven body wear in ceremony	Weaving plants Lomandra and Flaxes. Ochre is a natural pigment deeply rooted in Australian First Nations culture, used for over tens of thousands of years. Ochre is a natural mud like mineral with various earth-coloured pigments which are used for various ceremonies such as: Body Painting: Symbolic patterns during ceremonies represent social status, identity, and roles, fostering cultural identity and spiritual bonds. Connection to Country: Ochre plays a key role in ceremonies to establish a connection to the land using colours. Ritual Burial: It was notably used in the burial of	Ochre artwork

		"Mungo Man in Western NSW." Art and Healing: Ochre is applied in rock art, weapon decoration, ceremonial objects, and healing practices.	
Legal studies	Gardens surrounding yarning circles – group decision making	Healing plants such as Native hibiscus and hard woods carved and used for talking sticks	Yarning circle and family circle images
Performing Arts	Use of musical instruments	Seeds for shakers, wood for Clapsticks, boomerang clapping.	Dancers

Bush medicine plants

Gardens in and around buildings can include medicine plants

NAME	**MEDICINAL**
River Mangrove (Aegiceras corniculatum)	Known to treat asthma, arthritis, diabetes, inflammation, hepatic diseases, rheumatism, snakebites, boils, and ulcers
Cork Tree (Erythrina vespertilio)	Leaves used in bush medicine as a topical anaesthetic and antiseptic. The leaves also contain nicotine and were chewed as a stimulant.
Sticky Hopbush (Dodonaea viscosa)	Used in various conditions such as: Toothaches: Chewing the leaves can provide a mild analgesic and euphoric effect. Inflammations: Chewing the leaf pulp can help with inflammations from rashes, bruises, jellyfish stings, and stonefish stings. Earaches: Boiling the thick, leathery leaves and applying them can help relieve earaches.

Dharug Numbers and Language and their usage

Besides using numbers and language for counting and translating, Dharug numbers and language can be used in dual naming such as building and rooms and to describe garden beds and other designs.

Some examples are as follows:

BUILDING OR ROOM NUMBER	DHARUG NUMBER
One	Wagul
Two	Bula
Three	Bula Wagul
Four	Bula Bula
Five	Damara
Six	Damara Wagul
Seven	Damara Bula
Eight	Damara Bula Wagul
Nine	Damara Bula Bula
Ten	Damara Damara

Country Elements

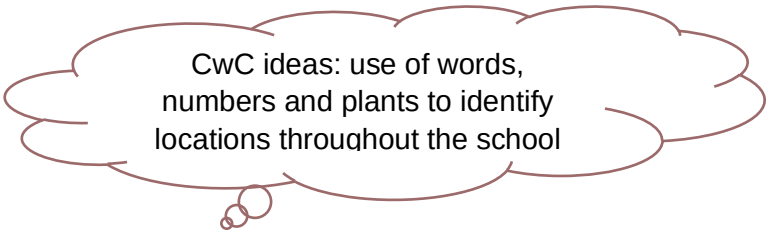
ENGLISH	DHARUG
Water	Badu
Rock	Giba
Tree	Yarra
Sky	Burra
Stick	Wadi
Fire	Guwiang
Country/Land	Ngurra
Mountains/Hills	Balga
River	Dhurabang

Other Dharug Words

Word	Meaning	Pronunciation
Warami	Hello/Where are you from?	war-a-me
Yanu	Goodbye	yarn-oo
Nigiyini budyari	Are you good?	near-ngi bood-jar-ri
Budyari nawunya	Good to see you	bood-jar-ri na-woon-ya
Yuwin	Yes	yoo-win
Biyal	No	bye-yal
Budyari	Good	bood-jar-ri
Mittigar	Friend	mitt-ee-gar

Yura	People	you-ra
Darrabarra	Day	durra-burra
Didgerigura	Thank you	didge-er-re-goor
Walanga Muru	Follow your path	wa-lang-gar moo-roo

Source: Macquarie university, https://www.mq.edu.au/thisweek/2022/07/04/how-we-can-all-use-dharug-dhalang-every-day



Connecting with Country Consultations

Since the announcement of the Liverpool Boys and Girls High School upgrade there has been several key Connecting with Country initiatives undertaken to research First Nations connections and stories associated to the school grounds and wider landscapes.

These included:

- 2023, Connecting with Country community consultations and research by Unearthed Archaeology and Heritage. (for alternative school development project by TKD Architects that was put on hold) and,
- 2024, a change in project direction to the Liverpool Boys and Girls High School Urban School Brief, NBRS and Indigenous Lead Facilitation was engaged.

The following highlights these engagements including:

- An initial Connecting with Country research project by Unearthed Archaeological and Heritage Services in 2023,
- A Connecting with Country design consultation by TDK Architects in 2023,
- An Elders Walk on Country, 2024 by NBRS Architects and Indigenous Lead Facilitation, and,
- A Connecting with Country Community Workshop, 2024 by NBRS Architects and Indigenous Lead Facilitation.

Walk on Country

Aunty Barb Simms and Brad Maybury also Aunty Marg Scruse (guest of Aunty Barb on the day)

Date: 29th October 2024

Location: Liverpool Boys and Girls High School

The group was welcomed by Aunty Barb to the land of the Cabrigal People of the Dharug Nation. She shared also shared some of her story and personal and historical insights about herself and her family.

She spoke about her family's experiences with dispossession and life on the missions. Her father was taken to Bomaderry Mission as an eight-year-old child, and her mother was born on Nowra Mission.

Aunty Barb also introduced us to her sister, Aunty Margie Scruse, who was not there as a formal speaker but a guest that day. Together, they painted a vivid picture of the history of First Nations people across Sydney. She talked about "Country" and the deep connection her people have with the land.

CwC ideas: Have a healing garden and plaque to remember and inform of the Stolen Generations.

Brad Maybury introduced himself and provided his cultural and historical background as a Yuin man and living and working on Dharug land most of his life in the cultural and heritage area. Brad also stated his role in the Cultural Heritage Assessment work in the surrounding school area.

Aunty Barb acknowledged Brad and his cultural knowledge which was significant for the days gathering.

A round of introductions was invited and included school staff and First Nations students.

Aunty Barb opened by speaking about the significance of the waterways, like the Georges River, which connect the "salt water" and "fresh water" First Nations communities. These rivers were vital—they provided life, food, and transport, and they were essential for trade and maintaining community connections.

Aunty Barb also shared insights on shell middens—she explained how these were shell mounds where people would eat and leave shellfish remains in one place as environmental care. She explained how middens and artifact sites serve as historical markers, showing where First Nations people camped.

As we walked around the school, she and Brad pointed out various trees and explained their cultural uses. Trees were used to craft canoes, shields, spears, and boomerangs. Bark canoes, made from different types of trees, were central for fishing and travel. Brad mentioned the difference between 'scar trees'—where bark was removed to make tools like shields or canoes—and 'carved trees,' which have sacred markings.

Aunty Barbara elaborated on boomerangs, explaining how the shape and the "elbow" of the tree are crucial in their design. She told us how men in particular her brothers would look for the right part of the tree to carve a boomerang suited for its specific use.

She also talked about coolamons, traditionally used by women for collecting food, carrying water, and even as cradles for babies. These weren't just practical tools; they held significant cultural value, symbolising the ingenuity and resourcefulness of First Nations people and highlighting the traditional roles between men and women within the community.

We visited the school's unfinished yarning circles before sitting in the outdoor student seating areas, where aunty Barb informed us on the purpose of yarning circles, which she described as both sacred and general spaces. They could be used for men's business, women's business, or general discussions.

Aunty Barb explained how jewellery can be made from seeds, shells, and plant fibres. These pieces weren't just adornments; they also served as trade items, fostering relationships between different groups.

She also informed us of several plants and their uses such as a Snake Whistle plant, or Dianella—its berries are edible, the leaves are good for weaving, and it can even be used as a snake whistle to warn snakes a people.

Aunty Barb also explained how Warrigal Greens are edible but reminded us they need proper cooking before eating and this was taught by her Elders. She talked about wattle seeds being roasted and ground into flour and used to make a type of bread, and mentioned how tea tree can be used for antiseptic purposes and as an in repellent.

Both Aunty Barb and Brad emphasised the importance of preserving native trees. They suggested that if trees need to be removed, they could be repurposed to make cultural tools or seating. Aunty Barb recommended involving a local artist to ensure cultural resonance, using colours reflective of the natural landscape to honour First Nations and the local natural heritage.

She used some wonderful analogies to help us understand how traditional tools compare to modern items. For example, bark served as plates, sticks were like forks, heated stones buried under the soil acted as ovens for cooking and later electric blankets, bark provided roofing to protect from water, and animal leather skins were used for clothing and blankets when treated correctly for use.

Aunt Barbs talk and walk wasn't just about learning facts; it was about feeling a connection to the land and understanding the deep cultural heritage of Cabrogal people.

KEY POINTS

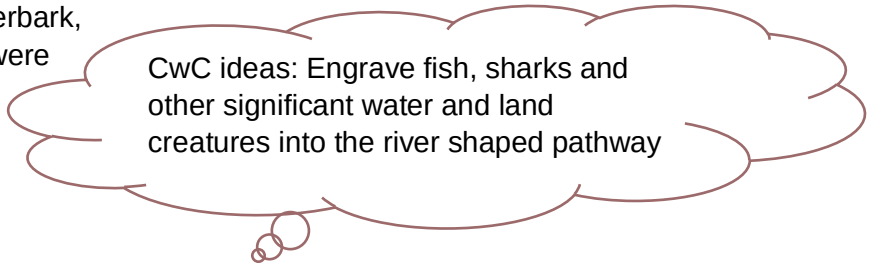
Connection to Georges River

Water Ways: Aunty Barb emphasised the cultural and ecological significance of water systems like Georges River, which historically supported transportation, trade, and toolmaking. Mangroves were noted for their utility in crafting tools such as boomerangs and housing for Cobra Worm.

Local Ecology and Symbolism

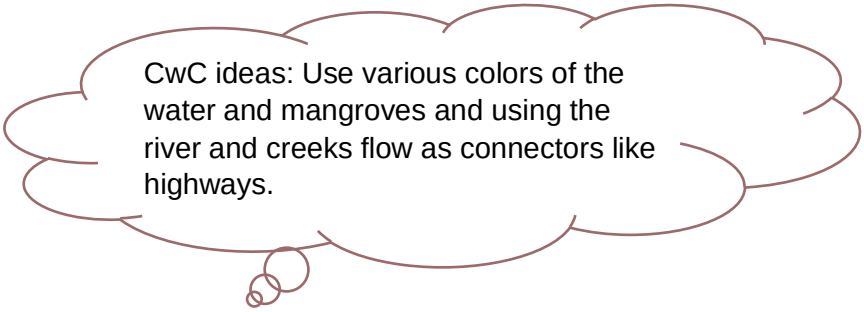
Wildlife: Local fauna such as goannas, sharks, mullets, and the Cobra Worm were highlighted for their cultural relevance.

Flora: Mangroves, paperbark, grass trees, and she-oak were identified for their traditional uses in crafting, food preparation, and ceremonial practices.



Colour Palettes

Landscape Inspiration: drawing from the natural hues of the escarpment, ochre tones, and seasonal transitions in foliage for design inspiration.



Indigenous Identity

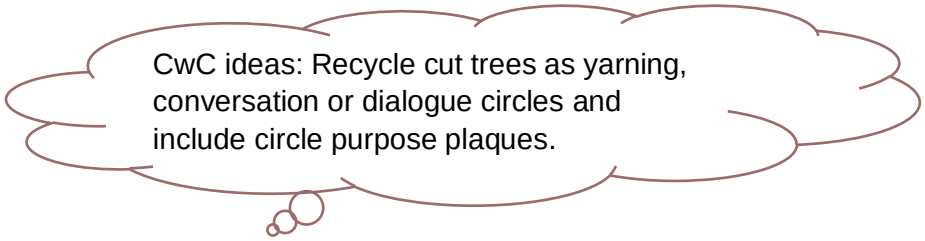
Indigenous meaning: Aunty Margie offered insights into the meaning of "Indigenous," emphasising belonging and nomadic traditions that adapted to changing landscapes.

Yarning Circles: Emphasis was placed on cultural sensitivity in their placement, avoiding enclosed or exposed spaces to respect purpose and traditions and ensure privacy.

Reframing name: Optional naming to reframe circles to the concept to "conversation circles," blending cultural respect with practical use for diverse discussions.

Material Suggestions:

Natural materials: Incorporate natural elements like sandstone, timber, and salvaged tree trunks and consider sensory elements, such as students having barefoot interaction with the land.



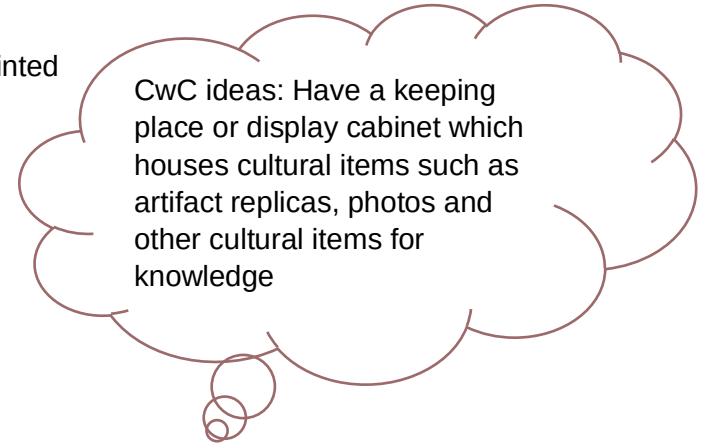
Educational Integration

Bush Tucker: Plantings such as Lomandra and wattle for hands-on learning in horticulture and home economics.

Indicator species: Seasonal cycles, such as whale migrations tied to flowering tea trees and wattle, provide knowledge of culture and nature and rich storytelling opportunities.

Artefacts: Suggested displaying 3D-printed replicas of artefacts found onsite.

Thematic Connections: Align subject areas with cultural elements (e.g., Science with First Nations astronomy, Arts with dance and local stories).



Student Perspectives Present on the Walk on Country on Design

Girl's input: requested softer, natural materials with shaded spaces and more greenery.

Boys input emphasised larger active play areas would be required and multipurpose sports facilities.

Both groups supported the idea of sensory planting of bush foods and medicines for a richer cultural experience.

Historical and Environmental Narratives

Key figures: Queen Emma Timbery and themes such as the Stolen Generations were suggested as educational focal points.

There is a deep-rooted First Nations cultural history of both Cabrogal people and broader Dharug Nation in the Liverpool area.

From the Elders Walk on Country four key themes have emerged:

- **Significance of Place**: Integrating key waterways and flora and fauna associated with the traditional Cabrogal people and within Dharug Country, such as the Georges River, Cabramatta creek and associated tributaries.
- **Truth Telling**: Embedding Truth Telling into the school's culture by recognising historical events and figures and promoting healthy conversational spaces.
- **Creating Sharing Places**: Designating areas within the school, such as yarning circles and bush tucker gardens, that foster community engagement and a connection to Country.

- **Design of Entry Spaces**: Ensuring that entry spaces are welcoming and culturally resonant, featuring native plants, cultural motifs, and Acknowledgment of Country signage and where possible in both Dharug and English.
- **Importance of Garden Areas**: Creating Garden areas that serve as memorials, reflective spaces, and educational environments, incorporating native flora and fauna significant to Dharug culture.
- **Artwork:** Existing first nations artwork (retention) & places for new artworks-Natural colour palette (earth, river and tree canopy)

In unpacking the above themes, we can see that Connecting with Country is not simply a visual concept but an embodiment experience of history, culture and environmental sustainability.

As the school community experiences Connecting with Country concepts daily, Cabrogal and Dharug history, culture and environmental sustainability will no longer be viewed as external life subjects but become a practical sustainable way of daily life.

Connecting with Country Community Elders Workshop

A community Elders Connecting with Country workshop was held on 16 December 2024 at the Liverpool Boys High School.

The workshop was to build on current ideas and gain additional consensus building on design concepts.

The workshop focussed on three key Connecting with Country themes as follows:

- Truth Telling – What First Nations stories need to be told?
- Story – What significant First Nations stories of the local area can be told?
- Place – What significant First Nations sites or places can be referenced in the area?

Local Elders was invited to attend the workshop to be informed of the schools upgrade and also explore ideas which may feed into the Connecting with Country designs for the new Liverpool High School.

Aunty Wendy Morgan, from the Guntawang Aboriginal Elders group opened the workshop with an Acknowledgement of Country, acknowledging the Cabrogal people of the local area and broader Dharug Nation. This was followed by a round of introductions allowing each participant space to introduce themselves.

A short presentation was provided including background to NSW Government school build initiatives and the local Liverpool Boys and Girls High School upgrade. This was then followed by an interactive workshop to unpack the above three themes.

World Cafe process was used for the interactive workshop, which allowed for three separate themes including focus questions on three separate tables and small groups. Each group had equal time to explore each theme and develop ideas which could feed into the Connecting with Country design before rotating. This was done three times to allow all groups to discuss each theme.

The workshop provided an opportunity to unpack each of the three themes producing the following sub-theme outcomes.

1. Significant Places and Sites

Flora, Fauna, and Natural Features

- ***Mount Anna, Campbelltown*** *provides access to local flora, supporting traditional practices like bush medicine, weaving, and food sourcing.*
- ***Georges River and Cabramatta Creek*** *connect people and places, serving as essential waterways for fishing and gathering resources such as Cobra worms, fish species, crustaceans and land animals such as goannas.*
- ***Bunya Pines*** *are symbolic, with one located at Liverpool Cottage, and believed to be part of a traditional and historical song line of pines stretching from the Blue Mountains to the Liverpool area.*

Culturally Significant Locations

- ***Collingwood Precinct, Liverpool****: A meeting place for Dharug, Gandangara, and Dharawal groups, featuring a ridge line of great importance to these groups.*
- ***Bigge Park****: Historically used for corroborees, feasts, dances, and sorry business.*

1. ***Incorporate Significant Sites****: Acknowledge significant plants, waterways and locations including, Bigge Park and Collingwood Precinct.*

2. Cultural Stories and Heritage

Displacement and Adaptation

- *Colonisation and farming displaced First Nations groups, preventing cultural practices and freedom of movement.*
- Green Valley*: Established as a resettlement area in the 1960s.*
- *Sacred sites were often destroyed or relocated, disconnecting them from their original context.*

Celebrate Cultural Symbols: Use totems, story poles, and local flora in school landscaping and art.

Artifacts and Archaeological Evidence

- *Excavations of school sites*
- *may uncover significant artifacts, necessitating smoking ceremonies to cleanse and heal the land.*
- *Scarred trees from 1840, now housed in Liverpool Art Gallery, highlighting spiritual disconnection when sacred objects are removed from their original lands.*

Cultural Symbols

- ***Totems****: Mangroves and Cobra worms are locally significant.*
- ***Burial Grounds****: Marked by tree carvings and songlines, these areas when identified should always be protected.*
- ***Story Poles****: Potential installations of physical structure with artwork to share local stories, featuring input from Elders and recorded stories and songs.*

Include a cleansing smoking ceremony prior to construction

Honour Artifacts and Sacred grounds*:* Protect and preserve archaeological findings, ensuring spiritual and cultural practices are respected and undertaken.

3. Truth-Telling and Historical Acknowledgment

Colonial Policies and Impacts

- *Recognise the Cabrogal people of the Dharug Nation and the displacement caused by assimilation and integration policies.*
- *First Nations groups were forcibly removed from traditional lands and forced to live near rivers and creeks, preserving some traditional practices despite adversity.*

Artifacts uncovered during excavation work can be duplicated for display and originals should be returned the original place.

Education and Exclusion

- *First Nations children were barred from mainstream classrooms in schools, often sitting outside under trees.*
- *Teachers on missions and reserves were untrained, reinforcing systemic inequalities.*
- *1950's saw some First Nations children allowed into mainstream schools under strict policies.*

Facilitate Truth-Telling*: Share the history of policies and their impacts through educational programs including historical timelines and artwork..*

The Stolen Generations

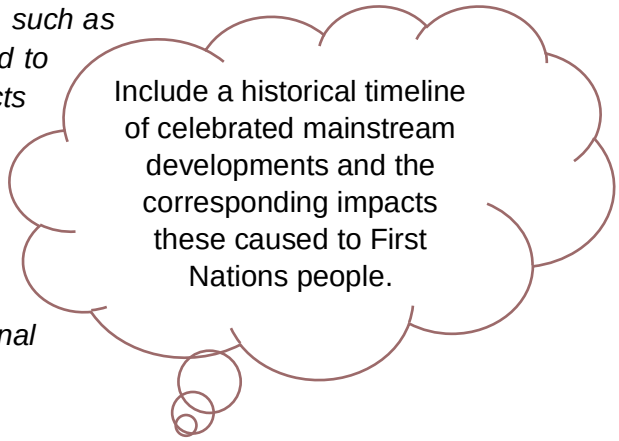
- *First Nations children were forcibly removed from their families, causing intergenerational trauma. Survivors' stories highlight systemic racism and the challenges of reconnecting with families.*

Personal Narratives

- *Personal family stories of shame and racism, such as war widows and mothers with children forced to leave school, underscore the ongoing impacts of colonial policies.*

Historical Figures

- ***Maria Lock**: A notable Aboriginal woman and landholder near Collingwood. Her land was confiscated under policies restricting Aboriginal land ownership.*



To conclude, the Community Elders workshop highlighted the importance of understanding the deep impacts of colonisation on First Nations people, celebrating their resilience, and supporting the sustainability of cultural heritage practices. This includes preserving significant sites, revitalising cultural stories, and acknowledging historical injustices."

By protecting sacred locations, collaborating with Elders to safeguard artifacts and narratives, and addressing the impacts of colonial policies through truth-telling and education, we can foster healing, reconciliation, and a deeper understanding of Australia's shared history. These actions not only honour the resilience and wisdom of First Nations communities but also pave the way for meaningful partnerships and an enriched cultural identity for all Australians.

Previous CwC consultations 2023 prior to new project brief.

Items below were raised in previous meetings and reports in relation to the LBGHS CwC.

Many of the items raised are still relevant to the new proposed Liverpool High School project and have been listed for information.

TDK Architects Connecting with Country Report 2023

The following provides a summary of the TDK Architects report including associated recommendations:

Integration of Indigenous Stories and Culture

- Collaborate with local Indigenous groups to reflect cultural stories and designs in art, signage, and naming conventions.
- Use songlines and Indigenous languages in visual elements across the campus.

Landscape Design

- Use native plants to create educational gardens, including a bush tucker garden.
- Design play areas and pathways featuring Indigenous motifs and sustainable elements like bio basins.

Image source: TKD Connecting with Country 2023

Gathering Place

- Create a welcoming space that acknowledges cultural diversity and shared histories, ensuring safety and accessibility for all.

Educational Tools

- Include dual-language signage and interactive QR codes to share cultural and historical stories.
- Design pathways and gardens as storytelling tools, educating students about Indigenous flora and its significance.

Sustainability and Materials

- Use recycled and local materials, shade structures, and vegetation to reduce environmental impact and improve comfort.

Collaborative Development

- Partner with elders, Indigenous advisors, and students to ensure cultural authenticity and co-design spaces.

Design Features for Identity

- Incorporate colours, patterns, and materials that reflect the local landscape and Indigenous culture.
- Highlight the school's connection to the nearby river.

Student and Community Engagement

- Foster hands-on student involvement in garden planting and care.
- Design spaces for quiet reflection, active play, and community interaction.

A full summary of the TDK Architects Connecting with Country Report 2023 recommendations is attached at Appendix 2

Unearthed Archaeology and Heritage Research Report 2023

The Unearthed Archaeology and Heritage Research Report was undertaken in 2023 for the Liverpool Boys and Girls High School Connecting with Country Project.

The following provides a summary of this report and associated recommendations for the Liverpool Boys and Girls High School Redevelopment:

Background and Context

The Liverpool area is historically linked to the Dharawal, Gandangara, and Darug peoples, with the Cabrogal clan residing near Cabramatta Creek.

Traditional practices, totems, and ceremonial gatherings shaped the cultural and social life of these groups.

Aboriginal people utilised local flora, fauna, and the river systems for sustenance, shelter, and spiritual practices.

Key Features of Aboriginal Connection

1. Cultural Practices:

Resource utilisation: Canoes for fishing, scarred trees for tools, diverse diets from local plants and animals.

Seasonal indicators and calendars, e.g., the Dharawal calendar with six distinct seasons.

2. Clan Dynamics:

Tharawal, Darug, and Gandangara peoples lived within defined clan structures and regions.

Clans specialised in freshwater, coastal, or hinterland lifestyles.

Engagement in Design for Liverpool Boys' & Girls' High School

- Yarning Circles:

Separate spaces for men's and women's business to respect cultural practices.

Organic designs (curves, no straight lines) to reflect inclusiveness and First Nations ways of gathering.

- Landscaping and Materials:

Use of natural and recycled local materials.

Art reflecting local heritage to be placed in evolving, interactive spaces.

Community garden with endemic plants for education and healing.

- Archaeological Considerations:

Involvement of students in recording Indigenous artefacts and history.

Possibility of reburial or keeping artefacts on-site.

Community Stories and Contributions

- Historical Figures:

Lucy Leane: A Cabrogal woman advocating for Aboriginal community needs, e.g., a boat for trade.

Marion Leane Smith: A nurse and WWII contributor, symbolising Aboriginal women's service in global contexts.

Albert Leane: A soldier in WWI who connected military service with cultural roots.

- Dreaming Stories:

  Gurangatty and Mirragan: Creation tales about the Great Eel ancestor and a quoll, symbolising connection to water and land.

Recommendations for Implementation

1. Foster student and community involvement in Indigenous cultural education.
2. Integrate Indigenous storytelling and history into school design and landscaping.
3. Respect the distinct needs of diverse cultural and refugee backgrounds in creating a safe, inclusive space.

A full Summary of the Unearthed Archaeology and Heritage Research Report 2023 is attached at Appendix 3

Recommendations

Wayfinding

Imprints in Concrete:

Utilise concrete spaces within the school to embed cultural narratives through the imprints of birds and significant migratory patterns, such as those of fish and birds. This tactile and visual approach helps students learn about local wildlife and migratory patterns.

Totem and Story Poles:

Install totem poles at strategic locations within the school grounds. These serve as storytelling tools and representations of cultural heritage, offering both educational and decorative value.

Dual Naming Signage:

Incorporate traditional First Nations and English names on signage. This honours and preserves traditional place names, promoting bilingual cultural education.

Building Names:

Assign traditional names—such as descriptive names or those of animals and plants to buildings. This fosters a connection to the local country, enhances cultural pride, and strengthens visitors' sense of place.

Artwork

Mosaic and Metal Work Designs:

Integrate cultural patterns and symbols into school architecture through mosaics and metal artworks. These could include perforated metal designs that enrich the school's aesthetic and cultural environment.

Murals:

Create large-scale murals depicting cultural, historical, and natural connections between the school, history and local communities. These visually engaging pieces allow the walls to speak to students.

Storytelling

Solar Poles & QR Codes:

Use solar-powered poles with audio capabilities and QR codes to share Elders' stories, songs and historical narratives. This modern technology offers interactive learning experiences.

Yarning Circles:

Can be made of recycled trees and some can use a mix of stone and metal for support.

Yarning Circles can have names to assist in confusion of traditional concepts of separate Male and Female circles by having names such as interactive dialogue circles or conversation circles.

Truth Telling

Dedicate spaces within the school to truth-telling about Cabrogal and Dharug history and culture. These displays can include text, artifacts, and multimedia, with cabinets long and deep enough to accommodate timelines and 3D artifact images for educational purposes.

Acknowledgement of Country

Erect a prominent display, such as a plaque or art piece on the front wall, featuring an Acknowledgement of Country. This serves as a constant reminder of the traditional landowners and respect for the Country.

Vegetation

Bush Food and Healing Garden with Native Grasses:

Establish gardens featuring native plants with cultural significance, focusing on their uses for healing and food. This promotes ecological and cultural education.

Winding Pathways:

Design pathways that mimic natural patterns, creeks and rivers which can weave between gardens.

Native Plantings:

Use native plant species to create habitats that attract and support local insects and wildlife. This approach integrates learning about biodiversity and conservation into the physical environment and brings back local biodiversity and ecological balance.

Outdoor Learning

Garden Area:

Develop a garden dedicated to native plants. Students can explore traditional uses of these plants for food, medicine, and craft, enriching their cultural and ecological understanding.

Front Entrance

Welcoming Entrance:

Enhance the front entrance with gardens and appropriate seating. Incorporate wood and metalwork designs to create a welcoming space that connects the local animals, plants, and landscapes with the school environment.

Vision

These enhancements aim to create a learning environment that is not only informative and respectful but also deeply integrated with the cultural, historical, and environmental ethos of the First Nations Cabrogal and Dharug community. This approach fosters respect and understanding among students and staff while educating about the rich heritage surrounding them.

Conclusion

The Liverpool Boys and Girls High School redevelopment and Connecting with Country Concepts represents a continued step towards integrating First Nations cultural heritage into public school infrastructure. This also ensures that the Cabrogal and Dharug people's rich history and traditions are both respected and preserved.

The "Connecting with Country" initiative provides a vital platform for meaningful engagement with the local First Nations community, allowing their cultural perspectives to guide the project's development.

Through a series of consultations, including an Elders Walk and Talk on Country, a community Elders workshop and noting previous work by TKD Architects and Unearthed Archaeology and Heritage Research ensures the project has gained invaluable momentum and insights into the cultural significance of the land, waterways, and natural resources in and around the Liverpool area, which is also central to the Cabrogal and Dharug people's connection to Country.

The community's contributions have highlighted the importance of embedding cultural elements such as cultural stories, significant sites, storytelling, and truth-telling into the design of the school’s restructure.

As the project progresses, these insights will continue to shape the final design of new Liverpool High School, ensuring that it not only serves its intended educational purposes but also stands as a living testament to the cultural identity and resilience of the Cabrogal people and Dharug Nation.

In conclusion, the Liverpool Boys and Girls High School redevelopment is more than just an infrastructure project; it is a commitment to both educational innovation and preserving and celebrating the cultural heritage of the First Nations people.

Integrating First Nations Connecting with Country perspectives into school designs provides an opportunity to educate future generations, preserve cultural heritage, and foster reconciliation. This approach honours the deep connection between people, land and culture in the Liverpool area.

Appendices

Appendix 1: Stakeholder Consultation List

1.1 Walk on Country Stakeholder List

Aunty Margie (Guest)	Cabrogal Elder and Guest
Aunty Barbara Simms	Cabrogal Elder and Guest
Brad Maybury	Guntawang Aboriginal Inc archaeological work on the site
Charles Trindall	Indigenous Lead Facilitation
Rebecca Taouk	SINSW Representative
Brad Bennett	Colliers Representative
NBRS Representatives (x3)	
School Representatives	Staff and students from Liverpool Girls and Boys High School

1.2 Connecting with Country Elders Workshop Stakeholder List

Name	**Affiliation/Company**
Aunty Wendy Morgan	Guntawang Aboriginal Resources Inc
Uncle Ron Davis	Gandangara Aboriginal Elders
Aunty Dorothy Shipley	Gandangara Aboriginal Elders
Aunty Lindy Treasure	Guntawang Aboriginal Women's Group
Aunty Michele Vangalo	Guntawang Aboriginal Women's Group
Charles Trindall	Indigenous Lead Facilitation
Kayelene Slater	Indigenous Lead Facilitation
Ewan Saunders	NBRS Architects
Manjeera Kancharla	NBRS Architects

1.3 Unearthed Archaeological Services Stakeholder List

NAME	Affiliation/Organisation
Belinda Jackson	Kamilaroi-Yankuntjatjara Working Group
Justine Coplin	Darug Custodian Aboriginal Corporation
Carolyn Hickey	A1 Indigenous Services
Amanda Hickey	A1 Indigenous Services
Thelmerie Rudd	(No specific group affiliation noted)

1.4. TDK Architects Stakeholder List

Name	Affiliation/Company
Tory Stening	Unearthed Archaeology
Anna Harris	TKD Architects
James Robertson	TKD Architects
Bonnie Butcher	Colliers
Indrajit Dutta	Context
Kirstine Gonano	Liverpool Girls High School
Michael Saxon	Liverpool Boys High School
Heiron Chan	TKD Architects
Sonia Giles	TKD Architects
Brad Bennett	SINSW

Appendix 2: TDK Architects Connecting with Country Report 2023

Specific Recommendations Based on the Report

1. Integration of Indigenous Stories and Culture

Art and Design:

- Develop brickwork and façade patterns with local Indigenous groups to reflect stories, songlines, and designs specific to the area.
- Engage First Nations artists and language specialists to co-create artwork, signage, and naming conventions.

Cultural Narratives:

- Collaborate with local elders to identify and integrate meaningful cultural motifs and stories.
- Use songlines and Indigenous language in signage and visual elements around the campus.

2. Landscape Design

Native Planting:

- Design gardens using endemic plants to restore habitat and serve as educational tools for students.
- Include native edible plants to create a bush tucker garden for educational and culinary purposes.

Functional Landscaping:

- Incorporate bio basins for water filtration using native vegetation.
- Design play areas and pathways with Indigenous motifs and wayfinding cues.

3. Yarning Circles

Design Considerations:

- Construct three distinct yarning circles for boys, girls, and shared use, ensuring functionality during non-structured times (e.g., lunchtimes).
- Use natural materials and consider seating layouts that reflect cultural practices.

Community Engagement:

- Collaborate with Indigenous stakeholders to design spaces respecting cultural customs while serving the needs of a diverse student body.

4. Gathering Place

Cultural Reflection:

- Create a space that symbolises the coming together of cultures, faiths, and communities, acknowledging shared histories and diversity.
- Include seating and garden areas that balance visibility and privacy for different uses.

Safety and Accessibility:

- Design the area to feel secure and inclusive, catering to students and the broader community.

5. Educational Tools

Signage and Wayfinding:

- Use dual-language signage featuring Indigenous language and English.
- Integrate QR codes on signage to provide interactive learning experiences, such as videos or stories.

Interactive Features:

- Develop pathways and open spaces as storytelling mediums, incorporating river narratives and historical connections.
- Include informative signage in gardens to educate students on native flora and its cultural significance.

6. Sustainability and Materials

Recycled and Local Materials:

- Prioritise using recycled materials and locally sourced building supplies to minimise environmental impact.

Shading and Cooling:

- Incorporate shade structures and vegetation to reduce heat islands and create comfortable outdoor spaces.

7. Collaborative Development

Engagement with Elders and Specialists:

- Conduct follow-up meetings with community elders to ensure cultural authenticity in the narratives and motifs used.
- Involve landscape architects and Indigenous advisors to co-develop plans for spaces like yarning circles and gardens.

Workshops and Education:

- Organise workshops with students to involve them in the co-design of artwork and cultural spaces.

8. Design Features for Identity

Visual Identity:

- Use colours, patterns, and materials that resonate with the local landscape and Indigenous culture.
- Highlight the school’s proximity to the river through visual storytelling and pathway designs.

9. Student and Community Engagement

Participation Opportunities:

- Engage students in the planting and care of gardens to foster a hands-on connection with Country.
- Create spaces that facilitate quiet reflection, active play, and community interaction.
- These actions will help ensure that the redevelopment of Liverpool Boys and Girls High School reflects the principles of "Connecting with Country," fostering inclusivity, cultural respect, and sustainability.

Appendix 3: Unearthed Archaeology and Heritage Research Report 2023

1. Historical and Cultural Context

Cultural Significance:

- The Liverpool area was a meeting point for the Dharawal, Gandangara, and Darug peoples, each contributing linguistic, cultural, and economic diversity. This highlights the importance of the site as a place of historical intersection and collaboration.
- The Cabrogal clan's connection to the Georges River and its resources (e.g., cobra worms) underscores the integration of the environment into their lifestyle and identity.

Clan Dynamics:

- The delineation of clans into freshwater, coastal, and hinterland groups reflects an organised use of environmental resources. Each group's specific practices (e.g., canoe construction, seasonal plant use) were adapted to their geographical niches.

2. Engagement and Design Considerations

Yarning Circles:

- The recommendation for separate yarning circles for men and women respects Indigenous traditions of "business" (sacred gender-specific practices). This creates an authentic, culturally sensitive educational environment.
- Concerns about the misuse of these spaces (e.g., littering during lunchtime) reveal a need for clear guidelines and community education on the purpose of such spaces.

Natural and Local Materials:

- The use of salvaged and recycled materials not only ties into sustainable practices but also symbolises the resilience of Aboriginal culture in reusing and respecting natural resources.
- Incorporating Aboriginal art and motifs in the landscape reinforces cultural heritage while allowing for organic growth and evolution of the space.

Curved and Organic Designs:

- The preference for curves in paths, gardens, and seating arrangements aligns with Aboriginal philosophies of inclusion and open dialogue. This contrasts with rigid, linear layouts often associated with hierarchical structures.

4. Archaeological and Educational Opportunities

Student Involvement:

- Encouraging students to participate in archaeological recordings bridges historical awareness with practical education. It fosters respect for Aboriginal heritage and allows younger generations to learn actively about local history.

Reburial or Keeping Place for Artefacts:

- Decisions about artefact handling reflect cultural sensitivity. A keeping place could serve as an educational and commemorative site, emphasising the ongoing connection between people and land.

5. **Historical Figures and Legacy**

Lucy Leane:

- Lucy's letter to the Aborigines' Protection Board highlights both her resilience and the challenges Aboriginal women faced during colonisation. Despite her economic stability, her request for a boat was denied, reflecting systemic discrimination.

Marion Leane Smith and Albert Leane:

- Both figures exemplify the contributions of Aboriginal people to global events like World Wars I and II. Their stories can inspire students and foster pride in Aboriginal heritage.

5. Dreaming Stories and Spiritual Connection

Gurangatty and Mirragan:

- The creation story of the Great Eel is deeply intertwined with the Hawkesbury-Nepean River. This tale serves as a reminder of the spiritual balance between humans and nature and the consequences of disrupting this harmony.
- Incorporating such stories into school programs could provide a spiritual and cultural framework for understanding the land.

6. Social and Emotional Considerations

Multicultural and Refugee Sensitivity:

- Acknowledging the sense of displacement among various communities (Aboriginal and refugee populations) emphasises the need for a school design that fosters belonging and safety.
- This inclusiveness resonates with broader themes of healing and reconciliation.

7. Language and Storytelling

Darug Language Integration:

- The inclusion of Darug words for natural elements (e.g., "Badu" for water, "Ngurra" for land) and animals enriches the cultural fabric of the school environment.
- Using these words in signage and educational materials could encourage students to engage with Aboriginal languages.

Storytelling and Songlines:

- Sharing stories connected to the Georges River and its Dreaming narrative offers a platform for cultural transmission, creating a living heritage for students and the community.
-

Recommendations

Design Features:

- Separate spaces for men's and women's business should be implemented, with culturally appropriate signage and guidelines.
- Ensure curved paths and organic landscaping to reflect Aboriginal values of inclusivity and harmony.

Educational Integration:

- Develop curricula that include the history of local clans, language lessons, and Dreaming stories.
- Offer workshops for students and the community on Aboriginal traditions, archaeology, and storytelling.

Community Engagement:

- Involve Aboriginal students and community members in the design process to ensure authenticity.
- Organise storytelling sessions and cultural events to foster understanding and respect among diverse student populations.

Artefact Preservation:

- Create a culturally appropriate keeping place for artefacts with interpretive displays to educate future generations.

Acknowledgment and Healing:

- Incorporate memorials or art installations honouring the First Nations heritage of the Liverpool area, including figures like Lucy Leane and Marion Leane Smith.

Appendix 4: Aboriginal Timeline of Significant Events

Ancient History

- 60,000 BC: Archaeological evidence suggests the earliest evidence of Aboriginal civilisation at a rock shelter in Arnhem Land.
- 42,000 BC: Mungo Man is buried in a shallow grave.

Colonial Era

- 1770: Captain James Cook declares possession of the east coast, claiming the land as *terra nullius* (belonging to nobody).
- 1788: First Fleet arrives and establishes a settlement at Port Jackson, Sydney.
- 1789: Smallpox devastates the Aboriginal population in Botany Bay, Port Jackson, and Broken Bay, spreading inland and along the coast.
- 1794: Colonists begin farming on the Hawkesbury, dispossessing Aboriginal people from their lands.
- 1799: Frontier Wars begin in the Parramatta and Hawkesbury regions.
- 1801: The Female Orphan School opens in Sydney for girls aged two and above, many with at least one living parent.
- 1814: Governor Macquarie opens a school for Aboriginal children in Parramatta.
- 1836: A British House of Commons report states genocide is occurring in the colonies.
- 1838: 28 Aboriginal people, mostly women and children, are killed at Myall Creek. Settlers are punished for crimes against Aboriginal people for the first time.
- 1840: Gippsland massacres begin, lasting a decade and resulting in up to 1,000 Aboriginal deaths.
- 1869: Victoria becomes the first state to pass a law authorising the removal of Aboriginal children from their families, initiating the Stolen Generations.
- 1870: The first Aboriginal children are enrolled in public schools in New South Wales.
- 1879: The Torres Strait Islands are annexed by Queensland.

Federation and Early 20th Century

- 1901: Torres Strait Islands officially become part of Queensland.
- 1908: The Invalid and Old Age Pension Act excludes Aboriginal people.
- 1909: The Aborigines Protection Act in NSW grants power to remove Aboriginal children deemed "neglected."
- 1912: Maternity Allowance excludes Aboriginal people.
- 1915: The NSW Aborigines Protection Board gains power to remove children without proving neglect.
- 1930: William Cooper petitions for an Aboriginal representative in Federal Parliament.
- 1938: The Day of Mourning is held, marking 150 years since colonisation.
- 1940: The NSW Aborigines Protection Board is renamed the Aborigines Welfare Board and loses power to remove children.
- 1948: Aboriginal and Torres Strait Islander people are granted Australian citizenship.
- 1949: The Commonwealth Electoral Act is extended to Aboriginal ex-servicemen.

Mid-20th Century

- 1956: Nuclear tests at Maralinga, South Australia, displace Aboriginal communities due to radiation poisoning.
- 1962: Aboriginal and Torres Strait Islander people gain the right to vote in federal elections.
- 1965: Freedom Ride protests racial discrimination in NSW.
- 1966: Vincent Lingiari leads the Wave Hill walk-off, protesting unfair pay and conditions.
- 1967: Australians vote overwhelmingly in a referendum empowering the government to make laws for Aboriginal people.
- 1968: The discovery of Mungo Lady reveals remains over 40,000 years old.
- 1971: Aboriginal people are counted in the Census for the first time.

Modern Era

- 1972: Tent Embassy is established outside Parliament House, Canberra.
- 1975: Racial Discrimination Act is passed.
- 1980: The first Link-Up organisation is established to support members of the Stolen Generations.
- 1985: Uluru is returned to its traditional owners.
- 1988: The Barunga Statement is presented to Prime Minister Bob Hawke.
- 1991: The Royal Commission into Aboriginal Deaths in Custody delivers its final report. The Council for Aboriginal Reconciliation is established.
- 1992: The Mabo decision recognises native title. Paul Keating delivers the historic Redfern Speech.
- 1997: The Bringing Them Home report is tabled, documenting the Stolen Generations' impact.
- 1998: The first National Sorry Day is held.
- 2000: Cathy Freeman lights the Olympic flame and wins gold in the 400m sprint.
- 2007: The Australian Government begins the Northern Territory Intervention.
- 2008: Prime Minister Kevin Rudd delivers a formal apology to the Stolen Generations.

- 2017: The 20th anniversary of the Bringing Them Home report prompts the Healing Foundation to present an Action Plan for Healing.
- 2018: The 10th anniversary of the National Apology to the Stolen Generations is observed.

Annual Events of Significance

Month	Date	Event	Description
January	26 January	Australia Day / Survival Day	Marks the establishment of New South Wales as a colony in 1788. A day of celebration for some and mourning for many Aboriginal and Torres Strait Islander Australians.
February	12 February	The Freedom Ride Anniversary	Commemorates the 1965 bus tour led by Charles Perkins to highlight discrimination in health, education, and housing.
	13 February	Anniversary of the Apology (2008)	Marks Prime Minister Kevin Rudd's formal apology to the Stolen Generations.
March	15 March	National Close the Gap Day	Raises awareness about health disparities between Aboriginal and Torres Strait Islander people and other Australians.
April	5 April	Bringing Them Home	Marks the release of the 1997 report documenting the stories of the Stolen Generations.
May	26 May	National Sorry Day	Acknowledges the forced removal of Aboriginal and Torres Strait Islander children and promotes healing for the Stolen Generations.
	27 May	Anniversary of the 1967 Referendum	Celebrates the successful vote to amend the Constitution, granting the federal government power to legislate for Aboriginal Australians.
May – June	27 May – 3 June	Reconciliation Week	Reflects on key milestones, including the 1967 referendum and the 1992 Mabo decision.
June	3 June	Mabo Day	Commemorates the 1992 High Court decision rejecting terra nullius and recognising Aboriginal and Torres Strait Islander land rights.
July	3 – 10 July	NAIDOC Week	Celebrates the history, culture, and achievements of Aboriginal and

			Torres Strait Islander peoples, with roots in activism from the 1920s.
August	4 August	National Aboriginal and Torres Strait Islander Children's Day	Celebrates the strength and culture of Aboriginal and Torres Strait Islander children and emphasises the importance of family and community.
September	13 September	Anniversary of the UN Declaration on the Rights of Indigenous Peoples	Marks the adoption of the declaration in 2007, with Australia's support formalised in 2009.
	29 September – 1 October	NSW Aboriginal Rugby League KnockOut	Known as the "Koori Knockout," this annual sporting event celebrates community and sports.

Appendix 5: Use of Native Flora by Dharug Peoples on the Cumberland Plains

Edible Plants

Many plants found in the Cumberland Plains provided essential food resources for First Nations peoples. These include:

1. Yam Daisy (Microseris lanceolata): The tubers of this plant were a significant food source.
2. Warrigal Greens (Tetragonia tetragonoides): Also known as native spinach, it was commonly used in cooking.
3. Bush Tomato (Solanum centrale): The small fruits were edible and nutritious.
4. Native Raspberry (Rubus parvifolius): The fruits were eaten fresh or used in various recipes.
5. Murnong (Microseris scapigera): The tubers were dug up and eaten.
6. Geebung (Persoonia species): The fruits of these shrubs were eaten.
7. Lilly Pilly (Syzygium smithii): Berries were consumed.

These plants were part of a broader diet that included various other native fruits, nuts, seeds, and roots.

Tool-Making Plants

Several plant species were crucial for manufacturing tools and other items:

1. Ironbark (Eucalyptus spp.): The hard wood was ideal for making boomerangs, spears, and digging sticks.
2. Forest Red Gum (Eucalyptus tereticornis): Used for crafting canoes, shields, and other large items due to its sturdy wood.

3. Spotted Gum (Corymbia maculata): Its wood was used for various tools and weapons.
4. Broad-leaved Apple (Angophora subvelutina): Provided wood for making tools and vessels.
5. Cabbage Tree Palm (Livistona australis): Leaves were used for weaving baskets and mats, and the wood for building shelters and tools.
6. Broad-leaved Paperbark (Melaleuca quinquenervia): Its bark was used to make containers and shelters.
7. Tea Tree (Melaleuca alternifolia): The wood was used for making spears and digging sticks.
8. Grass Tree (Xanthorrhoea spp.): The resin was used in toolmaking, while the flower spikes were used as fishing spears.
9. Wattle (Acacia spp.): The wood was used for making clubs, shields, and digging sticks. The bark provided fibers for weaving and making nets.

Resin Sources

Resins were important for toolmaking, particularly as adhesives:

1. Grass Trees (Xanthorrhoea spp.): The resin from these trees was used as a strong adhesive in toolmaking.
2. Acacia (Wattle) Trees: Various species of Acacia provided gums and resins used as adhesives and in ceremonial practices.
3. Eucalyptus Trees: Many species produced resins that were used in similar ways to those from Grass Trees and Acacias.

These resins were collected and processed to bind stone tools to wooden handles, repair canoes, and create decorative items.

These resources highlight the intricate knowledge and sustainable practices of First Nations peoples in utilising the flora of the Cumberland Plains and surrounding regions for food, tools, and other essential needs.

Appendix 6: Use of Native Fauna by Dharug Peoples on the Cumberland Plains

Feathertail Glider (Acrobates pygmaeus)

- Food Source: Occasionally hunted for their meat.
- Ceremonial Use: Not specifically documented, but small mammals often played roles in ceremonies and traditional practices.

Eastern Quoll (Dasyurus viverrinus)

- Food Source: Consumed for their meat.
- Pelts: Used for clothing and ceremonial items. Quoll pelts were valued for their fur.

Eastern Grey Kangaroo (Macropus giganteus)

- Food Source: A primary source of meat.

- Hides: Used to make cloaks, pouches, and coverings. The fur was used for warmth and clothing.
- Bones: Utilised to make tools like needles, awls, and points.
- Tail Sinews: Employed as binding material for tools and weapons.

Common Ringtail Possum (Pseudocheirus peregrinus)

- Food Source: Consumed for their meat.
- Fur: Highly prized for making possum skin cloaks, which were worn fastened over one shoulder and under the other for warmth.
- Bones and Teeth: Used as tools and ornaments.

Australian Owlet-nightjar (Aegotheles cristatus)

- Food Source: Occasionally hunted.
- Feathers: Used in ceremonial decorations and clothing.

Wedge-tailed Eagle (Aquila audax)

- Feathers: Highly valued for use in ceremonial attire and headdresses.
- Bones: Utilised for making tools and ceremonial objects.

Australian King Parrot (Alisterus scapularis)

- Food Source: Consumed occasionally.
- Feathers: Used for decorative and ceremonial purposes.

Eastern Water Skink (Eulamprus quoyii)

- Food Source: Occasionally eaten.
- Skins: Used in some traditional clothing and decorative items.

Eastern Blue-tongue Lizard (Tiliqua scincoides)

- Food Source: Eaten for their meat.
- Skins: Used for various purposes, including tool handles and decorative items.

Eastern Brown Snake (Pseudonaja textilis)

- Skin: Used for making belts and other items.
- Meat: Occasionally consumed.

Brown-striped Frog (Limnodynastes peronii)

- Food Source: Eaten occasionally.

General Uses of Animals in Tool-Making and Ceremonial Items

1. Tail Sinews: Sinews from various animals, particularly kangaroos, were used to make strong cords for fastening tools and weapons.
2. Bone Points: Bones from many animals, including kangaroos and possums, were fashioned into awls, needles, and other piercing tools.
3. Fur and Pelts: Furs from possums, quolls, and other mammals were used for making warm clothing like cloaks, which were essential for colder weather. These cloaks also had ceremonial significance and were often decorated with patterns and designs.
4. Feathers: Birds like the Wedge-tailed Eagle, and the Australian King Parrot provided feathers that were used in ceremonial headdresses, clothing, and other decorative items.

These practices highlight the sustainable and resourceful ways in which First Nations peoples utilised the flora and fauna of the Cumberland Plains, ensuring that nothing went to waste and that each part of the animal served a purpose in their daily and ceremonial lives.

Appendix 7: Dharug Creation Stories

Mariong (The Emu and the Milky Way) The story of Mariong, centers around the Mother Spirit, who transformed into the Milky Way. According to Dharug lore, the Mother Spirit was once an emu who ascended to the sky. As she shook the water off her feathers, it turned into stars, creating the galaxy. Her journey to the sky is immortalised in the Great Emu, a star constellation that is visible just below the Southern Cross in the night skies over Sydney. This story is a celestial reflection of the importance of emus in Dharug culture and an embodiment of the Mother Spirit's protective and nurturing role.

Kurrobori, the Spirit Woman The tale of Kurrobori speaks of a time thousands of years ago when the land now known as Sydney was submerged under the sea, inhabited only by sea spirits. Kurrobori, traveling from the east, from beyond the Morning Star, saw the submerged land and raised it from the ocean depths. The retreat of the sea spirits shaped the land's rivers, valleys, and mountains as they fled. Kurrobori then adorned the land with flora and fauna, making it a lush, welcoming place. This story underscores the transformative power of Kurrobori and her role in creating and nurturing the land, highlighting themes of creation, sustenance, and the beautification of the earth.

Gurrangatty the Eel/Serpent: Central to one of the main creation myths is Gurrangatty, an ancestral creator depicted as an eel or serpent. According to the lore, Gurrangatty traversed the terrain, carving out rivers and sculpting mountains with its movements. The eel's lifecycle, which includes migration from freshwater to the ocean and back, epitomises resilience and adaptability. This cycle is honoured at cultural events such as the Burramattagal Eel Festival in Parramatta. Gurrangatty, revered as the Great Eel creation ancestor, is believed to have formed the sacred course of the Dyarubbin (Nepean River). The Dharug people see flooding as a communication from Gurrangatty, suggesting a spiritual disequilibrium. This perspective emphasises the community's responsibility to recognise and respect the river's might and its integral place in their spiritual existence.

Appendix 8: Community Elders Workshop Presentation

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References

Aboriginal Cultural Heritage Assessment Report

Comber, J. (2023, April 24). *Aboriginal Cultural Heritage Assessment Report: Liverpool New Primary School*. Prepared for the Department of Education. Comber Consultants.

General Information on First Nations Use of Plants and Animals

Attenbrow, Val. "Sydney's First Nations Past: Investigating the Archaeological and Historical Records." University of New South Wales Press, 2002.

This book provides detailed information on the use of various plants and animals by the First Nations peoples of the Sydney region, including the Cumberland Plains.

NSW National Parks and Wildlife Service. "Vegetation of the Cumberland Plain."

Department of Environment and Conservation (NSW). (Nov. 2024). *Recovering bushland on the Cumberland Plain: Best practice guidelines for the management and restoration of bushland*.

Georges River Keeper. (Nov.2024). *Aboriginal culture of the Georges River*. Retrieved from https://georgesriver.org.au/learn-about-the-river/aboriginal-culture

Australian National Botanic Gardens. "Traditional First Nations Plant Use."

This resource provides insights into how different plants were used for food, tools, and other purposes.

National Parks and Wildlife Service. (Nov.2024). *Native plants and animals*. Retrieved from https://www.nationalparks.nsw.gov.au/plants-and-animals

Australian National Botanic Gardens. (Dec.2024). *Wildlife*. Retrieved from https://visit.anbg.gov.au/visit/wildlife/

Atlas of Living Australia. (Nov.2024). *Native fauna of Australia: Animals found on the Cumberland Plains*. Retrieved from https://www.ala.org.au

"Australian First Nations Culture and History" by Dr. John Bern.

This book discusses the use of animal parts for tools, clothing, and ceremonial items.

Australian First Nations Culture and History

"Cooee Mittigar: A Story on Dharug Songlines" by Jasmine Seymour and Leanne Mulgo Watson.

This picture book introduces Dharug Country and culture, including traditional practices related to plants and animals.

Songlines & Sightlines Exhibition.

Zhang, T. (n.d.). *Songlines & Sightlines Exhibition*. Retrieved from http://tian-zhang.com/songlines-sightlines

These sources offer comprehensive insights into the traditional uses of plants and animals by First Nations peoples on the Cumberland Plains, contributing to our understanding of their sustainable practices and deep connection to the land.

These following sources also support plants and animals as stated by community as common in and around the Liverpool area,

Dharug Plants

Bannerman, S. M., & Hazelton, P. A. (1990). Soil Landscapes of the Penrith 1:100 000 Sheet. Soil Conservation Service of NSW.

NSW National Parks and Wildlife Service. (2003). The Bioregions of New South Wales: Their Biodiversity, Conservation, and History.

NSW National Parks and Wildlife Service (2003). "Vegetation of the Cumberland Plain

Australian National Botanic Gardens. (2024) ‘Human interactions with the Cumberland Plain Woodland’

NBRS

LBGHS-NBRS-XX-XX-SH-A-0006 WAYFINDING & GRAPHICS SIGNAGE PACKAGE

LIVERPOOL BOYS & GIRLS HIGH SCHOOL

WAYFINDING & GRAPHICS SIGNAGE PACKAGE

ARTWORKS SUBJECT TO REVISION AFTER REVIEW.

CONCEPT

SUPPORTING THEMES FROM DESIGNING WITH COUNTRY – TO CREATE A NURTURING EXPERIENCE FOR THE COMMUNITY

Organic shapes and lines are drawn from our natural environment to create harmony and flow – which are conducive to learning and growth, while connecting back to the essence of country, which is the earth, the soil, the rocks, rivers, pebbles, and landscape.

Through Connecting with Country consultation, local Cabrogal Aboriginal language will be utilised on Building Identification signage (stairs), Core/Speciality Hub Signage, Welcome to Country entry signage and Plant signage.

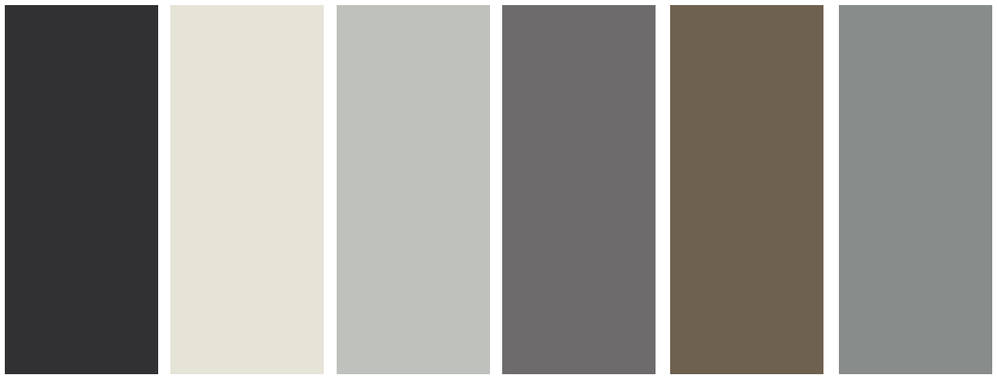
In Internal Stair Wayfinding signage, the designs reflect the various layers of Country in the Liverpool area – Riverbed for Lower Ground, Riparian for Ground, Passing on Knowledge for Level 1, Bushland for Level 2, and Sky & Weather Knowledge for Level 3 and 4.

The approach with creative direction is for the designs to incorporate and honour the values of our natural environment, our community and history.

*** Additional work is required on all signage, to fully customise for project.**

*** Refer to Architectural Design Report and Connecting with Country Report for additional details.**

METAL FRAMES, FACADE BLADES, CLADDING COLOUR SWATCH (COLORBOND CMYK)



Monument
24, 18, 14, 90

Surfmist
2, 2, 11, 12

Shale Grey
10, 4, 11, 26

Basalt
51, 43, 40, 32

Jasper
50, 50, 60, 33

Windspray
25, 15, 19, 43

CFC CLADDING COLOUR SWATCH

CEMINTEL BARESTONE
CFC01 - 'ORIGINAL'

CEMINTEL BARESTONE
CFC02 - 'BLACKISH'

CEMINTEL SURROUND
CFC03 - 'QUINTA'

PERFORMATED SCREEN COLOUR SWATCH

DURATEC INTENSITY
JUICY LIME

DURATEC INTENSITY
LEAF

DURATEC INTENSITY
EVERGREEN

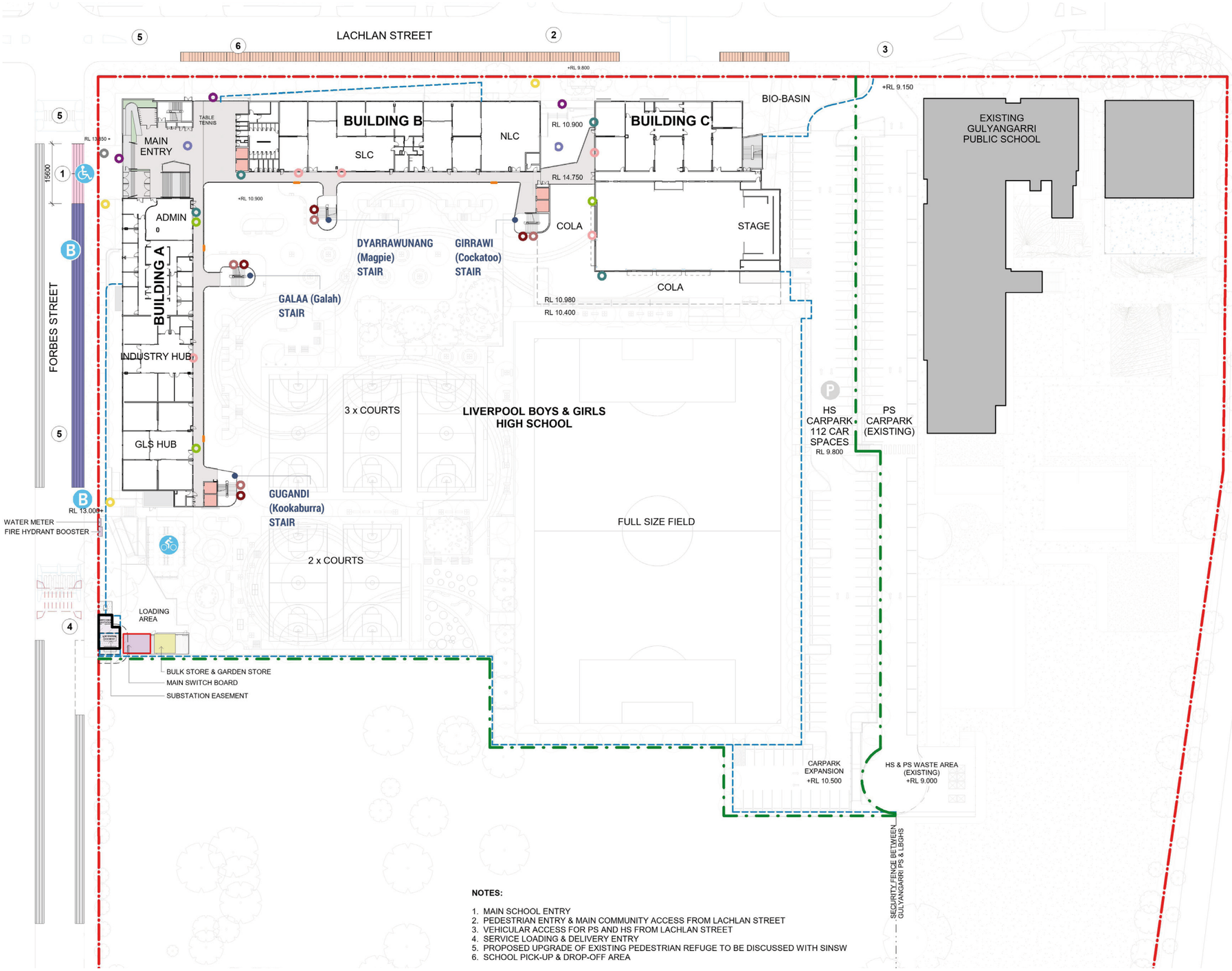
DURATEC INTENSITY
TOMCAT

DURATEC INTENSITY
FLAME

DURATEC INTENSITY
DESERT

CONCEPT & COLOUR SWATCH

NBRS



NOTES:

1. MAIN SCHOOL ENTRY
2. PEDESTRIAN ENTRY & MAIN COMMUNITY ACCESS FROM LACHLAN STREET
3. VEHICULAR ACCESS FOR PS AND HS FROM LACHLAN STREET
4. SERVICE LOADING & DELIVERY ENTRY
5. PROPOSED UPGRADE OF EXISTING PEDESTRIAN REFUGE TO BE DISCUSSED WITH SINSW
6. SCHOOL PICK-UP & DROP-OFF AREA

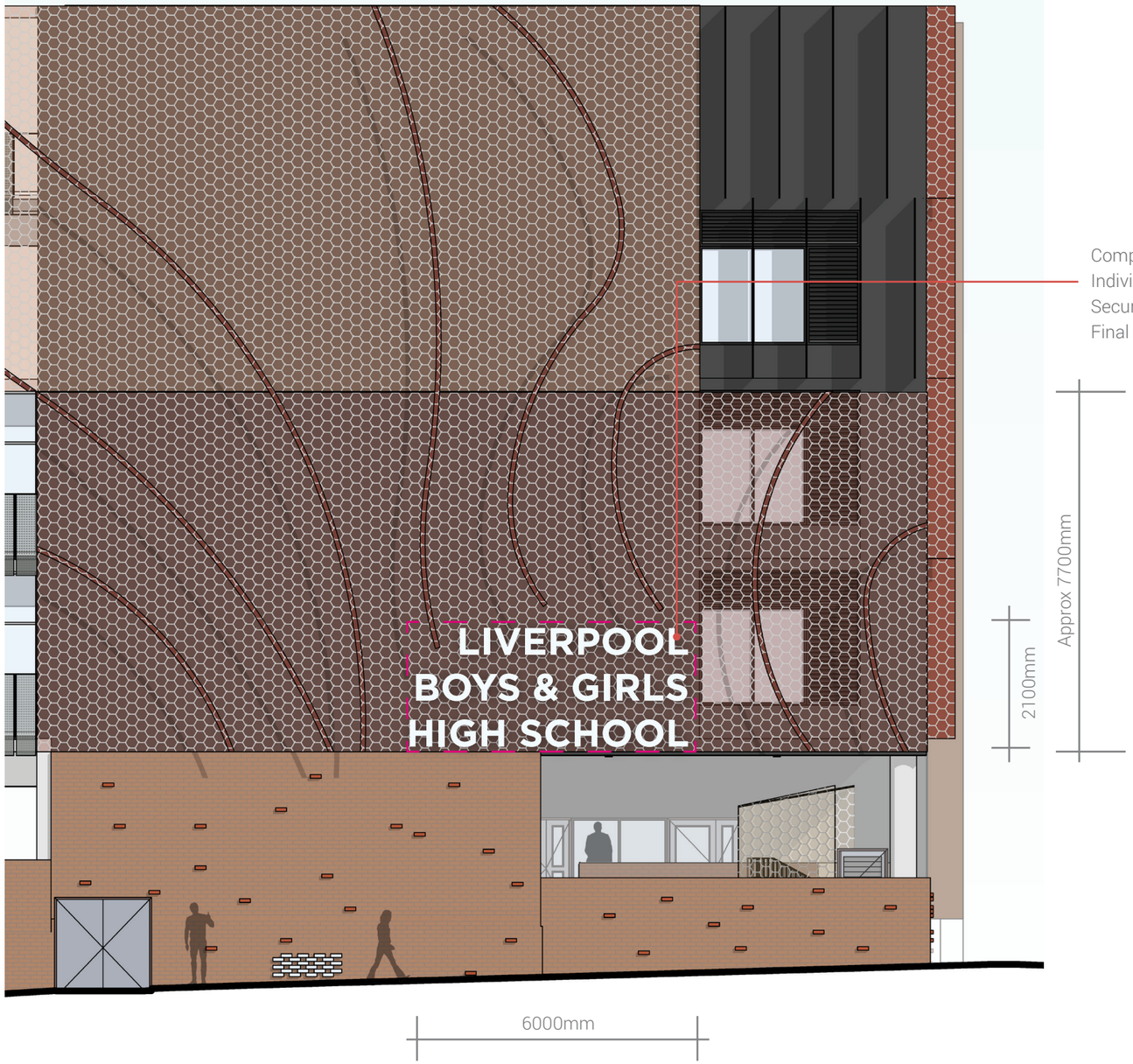
LEGEND

- SGN01 - MAIN ENTRY SIGNAGE (AWNING)
- SGN02 - MAIN ENTRY SIGNAGE (METAL SCREEN)
- SGN03 - ELECTRONIC DISPLAY SIGNAGE
- SGN04 - FREE STANDING WAYFINDING SIGNAGE
- SGN05 - WALL MOUNTED WAYFINDING SIGNAGE
- SGN06A - BUILDING IDENTIFICATION SIGNAGE (STAIRS)
- SGN06B - HUB IDENTIFICATION SIGNAGE (STAIRS)
- SGN07 - METAL ARTWORK CUTOUT (STAIRS)
- SGN08 - SPECIALITY/CORE FACILITY HUB SIGNAGE
- SGN09 - INTERNAL STAIR WAYFINDING SIGNAGE
- SGN10 - GLAZING DECAL SIGNAGE *(REFER TO MM-NBRS-XX-XX-SH-A-0006 FOR QUANTITIES)*
- SGN11 - WELCOME TO COUNTRY SIGNAGE
- SGN12 - PLANT LANDSCAPE SIGNAGE
- SGN14 - REFLECTIVE BLOCK IDENTIFICATION SIGNAGE
- SGN15 - REFLECTIVE CORE FACILITY SIGNAGE
- SGN23 - 1200MM HIGH MASONRY WALL + LETTERBOX

WAYFINDING SIGNAGE - SITE PLAN

LIVERPOOL BOYS & GIRLS HIGH SCHOOL • 24089

Artworks subject to revision • February 2025 V2



SIGN TYPE 01

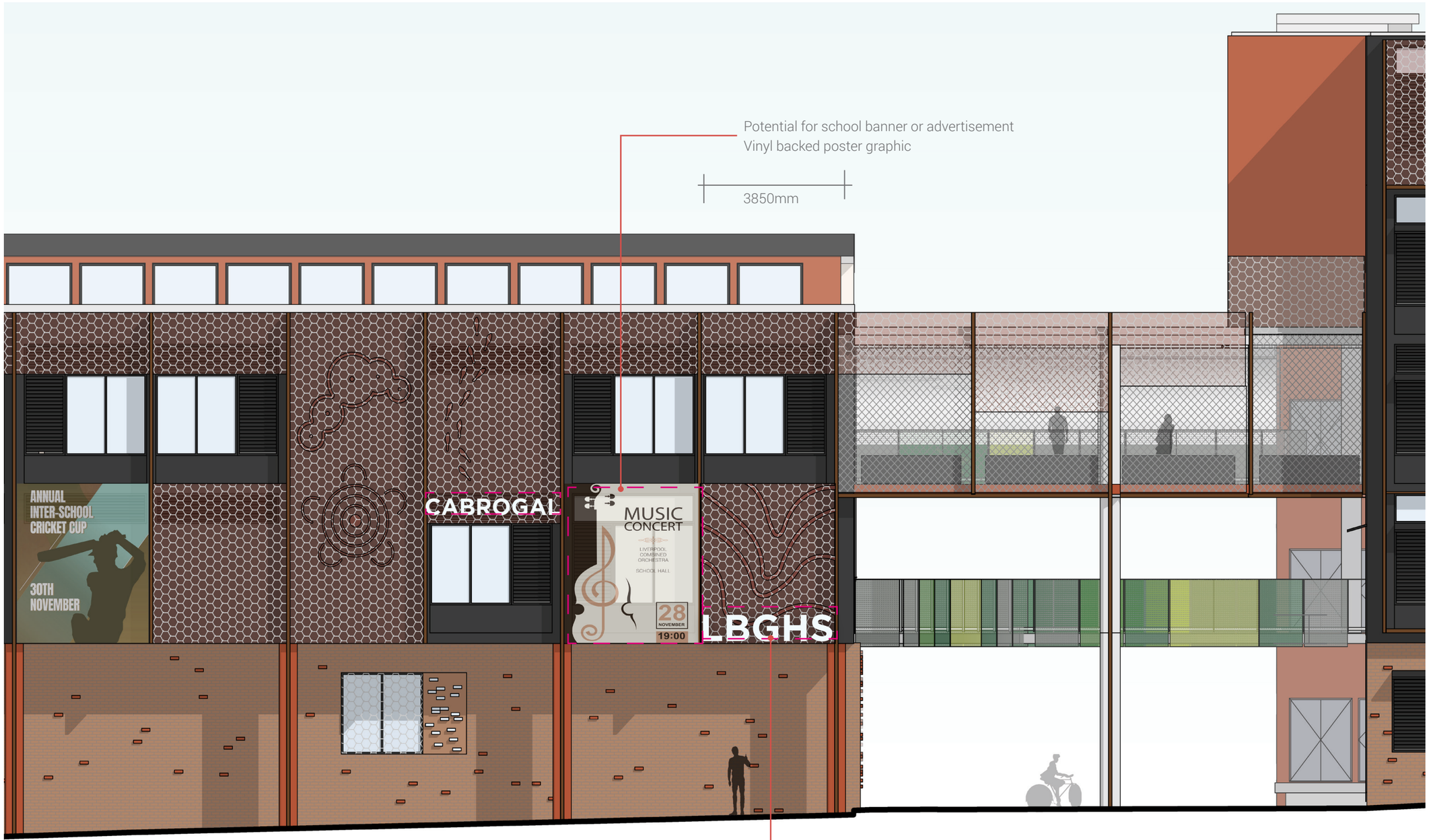
SGN 01.1 - STREET CORNER SIGNAGE (SCREEN)

Composite aluminium
Individual 3D lettering (50mm depth)
Securely fixed to perforated screen
Final school name TBC

600mm

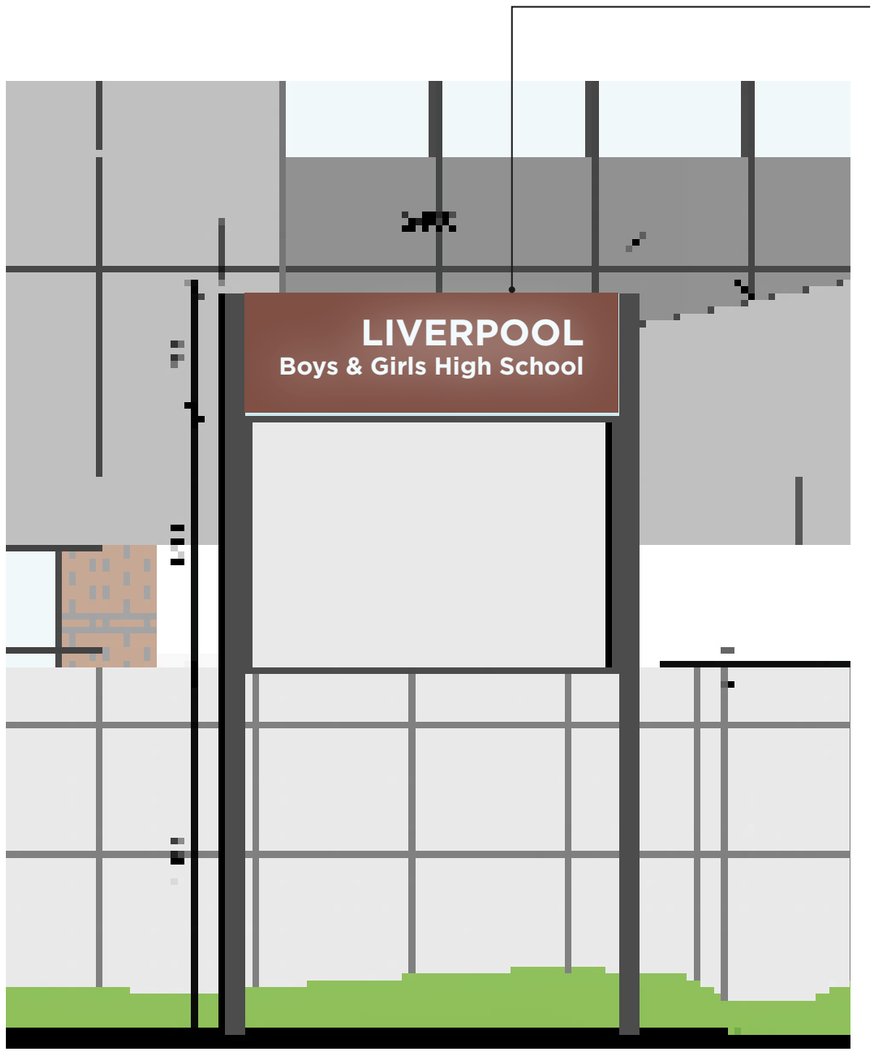
SIGN TYPE 01

SGN 01.2 - MAIN ENTRY SIGNAGE (SCREEN)



SIGN TYPE 01

SGN 01.3 - SECONDARY ENTRY SIGNAGE (SCREEN)

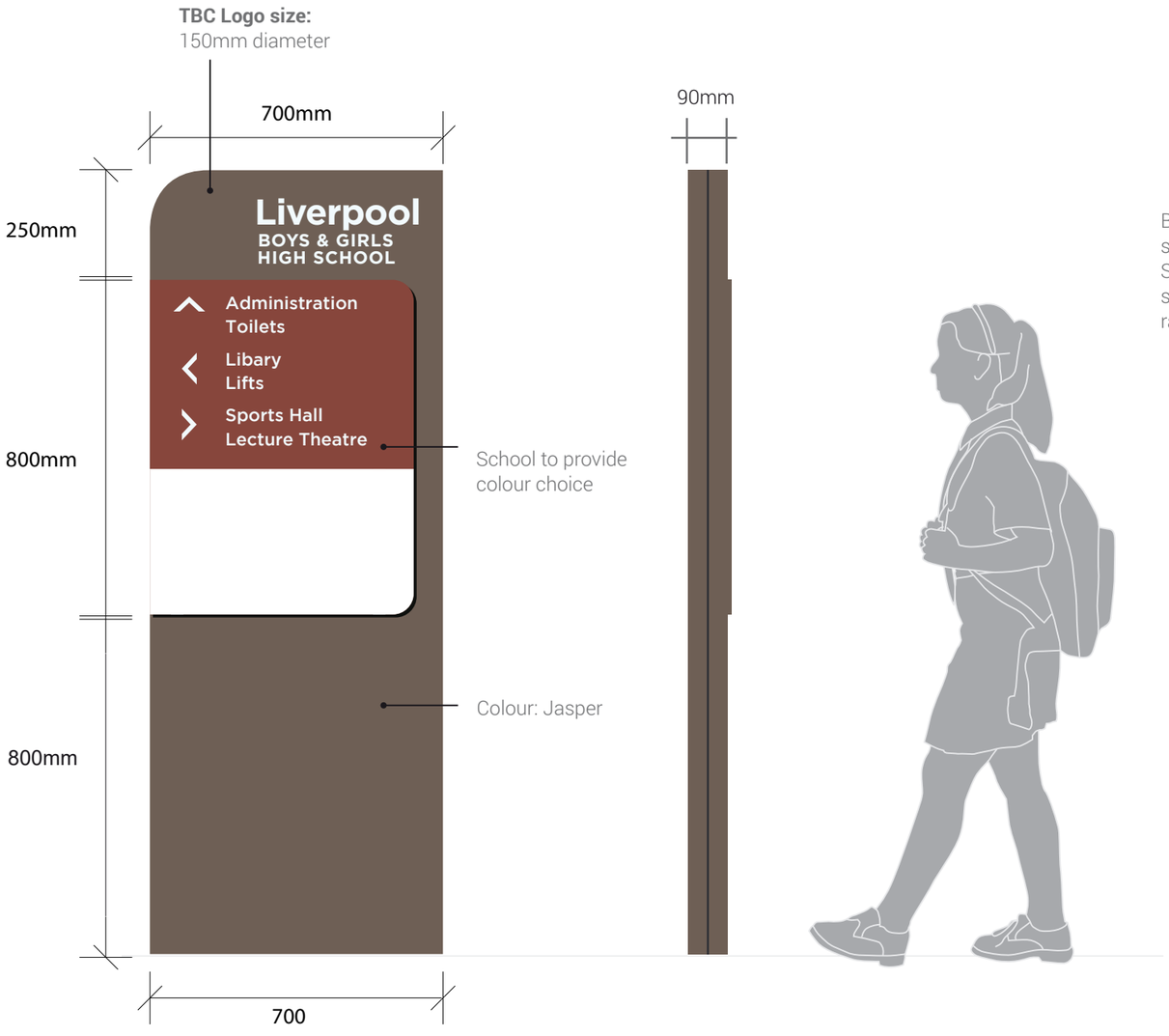


SIGN TYPE 03

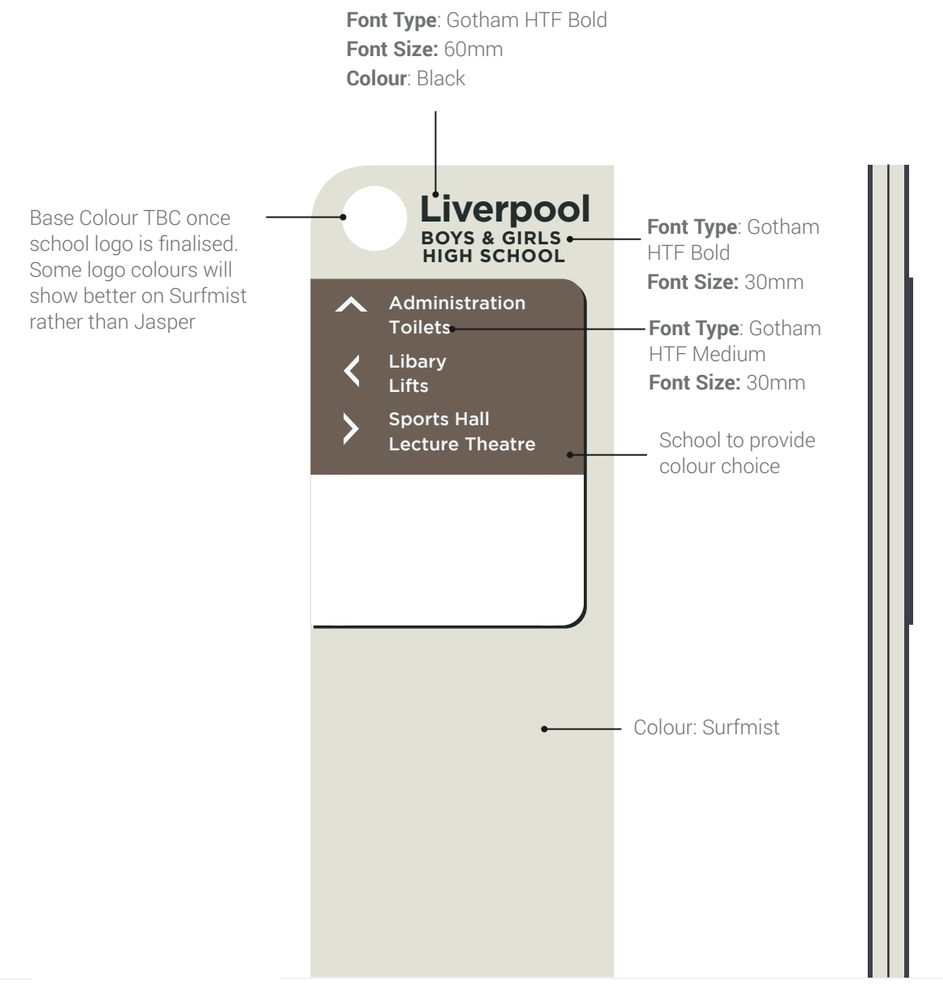
SGN 03 - ELECTRONIC DISPLAY SIGNAGE

MATERIALS
Dimensions: 1850 x 700 x 90mm (H x W x D)
Panel Finish: Painted two pack finish
Text Size: 135pt Gotham HTF u/lc
Graphics: Screen printed

*Artwork to accommodate map under consideration
* Final school name TBC

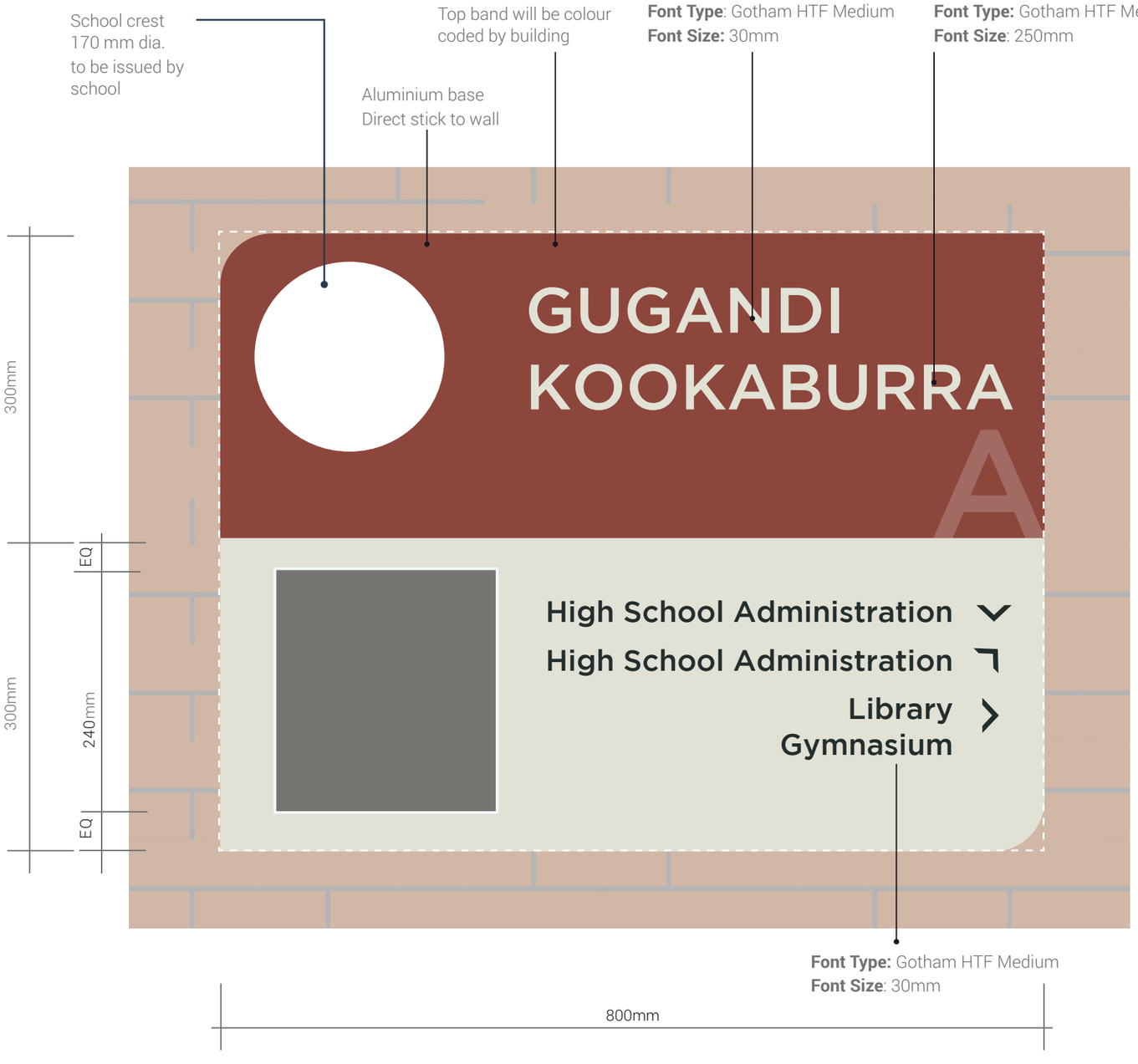


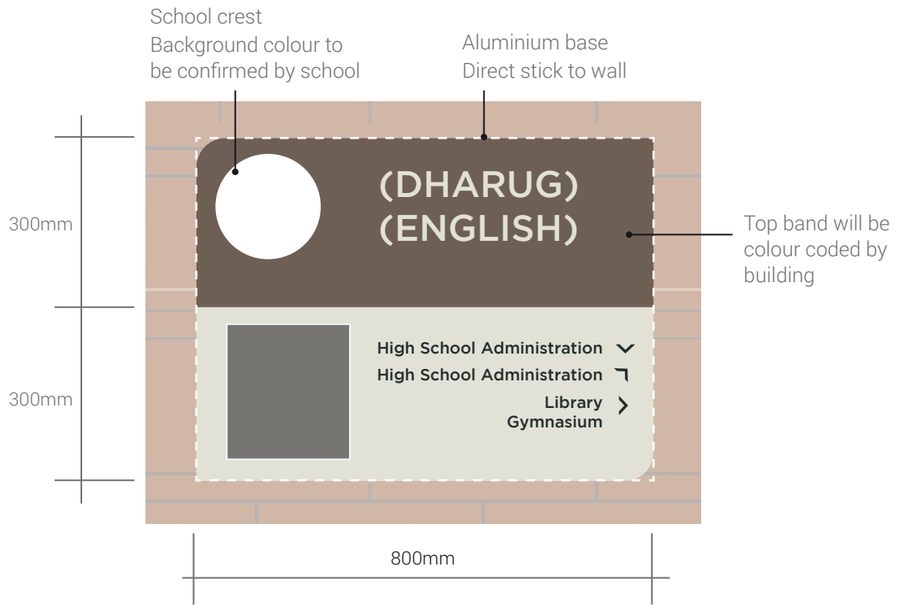
OPTION 1: Jasper as base colour



OPTION 2: Surfmist as base colour

SIGN TYPE 04 - FREESTANDING WAYFINDING OPTIONS



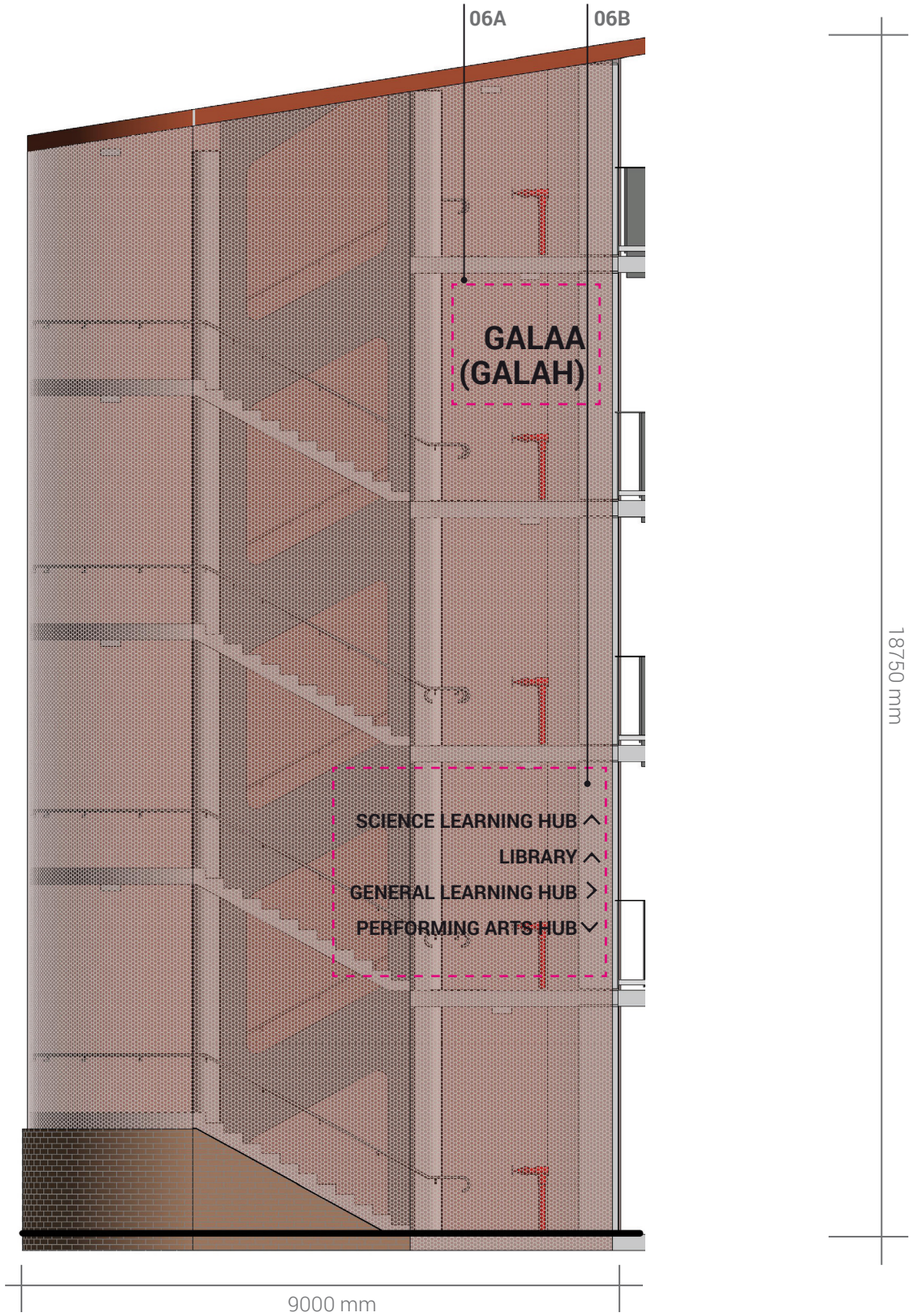


For locations refer to Signage site plan
For quantities refer to Signage Schedule

SIGN TYPE 05 - WALL MOUNTED WAYFINDING

Sign Type 06A & 06B

Building-specific text assignment
Aluminium individual 3D lettering (6mm depth)
Direct stick to wall



Sign Type 07

Building-specific graphic assignment
Lenticular Artwork to perforated aluminium balustrade (6mm depth)
Fixed to Balustrade

NBRS

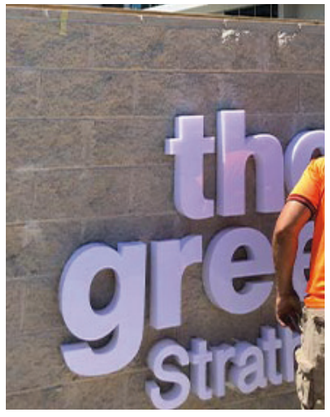
For locations refer to Signage site plans
For quantities refer to Signage Schedule

Sign Type 06A:
Font type: Gotham HTF
Font Height: 400mm - pending word selection confirmation
Sign Type 06B:
Font type: Gotham HTF
Font Height: 200mm
Mounting height: min. 2100mm to bottom edge

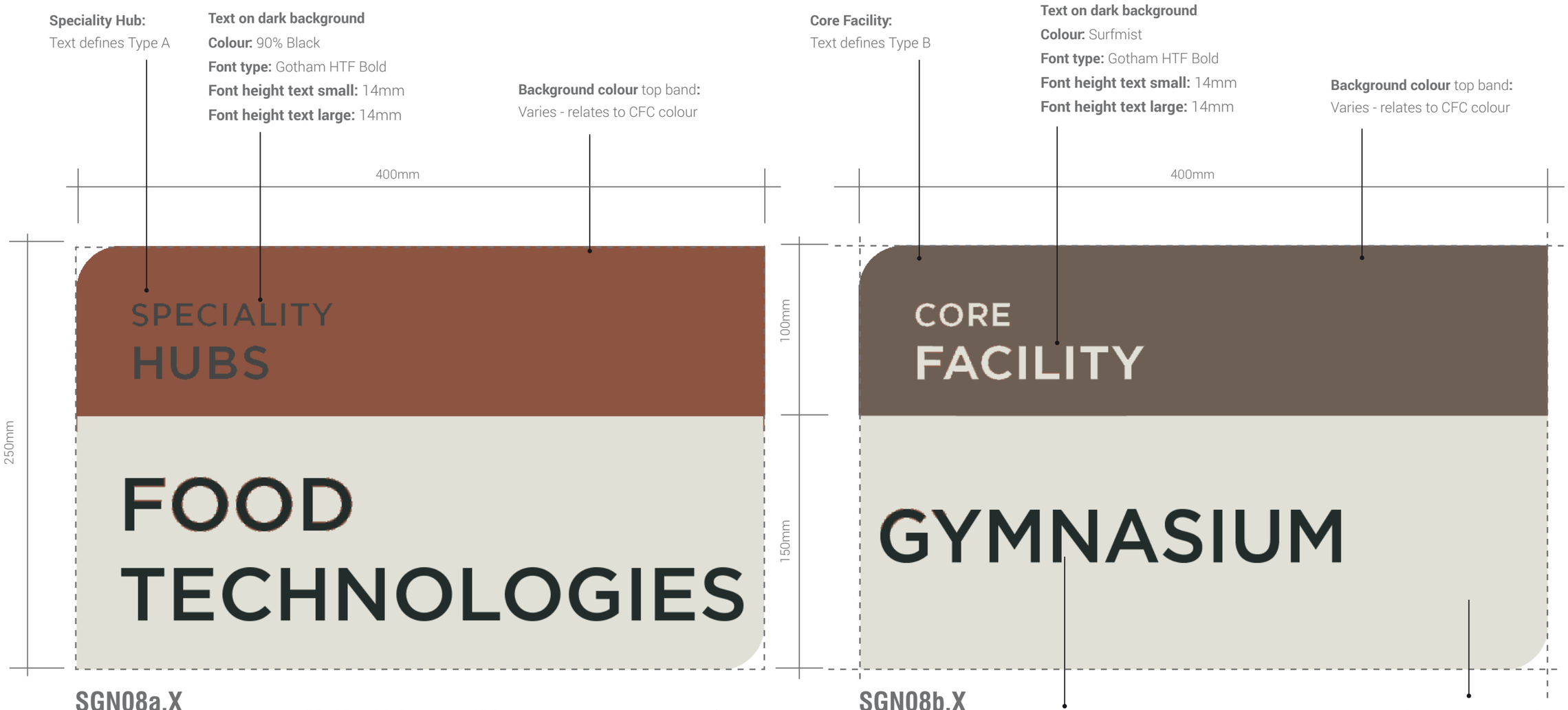
Stair Names (TBC with CWC representatives):
Refer to appendices for each vector graphics file

Aluminium Lenticular Graphic

Aluminium 3D lettering



SIGN TYPE 06 - BUILDING IDENTIFICATION SIGNAGE (STAIRS)
SIGN TYPE 07 - METAL LENTICULAR ARTWORK



SGN08a.X

SGN08**a** = SPECIALITY HUBS (Text on coloured background above)
SGN08**b** = CORE FACILITY (Text on coloured background above)
X = number defines top background colour (relates to CFC colour)
1 = CFC01, 2 = CFC02 , 3 = CFC03, 4 = CFC04, 5 = CFC05, 6 = CFC06, 7=CFC07, 8 = [RGB 38 58 79], 9 = CFC09

Refer to Signage Schedule for individual signage text.

SGN08b.X

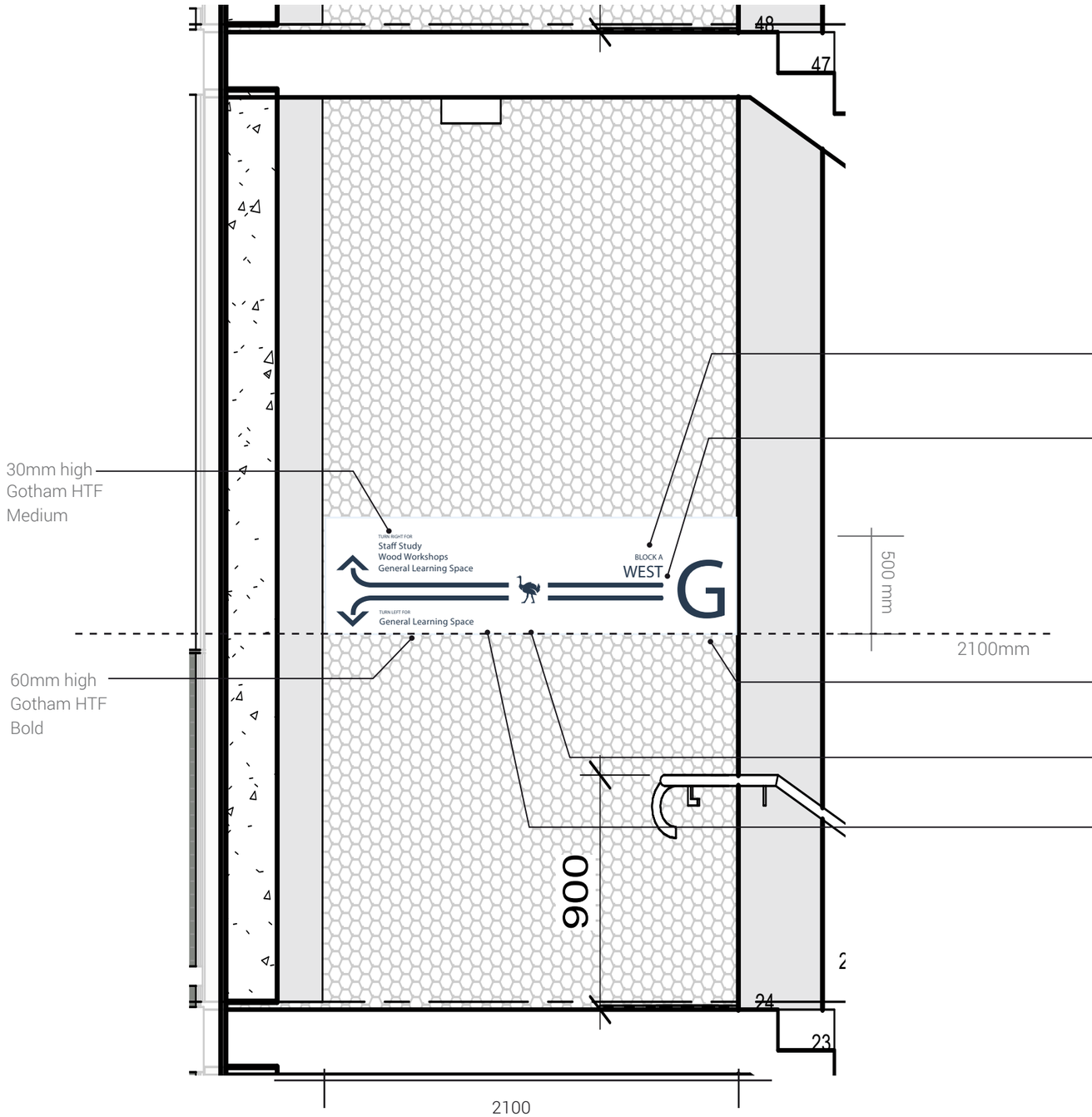
Text on Surfmist background
Font Colour: 90% Black
Font type: Gotham HTF Medium
Font height: 30mm, scaled down if text doesen't fit.
Allow for 25mm margin

Background colour : Surfmist

Materials: Aluminium base with building specific text and graphic assignment
Graphics: Screen printed

Each signage will be colour coded according to the building CFC cladding
For locations refer to Signage site plans
For quantities refer to Signage Schedule

SIGN TYPE 08 A & B - SPECIALTY HUB, CORE FACILITY



50mm high
Gotham HTF
Medium

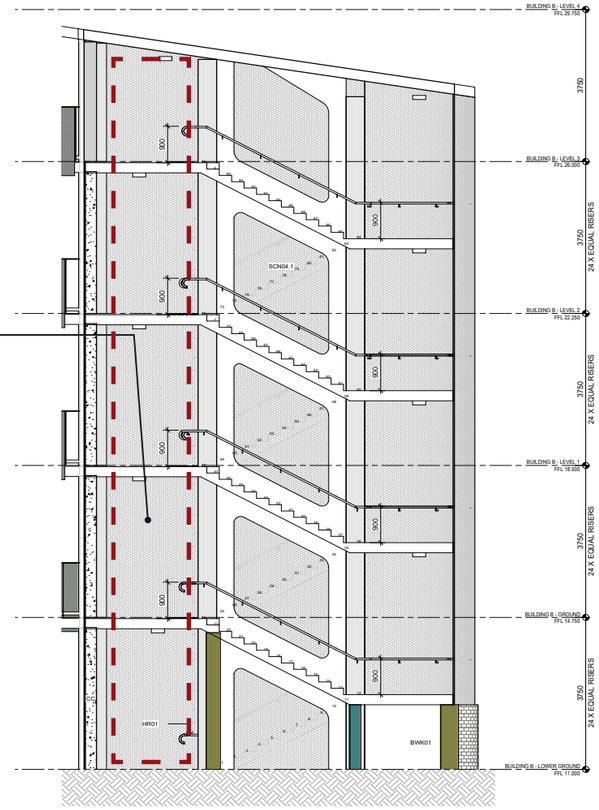
100mm high
Gotham HTF
Bold

500mm high
Gotham HTF
Medium

Symbol same as stairs

Vinyl backed wayfinding graphic applied to 1mm Aluminium panel. Aluminium panel to be powdercoated to match perforated screen colour.

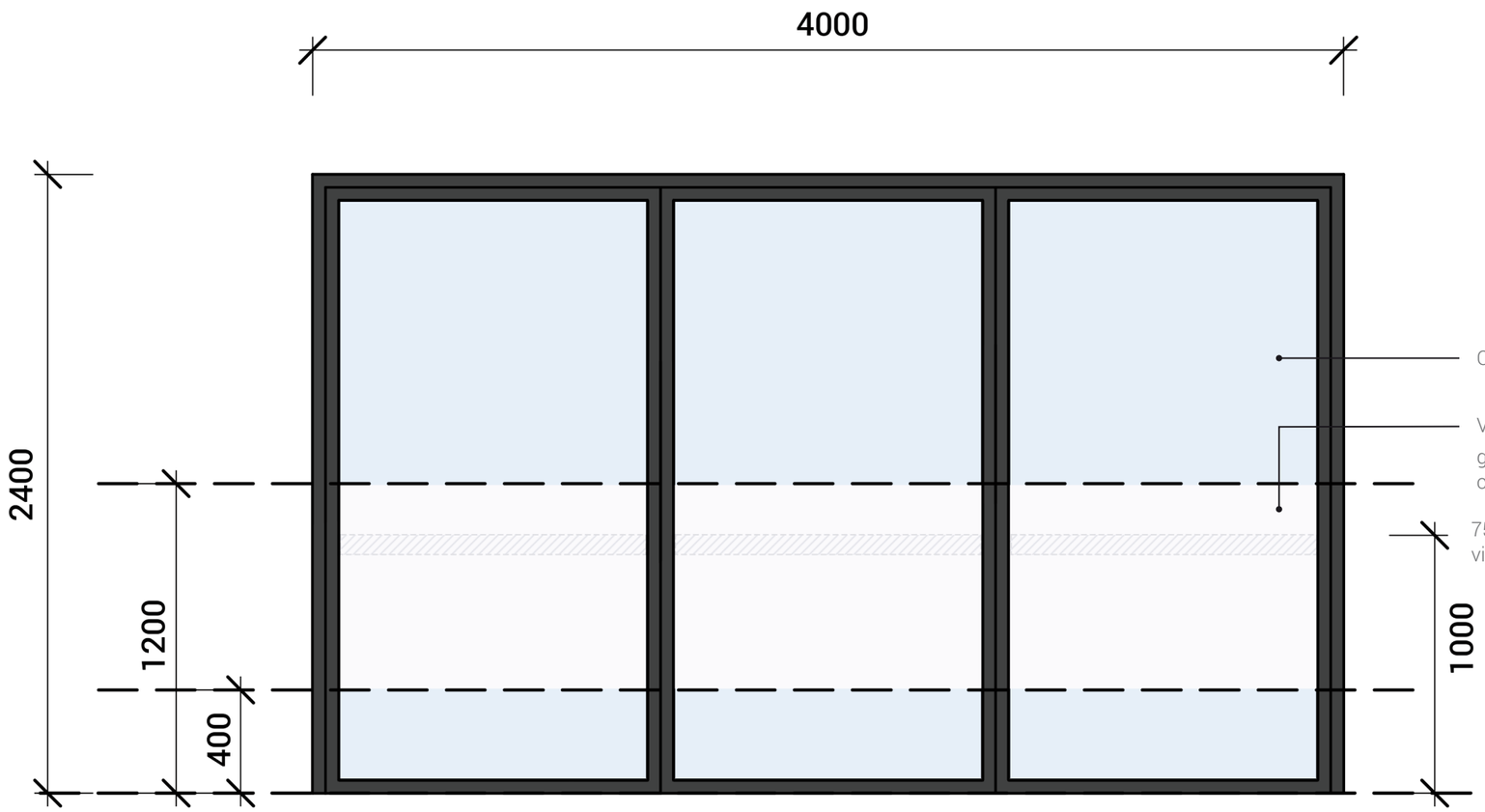
Signage to be fixed to perforated screen



REPEAT THEME AND GRAPHIC STYLE FOR OTHER BLOCKS USING DESIGNATED BUILDING COLOURS

Painted typography

SIGN TYPE 09 - INTERNAL STAIR WAYFINDING SIGNAGE



MATERIALS

Frosted adhesive film on glass (single-sided)
Ensure 30% luminance against floor finishes is provided.
Film to be consistent colour throughout each block.

COLOUR

White at 80% Opacity

For locations refer to Signage site plans
For quantities refer to Signage Schedule

SIGN TYPE 10 - DECAL GRAPHICS ON GLAZED SLIDING DOORS

Materials: Aluminium base with building specific text and graphic assignment

Graphics: Screen printed (preferred) or cut out vinyl

For locations refer to Signage site plans
For quantities refer to Signage Schedule

TO BE FIXED TO STONE BOULDER AT MAIN ENTRIES

SIGN TYPE 11 - ACKNOWLEDGEMENT OF COUNTRY

Materials: Aluminium base with building specific text and graphic assignment

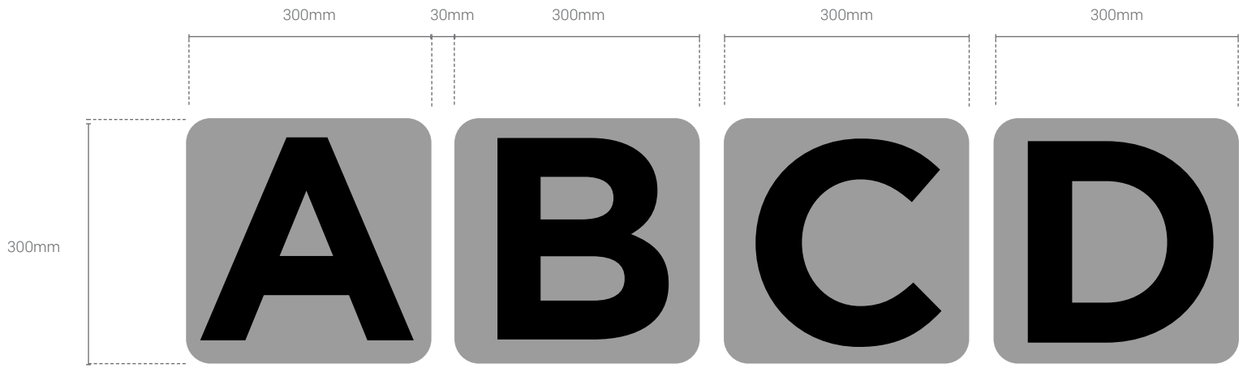
Graphics: Screen printed (preferred) or cut out vinyl

Refer to artist signage design x 20

For locations refer to Signage site plans
For quantities refer to Signage Schedule

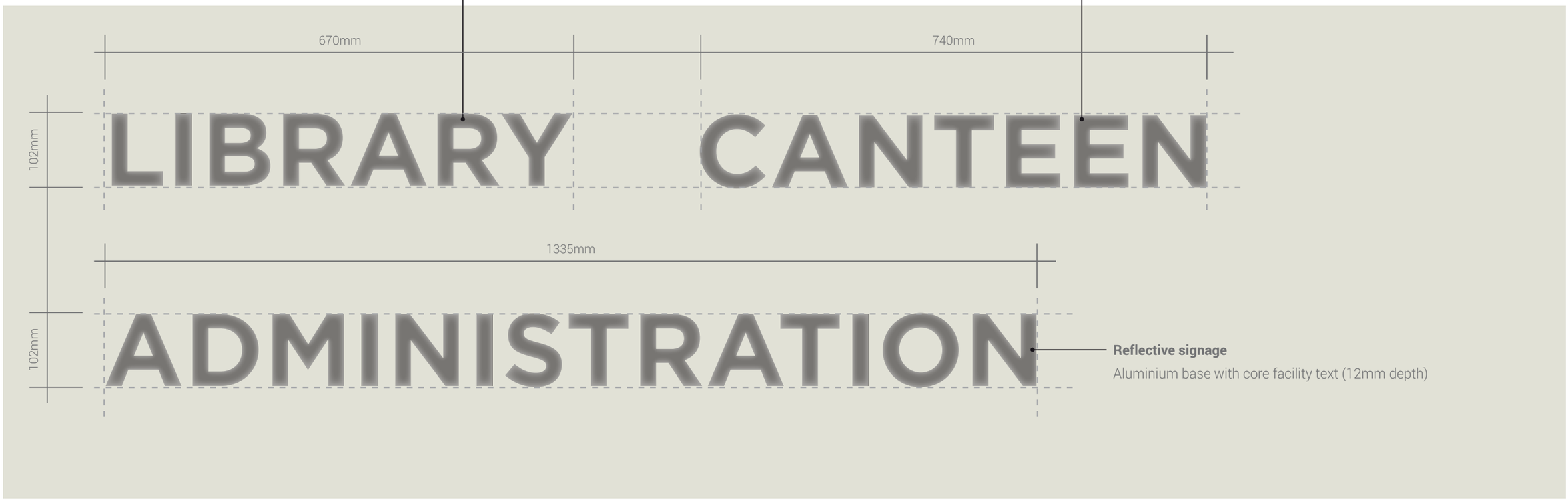
SIGN TYPE 12 - PLANT SIGNAGE

Colour:
Lettering: Colorbond ‘Monument’ (or similar)
Background: Colorbond ‘Shale Grey’ (or similar)

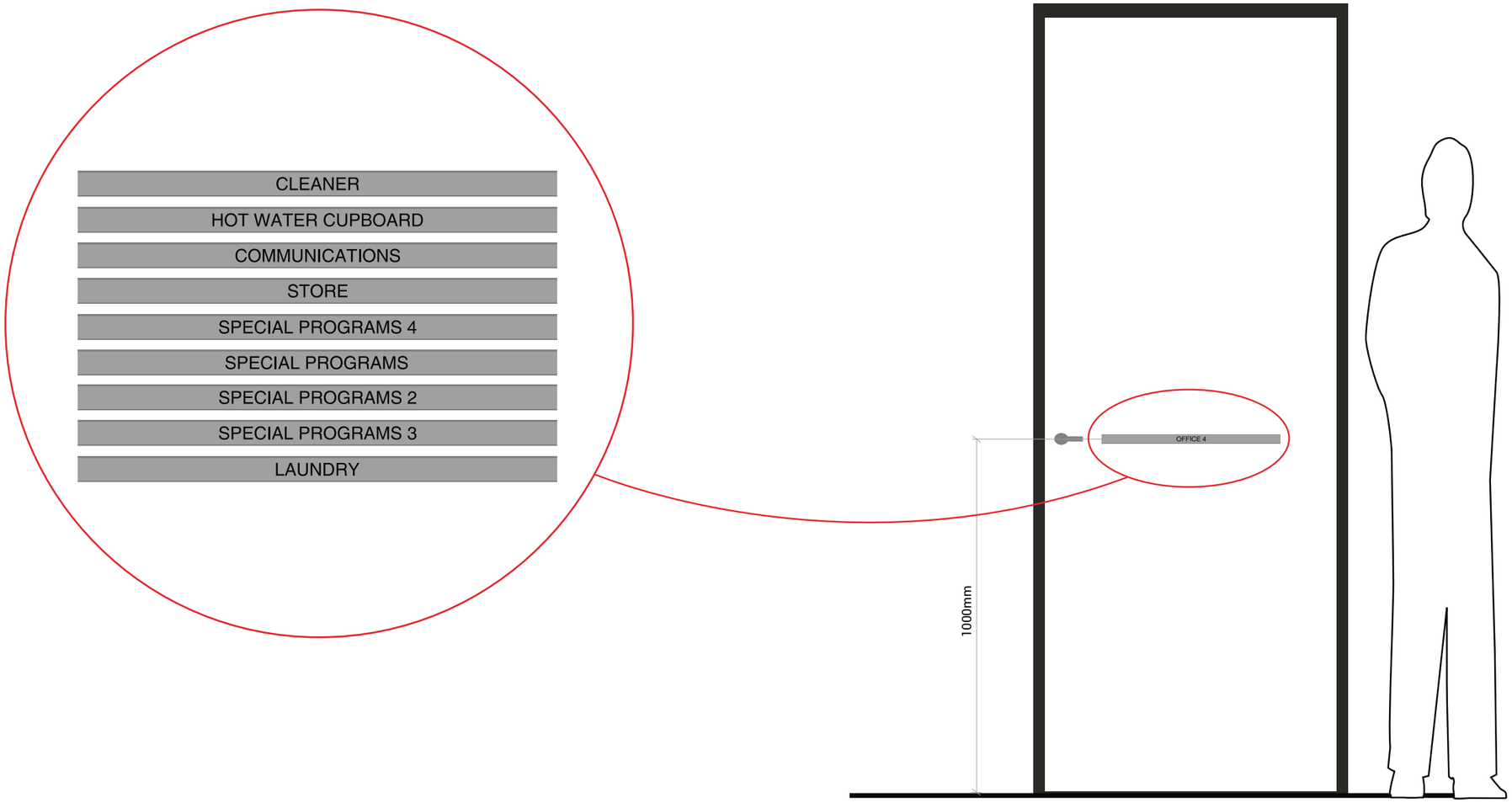


For locations refer to Signage site plans
For quantities refer to Signage Schedule

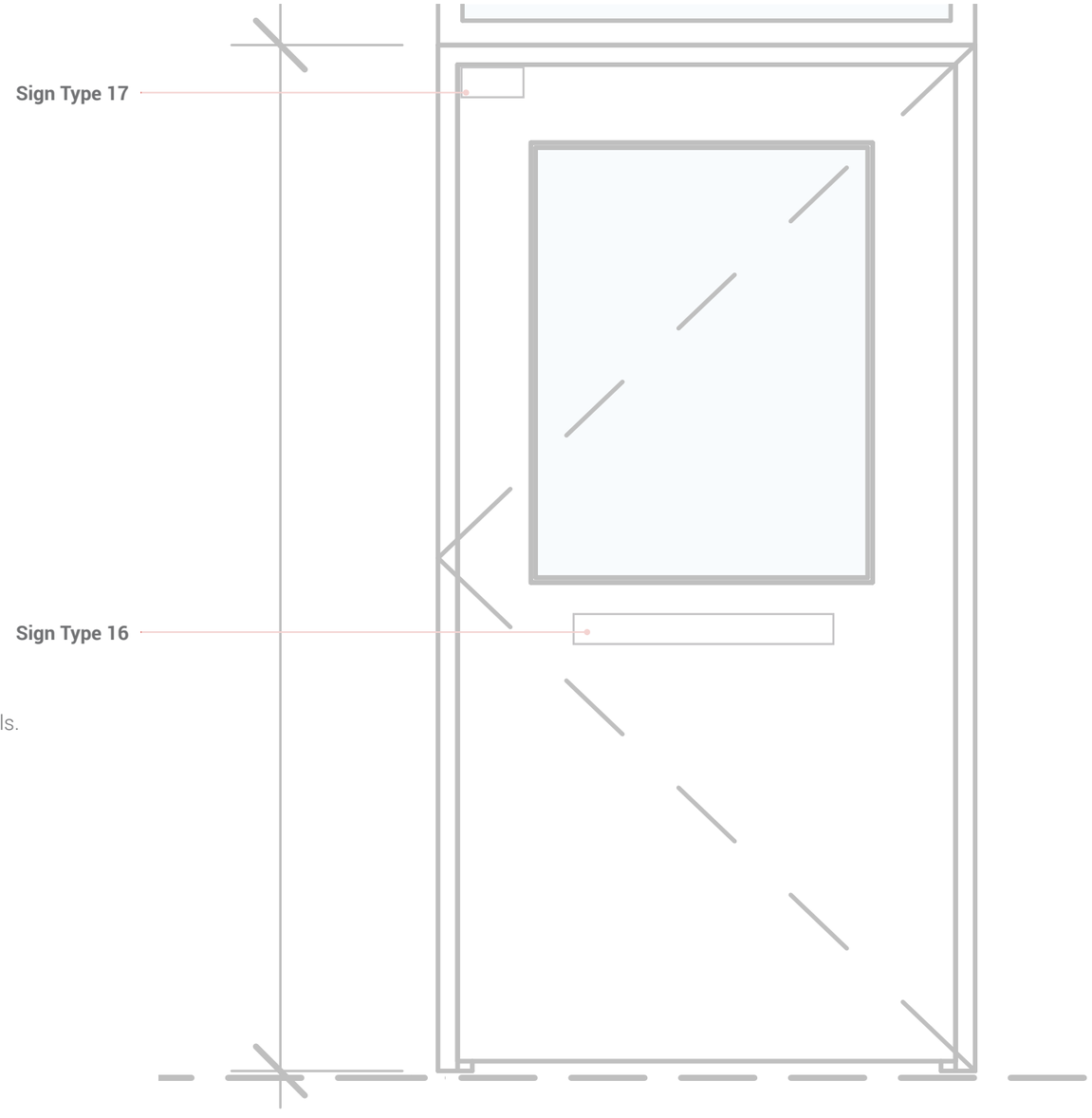
SIGN TYPE 14 - REFLECTIVE BUILDING BLOCK IDENTIFICATION SIGN



SIGN TYPE 15 - REFLECTIVE CORE FACILITIES SIGNAGE

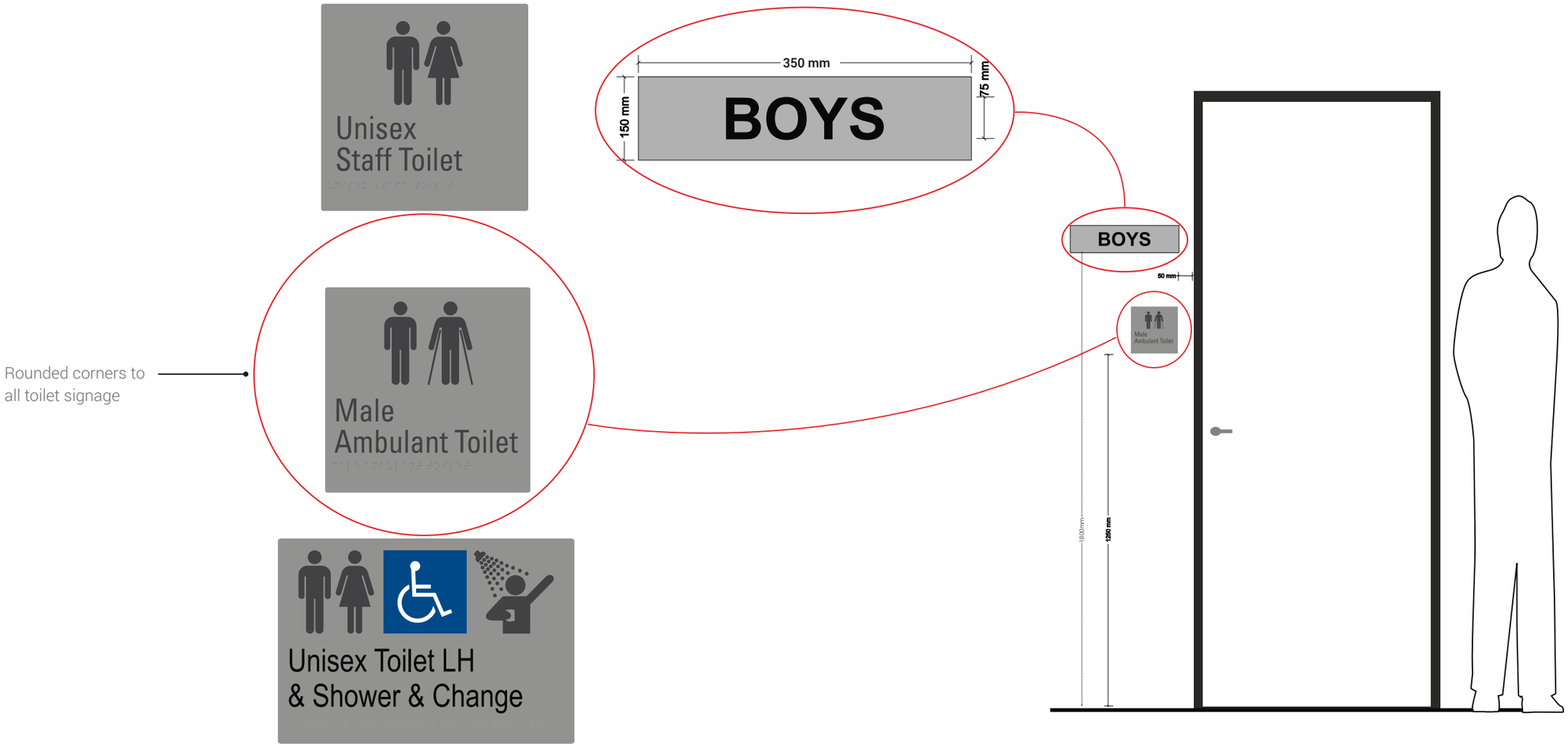


SIGN TYPE 16 - VARIABLE ROOM IDENTIFICATION SYSTEM (SOLID CORE DOORS)

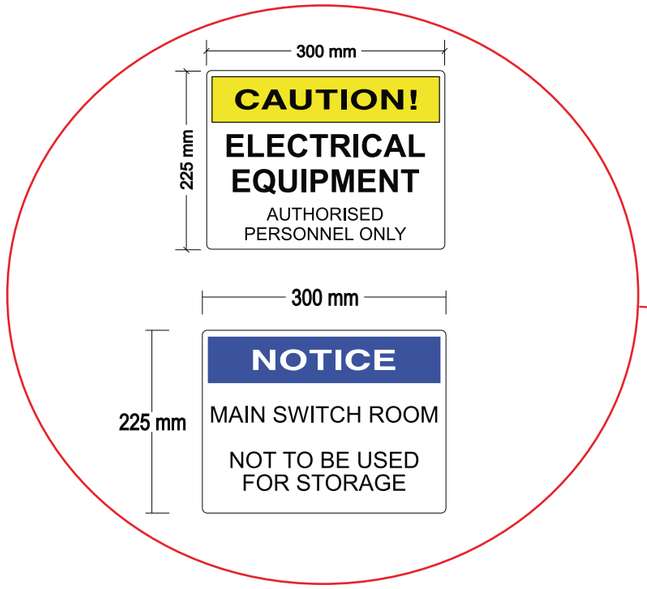


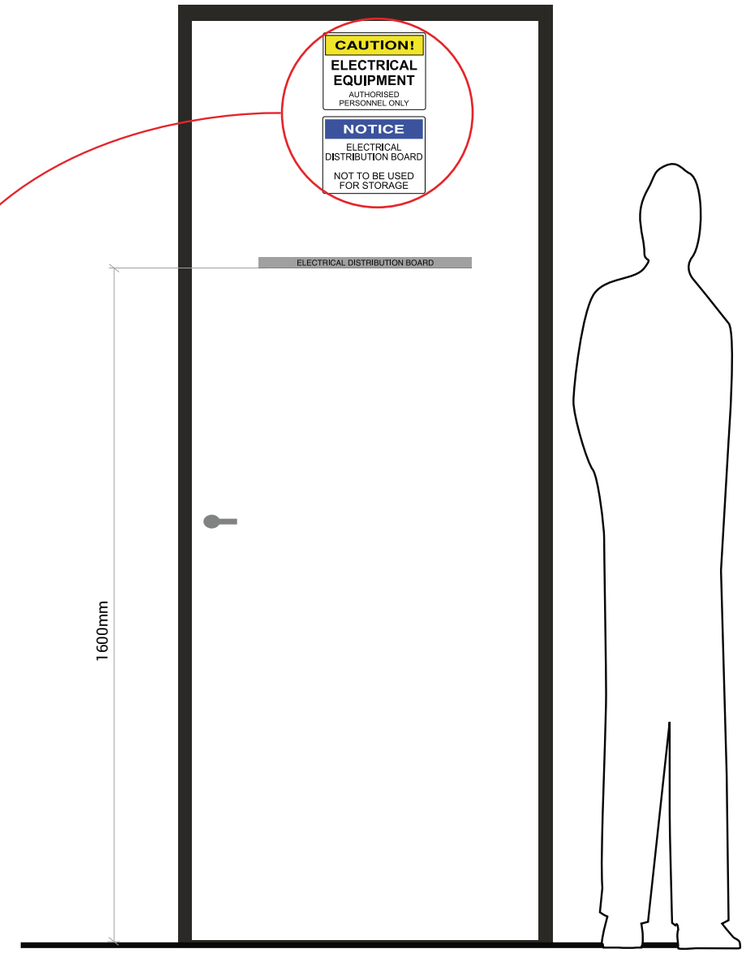
Refer to Signage Schedule for quantities and details.
Refer to Door Schedules for locations.

SIGN TYPE 16 - VARIABLE ROOM IDENTIFICATION SYSTEM
SIGN TYPE 17 - FIXED ROOM IDENTIFICATION SYSTEM (AMU)

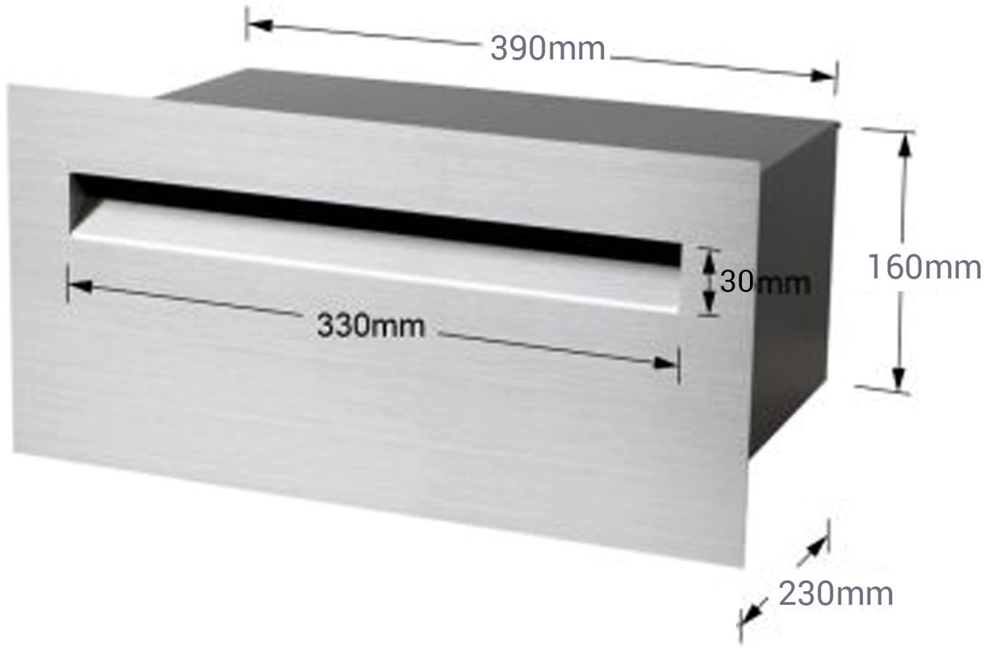


SIGN TYPE 19A & 19B - TOILET (TYPICAL DOOR SIGNAGE)





SIGN TYPE 20 - SAFETY SIGNAGE (TYPICAL DOOR SIGNAGE)



LETTERBOX TO BE BUILT INTO 1200MM HIGH MASONRY WALL WHERE INDICATED ON SIGNAGE LOCATION PLAN

TYPE

- Proprietary metal letter box with corrosion resistant, weatherproof body, weather protected letter slot, lockable-hinged door, school street number or identification, and accessories necessary for correct installation.

STANDARD

- To Australian and New Zealand Standards (AS /NZS) 4253.

APERTURE (MINIMUM)

- The minimum size of the aperture for receiving mail to be 330 x 30mm (AS/NZS 4253).

OPENING

- Rear opening with built in key locking system.

DIMENSIONS (MINIMUM)

- Internal space: 390 x 230 deep x 160mm high.

FIXING HEIGHT

- Positioned so that the aperture is between 900mm and 1200mm above finished ground/ pavement level (AS/NZS 4253).
- Confirm exact height with Principal's authorised person.

KEYS

- Provide a minimum of 2 keys.
- Hand keys to the Principal's Authorised Person / Principal's Representative prior to completion.
-

TEXT

- Principal to confirm text. Zone for wording to match letterbox slot area.

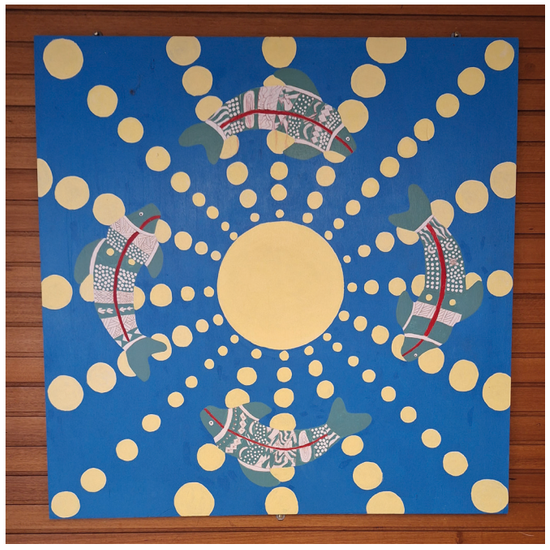
SIGN TYPE 23 - LETTERBOX SIGNAGE

EXISTING ARTWORK NOTES:

- All existing artworks from LBHS are to be handled with care & stored by the contractor.
- All existing artworks from both LBHS & LGHS are to be relocated to the new build. Final locations TBC.

LBHS Existing artwork

#	Artwork Title / Description	Artist (if known)	Size	Medium	Location	
1	Respect theme (Green)	Student Artwork - 2012	1200w x 1200h	Acrylic Paint on Canvas	Building I/ Library Foyer	
2	Serpent (indigenous)	Student Artwork	1200w x 1200h	Acrylic Paint on Canvas	Building I/ Library Foyer	
3	Respect theme (Blue)	Student Artwork - 2012	1200w x 1200h	Acrylic Paint on Canvas	Building I/ Library Foyer	
4	Respect theme (Orange)	Student Artwork - 2012	1200w x 1200h	Acrylic Paint on Canvas	Building I/ Library Foyer	
5	Respect theme (Purple)	Student Artwork - 2012	1200w x 1200h	Acrylic Paint on Canvas	Building I/ Library Foyer	
6	Fish (indigenous)	Student Artwork	1200w x 1200h	Acrylic Paint on Canvas	Building I/ Library Foyer	
7	Framed Artwork (indigenous)	Unknown Artist	1070w x 770h	Paint on Canvas	Building A/Principal Foyer	
8	Framed Artwork (indigenous)	Unknown Artist	1300w x 1100h	Paint on Canvas	Building A/Principal Foyer	
9	Big Picture mosaic	Student Artwork	1000w x 660h	Tile & glass mosaic	Building A/Principal Foyer	
10	ANZAC DAY memorial print		900w x 1360h	Framed Print	Building A/Principal Foyer	Gift from Year 12 2022
11	Framed Artwork (indigenous)	Unknown Artist	1070w x 770h	Paint on Canvas	Building A/Principal Foyer	
12	Official Building plaque - LBHS		700w x 370h	Timber plaque	Building A/Reception Foyer	
13	Framed Artwork (indigenous)	Unknown Artist	1070w x 770h	Paint on Canvas	Building A/Principal Foyer	
14	Stolen Generation Apology		640w x 640h	Framed Print	Building A/Reception Foyer	
15	Indigenous Hands	Student Artwork	600w x 1100h (2)	Painted board	Building A/Reception Foyer	
16	Framed Artwork (indigenous)	Unknown Artist	1070w x 770h	Paint on Canvas	Building A/DP Foyer	
17	Blue Mountains View	Gary Grant (previous staff member)	780w x 590h	Paint on Canvas	Building A/DP Foyer	
18	Aboriginal Australia		1270w x 930h	Framed Print	Building A/DP Foyer	



SIGN TYPE 24 - RELOCATED SCHOOL ARTWORK

EXISTING ARTWORK NOTES:

- All existing artworks from LBHS are to be handled with care & stored by the contractor.
- All existing artworks from both LBHS & LGHS are to be relocated to the new build. Final locations TBC.

NBRS

LGHS Existing Artwork

#	Artwork Title / Description	Artist (if known)	Size	Medium	Location	
1	Amazing Disgrace (2008)	Adam Hill - Artist in Residence - now know as Blak Douglas who won the Archibald Prize in 2002	1550 x 1600	Acrylic Paint on Canvas	J Block - Level 2	It refers to the bagpipe player in the painting playing Amazing Grace as the nuclear testing occurred on the Maralinga land.
2	Aunty Mae Robinson (2014)	Katy Lumkin (ex Teacher) and Year 8 Visual Arts Students	770 x 1230	Acrylic Paint on Canvas	K Block - Level 1	Aunty Mae Robinson was an Aboriginal Elder of these lands and our School Hall is named after her
3	The Land Down Under (2010)	Adam Hill - Artist in Residence - now know as Blak Douglas who won the Archibald Prize in 2002 - Collaborate Student Work Years 7, 9, 10 and 11 with Blak Douglas	4800 x 1600	Acrylic Paint on Canvas	K Blkock - Level 1	This won 1st prize in the MIL-PRA Awards in 2010 - The colours are inspired from the land and depict Aboriginal Culture through the images created.
4		Our Land Story - Whole School and Wandana Aboriginal Group	2100 x 1300	Acrylic Paint on Canvas	J Block - Level 0	Jen Henriques current teacher worked with Wandana and this painting was produced
5		The Story of The Georges River - Artist Rebecca Bradey	800 x 400 (3 picture)	Acrylic on Metl	Canteen Area	
		The Story of The Georges River - Artist Rebecca Bradey	1200 x 800	Acrylic on Metl	Canteen Area	
		The Story of The Georges River - Artist Rebecca Bradey	1200 x 800	Acrylic on Metl	Canteen Area	
		The Story of The Georges River - Artist Rebecca Bradey	1200 x 800	Acrylic on Metl	Canteen Area	
		The Story of The Georges River - Artist Rebecca Bradey	1200 x 1200	Acrylic on Metl	Canteen Area	
		The Story of The Georges River - Artist Rebecca Bradey	1200 x 1200	Acrylic on Metl	Canteen Area	
		The Story of The Georges River - Artist Rebecca Bradey	2400 x 800	Acrylic on Metl	Canteen Area	
		The Story of The Georges River - Artist Rebecca Bradey	2400 x 1200	Acrylic on Metl	Canteen Area	
6		Artist Claire Foxton	1220 x 2440	Acrylic Paint on Canvas	L Block - Level 1	
		Artist Claire Foxton	2440 x 2440	Acrylic Paint on Canvas	L Block - Level 1	
		Artist Claire Foxton	2440 x 2440	Acrylic Paint on Canvas	L Block - Level 1	
		Artist Claire Foxton	2440 x 2440	Acrylic Paint on Canvas	L Block - Level 1	
		Artist Claire Foxton	1220 x 2440	Acrylic Paint on Canvas	L Block - Level 1	
		Artist Claire Foxton	3075 x 2060	Acrylic Paint on Canvas	L Block - Level 1	
		The Story of Hands - Aboriginal Art	3075 x 2060	Acrylic Paint on Canvas	L Block - Stairwell going Up	
7		Scupture - Artist Marea Gazzard (1986)	600 x 600 x 300	Ceramic	J Block - Level 2	

SIGN TYPE 24 - RELOCATED SCHOOL ARTWORK


LIVERPOOL
BOYS & GIRLS
HIGH SCHOOL
LBGHS


L B G H S


CABROGAL
LBGHS