

# ARCHITECTURAL DESIGN REPORT



Pacific Brook Christian School  
72-74 Maitland Street, Muswellbrook NSW  
Application No. SSD-16858710

**PACIFIC BROOK CHRISTIAN SCHOOL LTD**

OCTOBER 2021

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## **1.0 INTRODUCTION**

### **1.1 PROJECT OVERVIEW**

This Design Analysis Report has been prepared by NBR Architecture for Pacific Brook Christian School Ltd (the Client). It accompanies an Environmental Impact Statement (EIS) in support of the State Significant Development Application for a new school at 72-74 Maitland Street, Muswellbrook in the Muswellbrook Shire local government area.

The purpose of the Design Analysis report is to identify and demonstrate the design process, consultation and development of the design principles considered to satisfy the brief and the Secretary's Environmental Assessment Requirements (SEARs).

### **1.2 SECRETARY'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS**

On the 26<sup>th</sup> April 2021, the Department of Planning, Industry and Environment (DPIE) issued Secretary's Environmental Assessment Requirements (SEARs) to the applicant for the preparation of an Environmental Impact Statement for the proposed development. This report has been prepared having regard to the relevant SEARs as shown below:

Built Form and Urban Design

- Address:
  - The height, density, bulk and scale, setbacks, and interface of the proposed building envelopes in relation to the surrounding development, topography, streetscape, and any public open spaces.
  - Design quality and built form, with specific consideration of the overall site layout, streetscape, open spaces, façade, rooftop, massing, setbacks, building envelope articulation (where proposed), overall scope of materials and colours.
  - How Crime Prevention through Environmental Design (CPTED) principles are to be integrated into development.
  - How good environmental amenity would be provided, including access to natural daylight and ventilation, acoustic separation, access to landscape and outdoor spaces and future flexibility.
  - How design quality will be achieved in accordance with Schedule 4 Schools - design quality principles of State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017 and the GANSW Design Guide for Schools (GANSW, 2018).
  - How services, including but not limited to waste management, loading zones, and mechanical plant are integrated into the design of the building envelopes and site layout.
- Provide:
  - A detailed site and context analysis to justify the proposed site planning and design approach including massing options and preferred strategy for future development.
  - Design quality guidelines for the future built form and integration of landscape design.
  - A visual impact assessment that identifies any potential impacts on the surrounding built environment and landscape including views to and from the site and any adjoining heritage items.

### **1.3 PROJECT DESCRIPTION**

The intended purpose of the proposed amendments to Muswellbrook LEP 2009, is to relocate the existing Pacific Brook Christian School from 96-104 Hill Street, Muswellbrook to the subject site.

Relocation of the school provides greater area for growth and offers further opportunities to students and teaching staff. The school is proposed to be constructed in stages, with Stage 1, being temporary demountable to relocate the existing demountable at 96-104 Hill Street. Further stages will consist of

permanent buildings and will be constructed on an as needs basis, primarily driven by enrolment numbers.

Pacific Brook Christian School proposes the staged construction of a new school at 72-74 Maitland Street, Muswellbrook. This will involve site preparation work (including remediation), the removal of 96 trees (7 within Stage 1), civil works, infrastructure works, landscaping, signage and construction works in stages over the next 10 years.

The masterplan will support high-quality educational outcomes to meet the needs of students within the local community as follows:

- Administration building and Library;
  - One (1) staff and student amenities block;
- Junior School facilities;
  - Ten (10) General Learning Areas (GLAs);
  - Two (2) Specialist classroom;
  - One (1) Store; and
  - Covered Outdoor Learning Area (COLA)
- Middle School facilities;
  - Seven (7) General Learning Areas (GLAs);
  - One (1) Science classroom; and
  - Covered Outdoor Learning Area (COLA)
- Senior School facilities;
  - Eight (8) General Learning Areas (GLAs);
  - One (1) Specialist classroom;
  - Three (3) TAS classrooms;
  - Two (2) Food Tech classrooms;
  - One (1) Art classroom;
  - One (1) Drama classroom;
  - Four (4) amenities block;
  - Three (3) Store; and
  - Covered Outdoor Learning Area (COLA)
- Hope School (special needs) facilities;
  - Four (4) General Learning Areas (GLAs);
  - One (1) Specialist classroom;
  - Four (4) Shared Withdrawal rooms;
  - One (1) Office;
  - One (1) Staff room;
  - One (1) Interview + Therapy room;
  - Three (4) amenities block;
  - Three (3) Store; and
  - Covered Outdoor Learning Area (COLA)
- Multi-Purpose Hall;
- Maximum student capacity of 656;
- Maximum 65 staff;
- Agricultural teaching facility;
- Maintenance and bus area;
- On-site Parking (67 spaces, inclusive of 1 accessible);
- Bike parking x 36 racks for 72 bicycles;
- Internal pathways;

- Kiss and drop off areas;
- Bus stop;
- Waste Storage and collection area;
- Signage;
- Bush Chapel
- Removal of 96 trees (total);
- Landscaping (including Bush Chapel);
- Infrastructure works;
- Earthworks;
- Secondary emergency vehicle/ large vehicle access;
- Acoustic and safety fence; and
- Widening of existing vehicular access from Maitland Street

Stage 1 of the masterplan consists of:

- Site remediation;
- Removal of 7 trees;
- Facilities for a maximum of 140 students and 16 staff, including:
  - One (1) administration and staff area;
  - One (1) staff and student amenities block (including one (1) end of trip facility);
  - Five (5) General Learning Areas (GLAs);
  - One (1) Science classroom; and
  - Covered Outdoor Learning Area (COLA)
- Internal pathways;
- On-site Parking (15 spaces, inclusive of 1 accessible);
- Bike parking x 6 racks for 12 bicycles;
- Kiss and drop off areas;
- Bus stop;
- Bin storage and collection area;
- Signage;
- Infrastructure works; and
- Widening of existing vehicular access from Maitland Street.

#### **1.4 ARCHITECTURAL DESIGN STATEMENT**

The vision of Pacific Brook Christian School (PBCS) is to “provide a Christian educational community as a centre of teaching, learning and serving excellence founded on biblically based beliefs, values and behaviour.” (From the Principal 2021, Pacific Brook Christian School, accessed 10<sup>th</sup> August 2021, <<https://www.pacificbrook.nsw.edu.au/pbcs/index.php/about/about/principal>>)

They desire that students will achieve their own potential, including for those with special needs, gifted and those from an indigenous, or overseas background. PBCS is from 2020 a Kindy to Year 12 school, but continues to grow, and their plans are to extend to Year 12. The maximum enrolment for this school is envisaged to be double stream to K-12 students.

In the future, and in keeping with all the other Pacific Group schools a ‘Hope’ school onsite is planned for special needs students. They will be included up to 20% of their time back into mainstream PBCS activities. As such the pedestrian pathways, visual and other connections between schools are of great importance.

The modular approach is highly favoured for this school as they require speed of building. Overall, PBCS expect the masterplan to show an attractiveness with landscaping being a high priority. The masterplan will offer hospitality and welcome, with a sense of belonging for students and the community. There

are connections between the different parts of the school, Junior, Middle, Senior, Hope, Administration and Library.

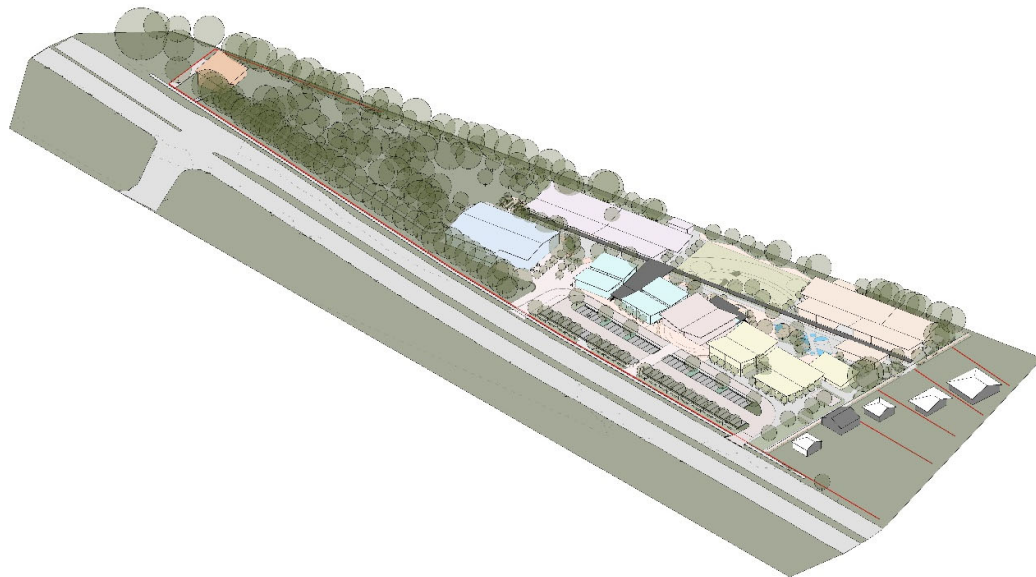
The Masterplan of the school is centred around community, culture, and place. A place where students can gather and interact with the environment. The orientation of buildings and interaction with the landscape encourages spontaneous, voluntary, and joyful learning opportunities for students to explore and interact within a safe indoor and outdoor learning areas.

The relationships between the buildings, outdoor learning areas, and pedestrian pathways are significant parts of the design as it is crucial to have good connections between schools and enhance its green vistas surrounds facing the Golf Course on the North East.

The scale of the buildings has been developed as single and double storey modular buildings linked within a gardenesque setting. Large eave overhangs will be used as covered walkways between the buildings and each learning space will have direct access to a landscaped area.

The building materiality used will complement with tones and textures from the surrounding bush environment and is inspired by local aboriginal motifs gathered through the Building on Country consultation.

The ecologically sustainable response of the building is further underpinned by its materiality. Thermal mass, shading mechanisms, and cross ventilation have been articulated in the design to ensure the comfort of occupants and a reduction of the environmental footprint.



*Figure 1 3D Axonometric view of the Masterplan*

## **1.5 SITE CONTEXT AND ANALYSIS**

The site is triangular in shape, with a northwest/southeast alignment and has an area of 2.432 ha. The site is bound by Muswellbrook Golf Course along the north eastern boundary, Maitland Street along the south western boundary and residential properties to the south eastern boundary (see Figure 1). The site address is 72-74 Maitland Street and is legally described as Lot 100 in Deposited Plan (DP) 1261496 (see Figure 2).

The site is generally level with a slight slope to a watercourse at the north west boundary. This watercourse flows northeast into the adjoining golf course and on to Muscle Creek via a series of dams

on the golf course. Muscle Creek flows west into the Hunter River which at its closest is 1.3 km north-west of the site. Stormwater management currently on site is pit and pipe and overland flow.

72-74 Maitland Street was previously used for forestry plantation purposes and is mapped as Muswellbrook State Forest. The site is no longer used for this purpose and currently sits as an empty and underutilised site.

PBCS has lodged a Planning Proposal which seeks to amend Muswellbrook Local Environmental Plan (MLEP) 2009 to modify the land zoning map, height of building map and floor space ratio map.

This will result in the amendment to MLEP Land zoning Map from the current RU3 Forestry zone, to R1 Low Density Residential zone (as requested by Council), amendment to the MLEP Height of building map to include a height of building of 8.5m and amendment to the floor space ratio map to include a floor space ratio of 0.5:1.

The intended use of the site post LEP amendments will be for an educational establishment, ie the purpose of this SSDA. The Planning Proposal is currently with Muswellbrook Council currently with DPIE under assessment.

The main vehicular access to the site is from Maitland Street, as well as pedestrian access. Existing vehicular parking on site includes open air at grade parking spaces facing Maitland Street.

In terms of travel, Muswellbrook is approximately three (3) hours from Sydney, three hours (3) from Dubbo, two (2) hours from Tamworth and 90 minutes from Newcastle.



Figure 2 Aerial Image of site boundary



Figure 3 Site Context

### 1.5.1 CLIMATE

Muswellbrook is 149m above sea level. Being in Climate zone 6, the climate is mild, and generally warm and temperate. There is significant rainfall throughout the year in Muswellbrook. Even the driest month still has a lot of rainfall. This climate is considered to be Cfa according to the Köppen-Geiger climate classification.

In Muswellbrook, the average annual temperature is 17.2 °C. Precipitation here is about 630 mm per year.

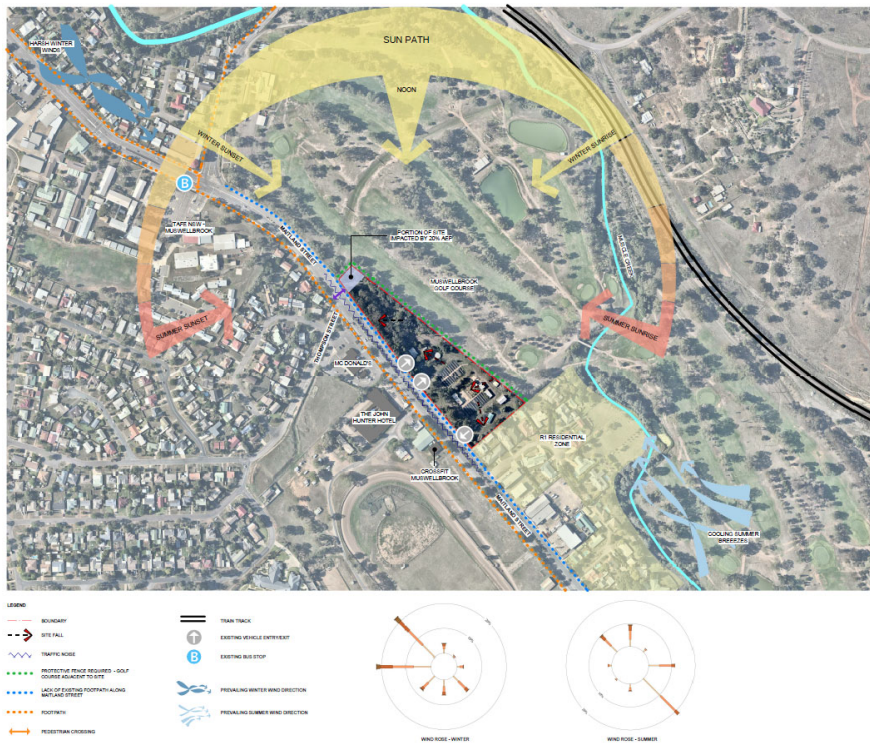


Figure 4 Site Analysis

**1.5.2 TOPOGRAPHY**

The site is generally level with a slight slope to a watercourse at the north west boundary. This watercourse flows northeast into the adjoining golf course and on to Muscle Creek via a series of dams on the golf course. Muscle Creek flows west into the Hunter River which at its closest is 1.3 km north-west of the site. Stormwater management on site is by overland flow. Refer to EIS appendix for Survey.

**1.5.3 ACOUSTIC**

Noise emissions associated with the proposed masterplan have been assessed with reference to relevant EPA and relevant acoustic guidelines presented in 'Noise and Vibration Impact Assessment' produced by Acoustic Logic Consultancy also found in EIS appendix. The report provided recommendations for the following:

- Noise from internal areas
- Noise from Traffic generation (Carpark and Kiss and Drop)
- Waste Removal
- External activities
- Non-school uses, and after-hours school activities
- Noise from mechanical plant, PA system and school bells

Recommendations have been made so that noise emissions from the school do not adversely impact the surrounding properties. Provided the recommendations within this report are adopted the proposed school will not adversely impact the acoustics amenity of surrounding receivers.

**1.5.4 VIEWS**

Pleasant views to the Muswellbrook Golf Course on the north eastern boundary. Adjacent low-rise residential area on the southern boundary. Busy Maitland Street along the south western boundary.

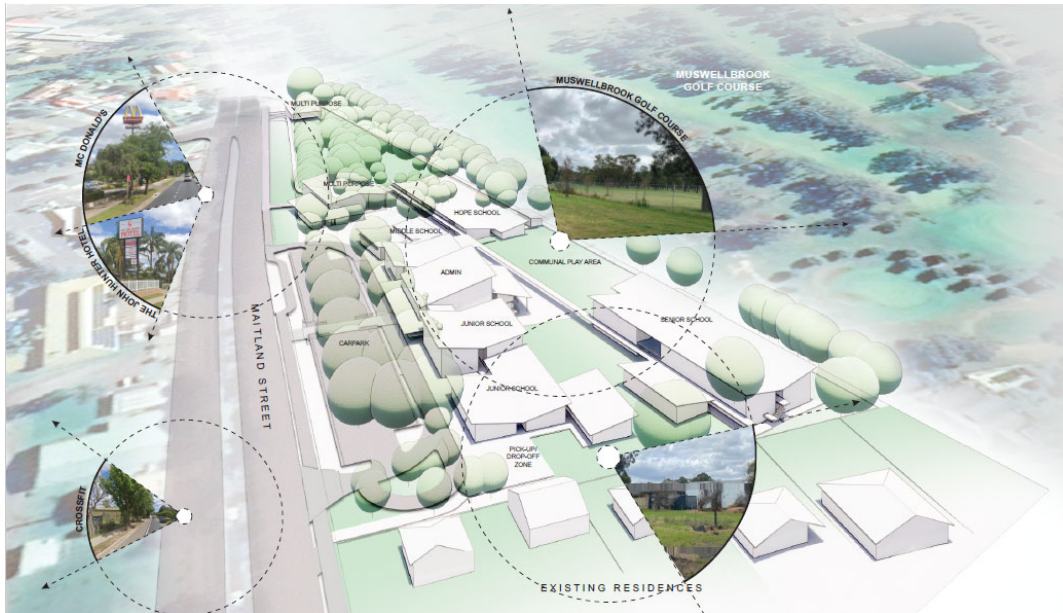


Figure 5 Site views

**1.5.5 EXISTING BUILT FORM**

The surrounding architecture consists of 3 single storey clad buildings, 2 sheds, and 1 greenhouse which will be demolished under a separate approved DA.

1.5.6 LOCAL HERITAGE ITEMS

The below images show the location of the subject site and its relationship to listed heritage items within Muswellbrook LEP 2009.

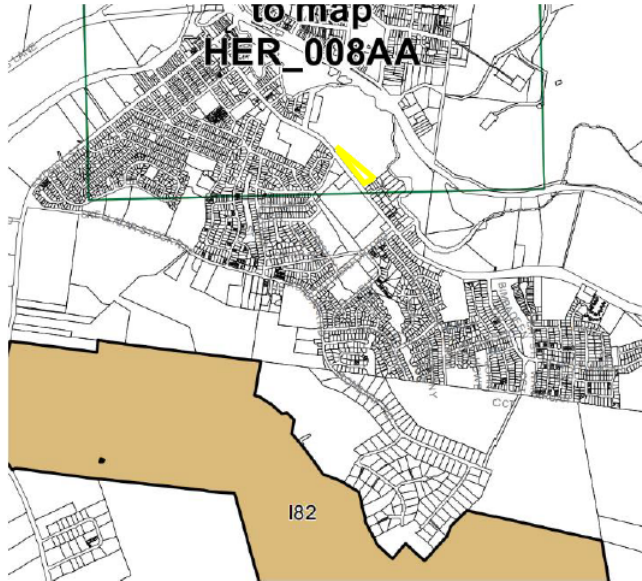


Figure 6 Heritage Map with subject site highlighted yellow (source: Muswellbrook LEP 2009 HER\_008)

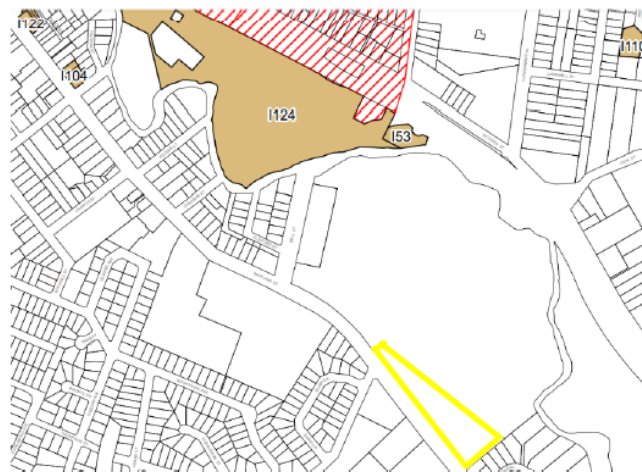


Figure 7 Heritage Map with subject site highlighted yellow (source: Muswellbrook LEP 2009 HER\_008A)

The local heritage items shown in the above plans include:

- Yammanie, 307 Denman Road, Muswellbrook, part of Lot 102, DP 1170190 - No I82
- Railway Depot (Roundhouse), Bell Street, Muswellbrook, Lot1, DP 1006378 – No I53
- Fitzgerald Olympic Park, Wilkinson Avenue, Muswellbrook, Lot7010, DP 93327 – No I124

The above items are visually and physically removed from the subject site. The proposed development will not result in any change or loss of understanding of the cultural heritage significance of the above items. Refer to Heritage Impact Assessment letter in Appendix 20 of the EIS for details of the assessment.

1.5.7 FLOODING

A Flood Impact Assessment has been produced by Royal Haskoning DHV to provide information regarding flood planning levels and to quantify the potential flood impact of the proposed development.

One mitigation measure proposed is a flood warning system for Muscle Creek, which impacts the north west corner of the site. Blue identifies 1 in 20-year flood, orange indicates 1 in 100-year flood and pink indicates Probable Maximum Flood.

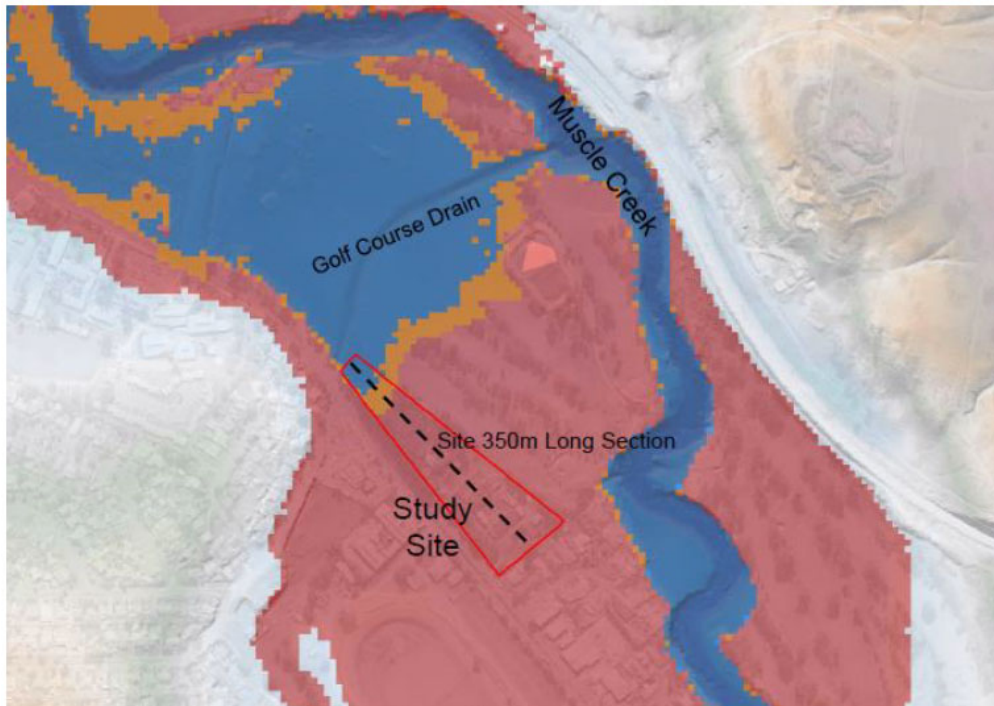


Figure 8 20yr (blue), 100yr (orange) & PMF (pink) flood extents for Muscle Creek

20yr (blue), 100yr (orange) & PMF (pink) flood extents for Muscle Creek

It is important to note that a small portion of the site currently is considered to provide flood storage (Image below). Significant land filling in this location may result in increased flood levels to downstream properties which may be considered unacceptable.

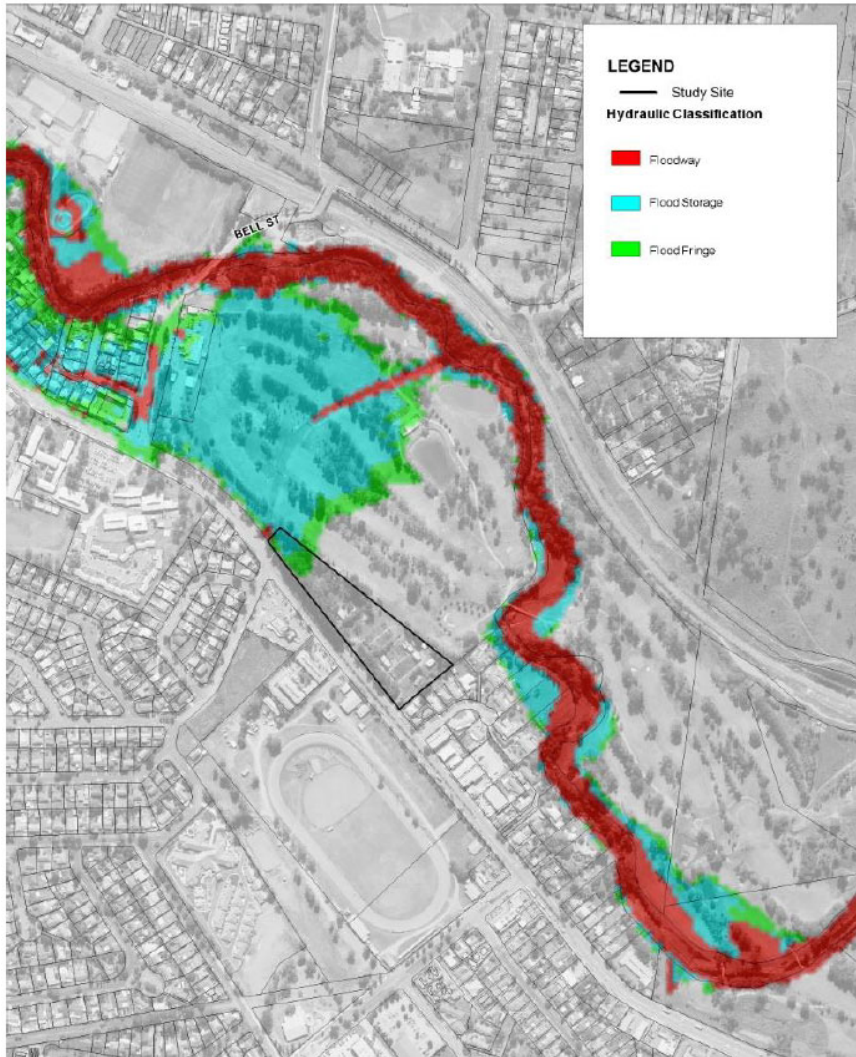


Figure 9 Hydraulic Categorisation (1% AEP) 2019 FRMS&P

Based on the modelling undertaken in this study, the minimum site floor level is 148.11 m AHD (i.e., 1% AEP design level with 0.5m freeboard). This matches the existing flood planning levels provided in RHDHV (2019). The proposed finished floor level as noted in the Stage 1 drawings is 149.60.

This investigation shows that the majority of the site is flood free in the 1% AEP design flood. While the PMF flood event is shown to completely inundate the site by more than 2m depth, flood free higher ground is located within 200m to the west.

While ground levels changes (including the driveway and bus/maintenance shed building pad) have reduced the available flood storage, because the flooding is due to a tailwater and the level is controlled by flood waters “weiring” over Bell Street, the minor loss of flood storage has not resulted in any increase in flood levels for the 1% AEP (100yr ARI) design flood event.

During the 500yr event, the proposed development interacts with the overland flow path that is predicted and changes peak flood levels by up to 10 cm. It should be noted that flood impact is extremely localised and extends no further than 15m from the property boundary. Refer to the Flood Impact Assessment in Appendix 17 of the EIS for further details.

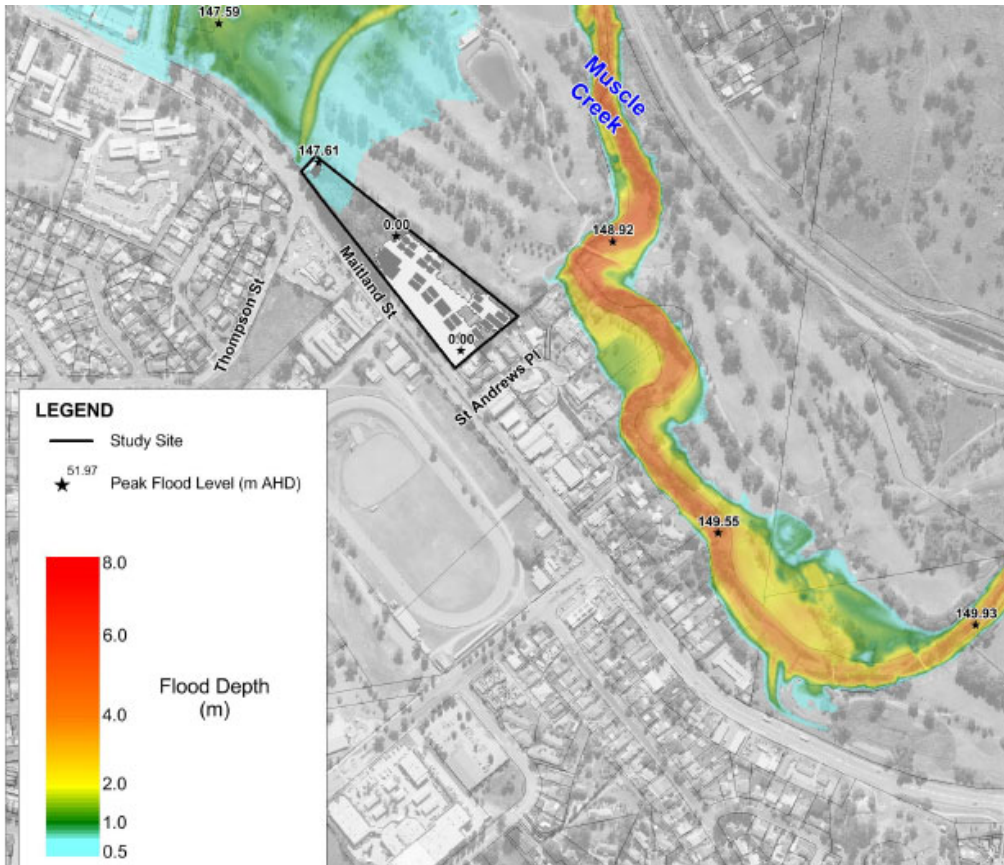


Figure 10 Proposed Peak Flood Depth (100yr Event) with Masterplan

### 1.5.8 CONTAMINATION

Portion of the site has contaminated material refer to the revised Remediation Action Plan prepared by Douglas and Partners in Appendix 29 of the EIS. The RAP outlines contamination to be removed from site and some contaminated material suitable for retention on site.

The supplementary investigation was conducted to address data gaps and confirm the contamination status of the site. The results of investigations generally indicate the absence of gross contamination within the site.

There is already an approved DA for the demolition of existing buildings and sheds on site. The remediation requirements on the site are limited to localised near surface ACM (asbestos containing materials) impacts associated with existing buildings. ACM impacts can therefore be effectively addressed during the demolition of site structures likely to occur in Stage 1.

The site is considered to be suitable for the proposed school development in relation to site contamination, subject to appropriate demolition of existing structures and clearance of hazardous building materials including minor surface ACM identified adjacent to Buildings 5 and 8.

It is noted that the proposed development includes a car parking area at the front of the site. The existing pavement materials within the site found to contain elevated PAH (associated with asphalt/bitumen) could be utilised beneath the car park area for pavement construction as a precautionary measure. Refer to the Preliminary Contamination Assessment in the EIS appendix for further details.



Figure 11 Sample locations

**1.5.9 BUSHFIRE**

Muswellbrook Shire Council’s Bushfire Prone Land Map does not identify the subject property as containing either Category 1, 2, or 3 Vegetation or any of the associated buffer zones, therefore the subject site is not Bushfire Prone. Refer to the Bushfire Assessment report in the EIS Appendix for details of the full assessment.

**1.5.10 WATER**

Based on existing studies and civil plans it is considered unlikely that groundwater will be intercepted as part of the works. ACOR and Birzulis have prepared designs based on meeting water quality targets (as identified in Council DCP) and post development surface flows will not exceed pre-development flows according to engineering plans prepared for the DA.

No groundwater is proposed to be extracted for the construction works. No groundwater dependent ecosystems have been identified on the site. Once the school is operational reticulated water and sewer will be provided to the site.

Muscle Creek is to the north of the site (over 100m). Impacts on the Creek from the works are considered to be very low. Appropriate management measures during the construction phase (i.e., preparation of a CEMP) will ensure impacts are negligible. Engineering plans prepared for the works have identified onsite stormwater detention devices (e.g., rainwater tanks) improve water quality and flows from the development.

Refer to the Site Water Management report in the EIS Appendix for further details of surface and groundwater impacts and potential management measures as part of the construction works.

1.5.11 TREES STUDIES

AERIAL PHOTOGRAPHIC HISTORY



Figure 12 Aerial photos showing tree development on site over the years

After consultation with the Arborist, they undertook extensive assessment of the 240 trees on the site. The arborist has produced an arboriculture assessment report which includes recommendation on trees to be removed due to poor health or structurally unsound to stay on a site which will become a school.

The site being an arboretum planted to display a range of trees produced by the previous nursery, few of the trees are in conditions that match their natural habitat. Consequently, trees have grown with many defects of structure and low vitality. The great majority of the trees appear to have been planted in the 1960s and 1970s so those trees that have performed reasonably well are now dying or senescent. Refer to the Arboricultural Impact Assessment in the EIS Appendix for further recommendations to future tree protection and maintenance.



Figure 13 NBRS Markup of dead and dangerous trees

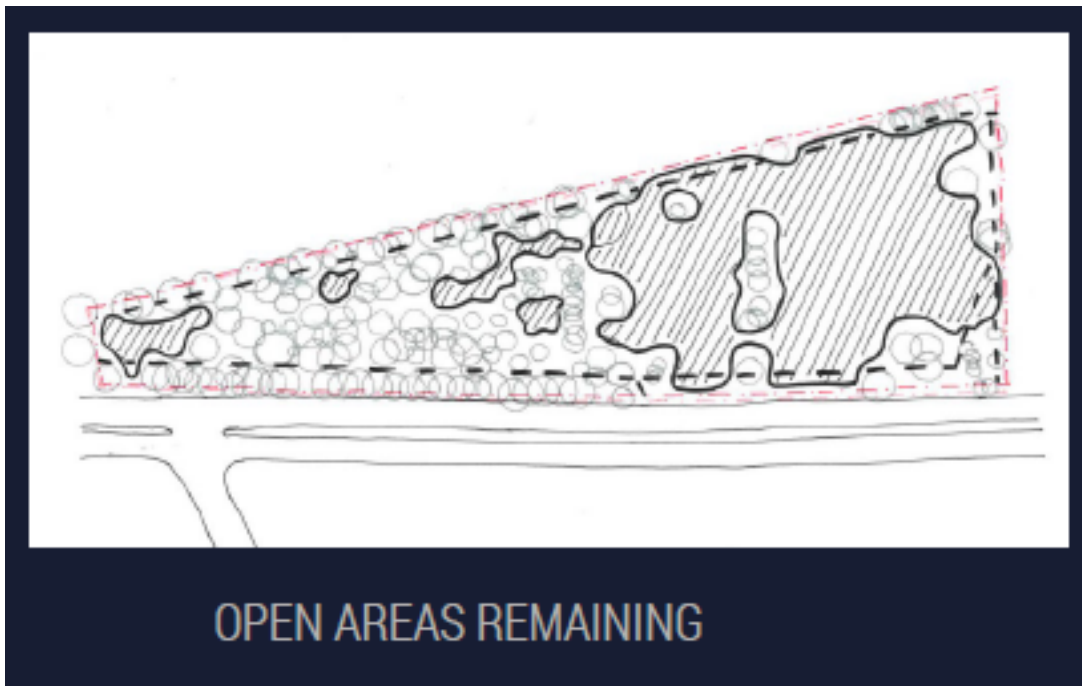


Figure 14 Diagram show what open areas are remaining when the recommended trees are removed.

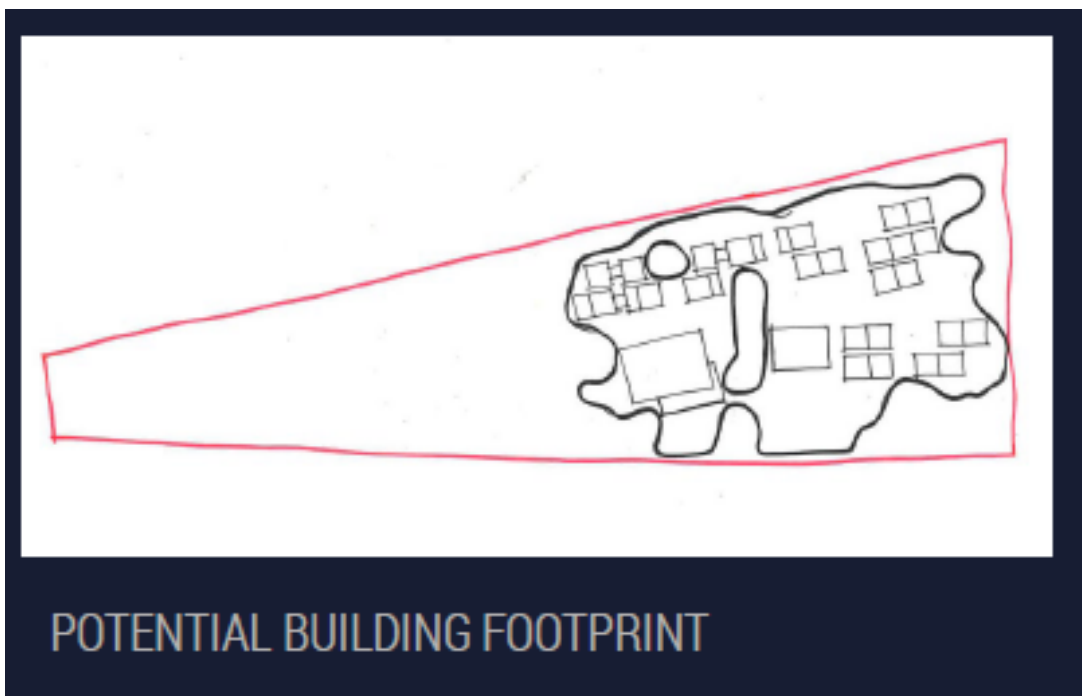


Figure 15 Diagram showing potential building footprint

**1.5.12 BIODIVERSITY DEVELOPMENT ASSESSMENT**

No species at risk of Serious and Irreversible Impacts (SAIIs) are to be impacted as a result of the proposed development. The *Acacia pendula* population of the Hunter Catchment is with a listed SAI entity, however the *Acacia pendula* individuals identified within the site were determined to not constitute the threatened population.

Furthermore, no Environment Protection and Biodiversity Conservation (EPBC) listed species were assessed as likely to occur within the subject site, therefore, a referral to the Commonwealth Minister for the Environment is not considered necessary. Refer to the Biodiversity Development Assessment report in the EIS Appendix for details of the full assessment.

**1.5.13 ADJACENCIES**

There are many zones around the site. An assessment has been done represented in following diagrams showing the adjacencies:

- Main roads
- Residential zones
- Town Centre zones
- Open Green zones



Figure 16 Context plan

Main road - Maitland street is a major road along the south-west of the site. It joins on from New England Highway on the south and intersects Sydney street on the north, a major thoroughfare to enter the town centre of Muswellbrook.



Figure 17 Residential Zones map

Residential zones- directly adjacent on the south side of the site are low rise residential houses.



Figure 18 Commercial zones map

Town Centre zones- the main town centre is on the north side of the site, near Muswellbrook station and main bus stops. On the west side of the site, are local shops and smaller eateries. McDonalds would be a landmark to the site across the Maitland street, being most known by local residents.



Figure 19 Open green zones map

Open Green zones – mostly on the north-east side of the site are open green zones. That being the Muswellbrook Golf course, where quality view vistas are incorporated as part of our design.

#### 1.5.14 TRANSPORT

A Traffic Impact Assessment report produced by PTC reviews the transport conditions for the PBCS site and also provide recommendations to enhance the existing transport network to better fit the new school into the community. This report and letter can be found in the EIS Appendix.

A review of the available public transport services operating within the vicinity of the proposed school site indicates that public transport is currently not a viable option for the school, but discussions between TfNSW, Council and PBCS should be undertaken to deliver the more convenient public transport connections to the school. As part of the project, it is planned that a future bus stop will be provided on Maitland Street along the school frontage close to the main school entry.

The transport concerns identified by NBRS include:

- Currently there is no footpaths to the site
- Cycle safety on road network
- School zone along Maitland Street
- Public buses to be re-routed in time for school commencement
- TfNSW acceptance of the carpark location

The following diagrams show the possible transportation modes available for the future school.



Figure 20 Walkable distance diagram



Figure 21 Cycling distance diagram



Figure 22 Private car route diagram

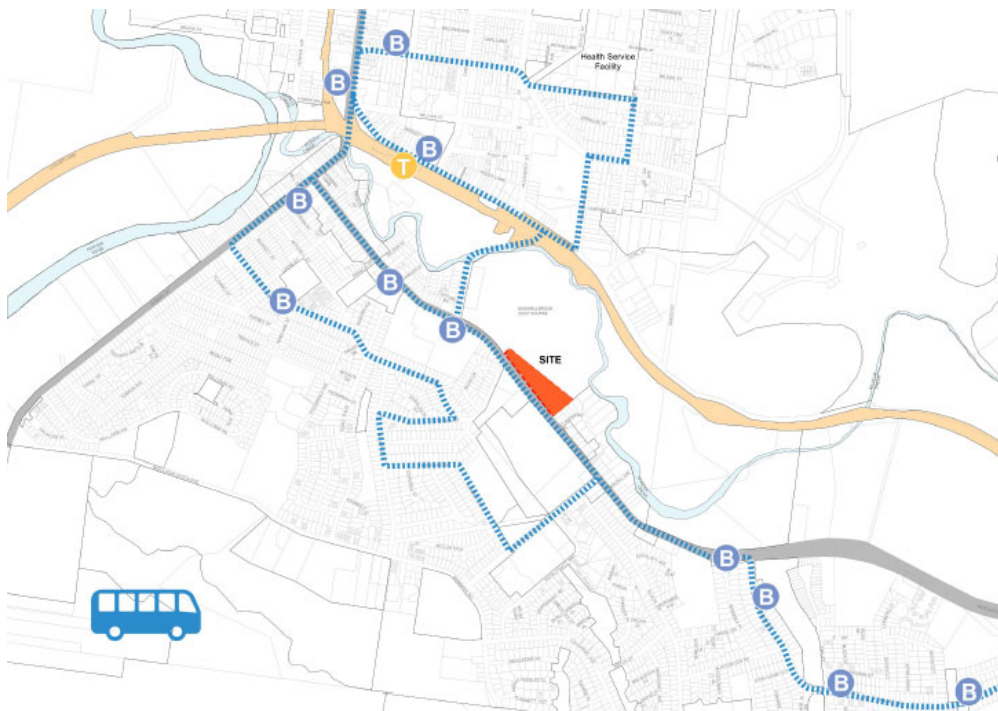


Figure 23 Bus route diagram

The existing, post-development and future scenarios for the surrounding road network have been modelled using the SIDRA 9 intersection software. Overall, the traffic modelling indicates that the proposed development will not have any significant impact on the performance on the surrounding road network.

A preliminary review of the proposed car park layout indicates that the design is capable of complying with the design requirements of AS2890.1:2004, AS2890.2:2018 and AS2890.6:2009. The concept carpark design submitted as part of this SSDA will be finalised in the detailed design stage to ensure full compliance with the Australian Standards.

**1.5.15 SITE OPPORTUNITIES AND CONSTRAINTS**

Opportunities identified which guided the design process include:

- Orientation of buildings to offer the best views towards the surrounding hills towards the north
- Orientation of buildings for optimal Environmentally Sustainable Design principals
- Views over the Golf course on the north-east
- Utilizing the buildings to protect the outdoor learning squares from the cold southerly winds
- Utilizing a large eaves overhang for covered walkways and protecting the facades from the hot summer sun

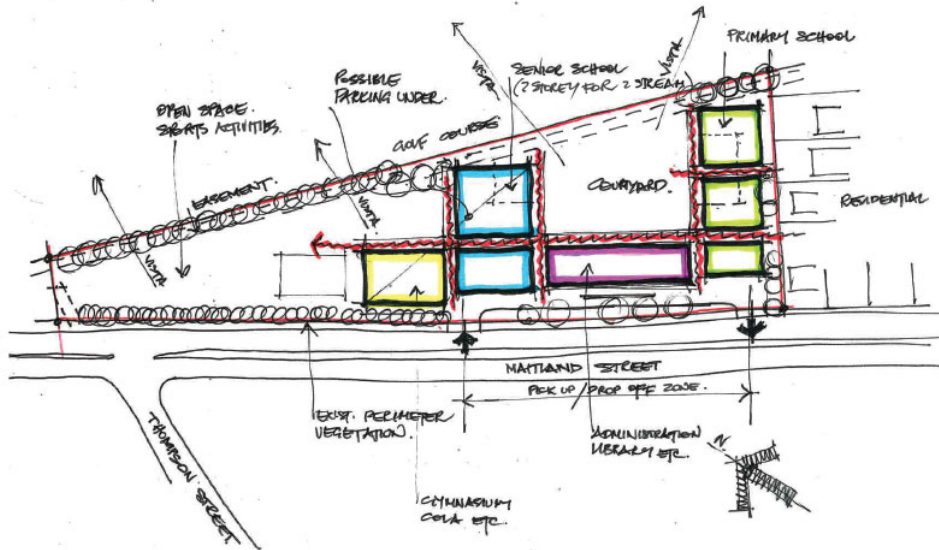


Figure 24 Initial site planning diagram

Early in the site analysis and planning review, a number of constraints were identified:

- Busy Maitland street on the south – west of the site. A major throughfare to Muswellbrook town centre
- Flood Prone Land and Overland Flow Path, design the buildings 500mm above the predicted flood level
- Sewer easements on the South – east of the site adjacent the residential neighbours

**1.5.16 MASTER PLAN OPTIONS**

Master planning for the new Pacific Brook Christian School Muswellbrook site was undertaken by NBRS Architecture in August 2019. The process involved:

RELATIONSHIP DIAGRAMS: From Pacific Brook Christian School Pty Ltd client briefings a relationship diagram was produced, identifying the required spaces and their relationships to each other.

AREA ANALYSIS: A detailed area analysis for the relationship diagrams was then prepared.

**SPATIAL DEFINITION:** The relationship diagrams and area analysis were used to define a series of spatial blocks. This documentation cross referenced the relationships to neighbouring spaces, and spatial proportions.

**SITE PLANNING:** Key objectives that were stated by the PBCS were:

- Entries to the site via Maitland Street, with maintenance lane only suitable for service vehicle access
- Facilities that will contribute to the community.
- Architecture to express its purpose - a cultural enriched learning facility, where every space should relate to 'Connecting with Country' and uses surrounding the built form.
- Efficient and flexible spaces as the needs and uses will change over time
- Appropriate relationships between administration, learning, and meeting spaces
- A safe environment for all users at all times
- As with the strengths of the site, the layouts should be driven by function, but the buildings should also be part of the learning curriculum: expression of structure, orientation and sun paths, winds. Winter and Summer use, water and energy management, technology to monitor and share information throughout related to environment, buildings, and the enterprises.
- Securable lockdown zone for evenings and emergencies, where the buildings are understood generally not to be the lockdown line

NBRS were commissioned to commence concept design based on the above analysis, stakeholder consultation with the local council, local aboriginal groups and the community.

A graphic representation of the master plan options is displayed below:

### Option 1 – Staff in West portion

- Proximity to intersection
- Inadequate queuing
- Difficult to resolve levels

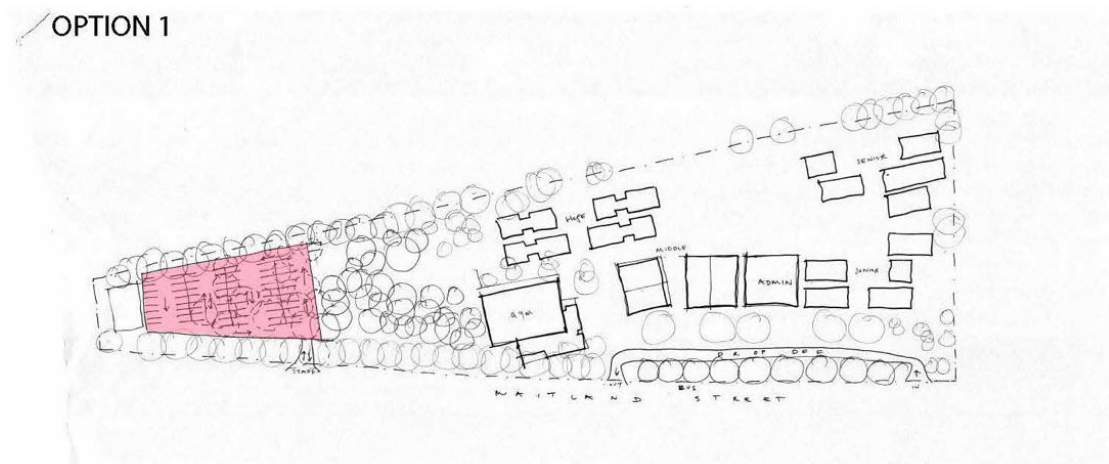


Figure 25 Alternative carpark option 1

### Option 2 – Combined East carpark and Drop Off/ Pick up

- Traffic impact within site e.g., noise & fumes
- Occupies prime views & wide portion of site
- Drop off & disabled spaces are remote from west facilities

OPTION 2

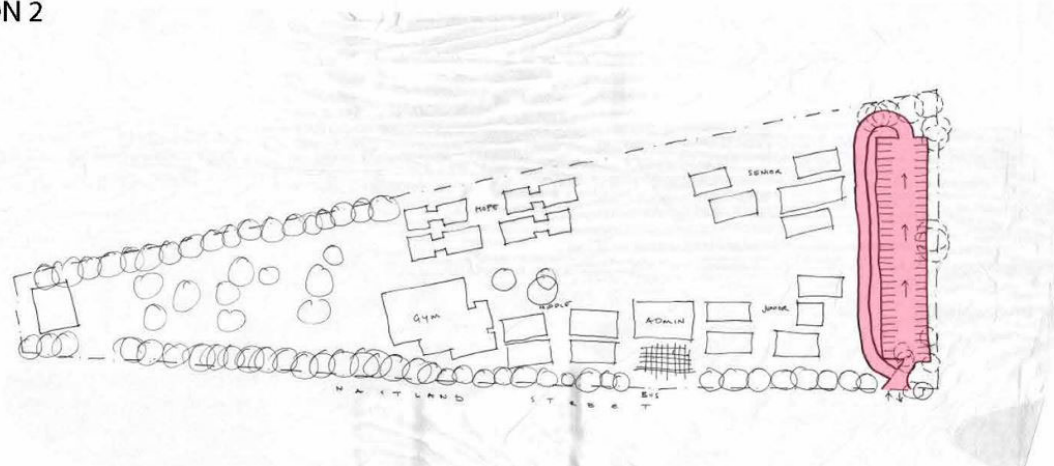


Figure 26 Alternative carpark option 2

Option 3 – Combined L shape

- Reduced queuing length
- Conflict at entry / exit
- Difficult with sight lines & manoeuvres

OPTION 3

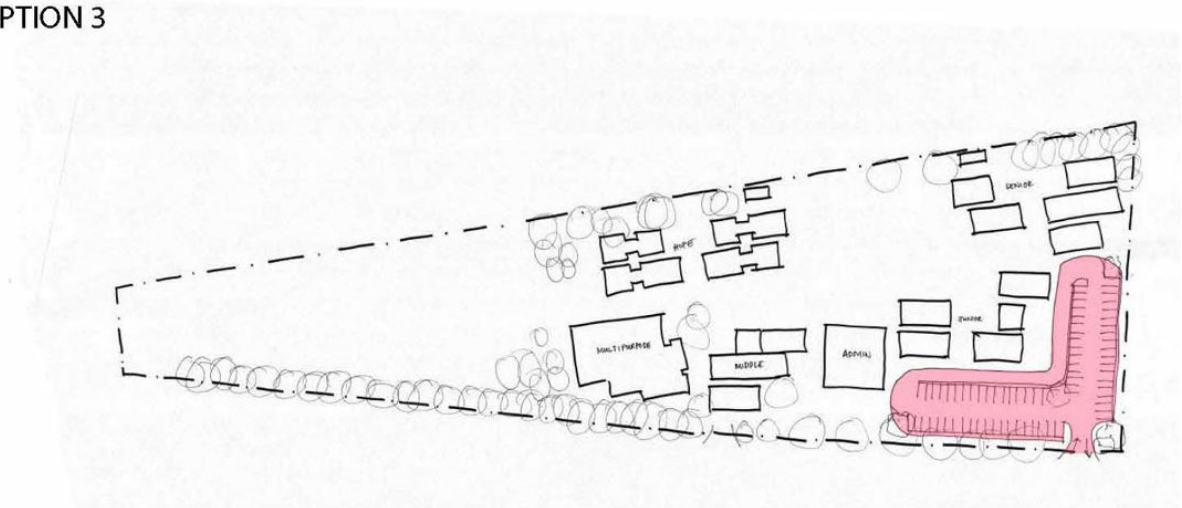


Figure 27 Alternative carpark option 3

Option 4 – Separate Staff to east and drop off loop

- Traffic impacts to residences to east
- Occupies prime play space
- Inadequate queuing
- Large footprint creates unusable island on Maitland street



1.5.18 CONCEPT PLAN



Figure 30 Concept plan

Cons:

- Screen required to protect courtyard from unfavourable cold southerly winds
- Some foot traffic through the carpark

Pros:

- Good surveillance around the site for student supervision
- Hall is ideally located for all potential uses
- Clear distinction between carparking and service areas for school site
- Buildings have good solar access and blocking unfavourable cold westerly winds
- Creates intimate school cohort courtyards for student
- Creates large gathering spaces for the community
- Carpark location and large trees and landscape acts as a noise buffer from the busy Maitland Street
- Allows for a central axis from administration and library block to open central space
- Landscape on the north west creates opportunities for nature experiences such as bush chapel and cultural walks

## 2.0 DESIGN INTENT

### 2.1 DESIGN CONCEPT

The Design Concept for the masterplan was the product of research into the Site, its context and Connecting with Country learnings from the Traditional owners of the lands, the Wanaruah and Kamilaroi. Based on the dreaming stories of the Wanaruah tale of Baiami, the Creator Spirit, who awoke and created everything. Baiami created Kawal, whose Spirit form is an eagle. Kawal protects and watches over the Wanaruah people. Woven with the new purpose of the Site – to support and educate children of the local area, the concept was shaped around the stories of Country. With this imaging, we have based our design on the eagle, which not only links back to the land’s culture past, but also creates a sense of belonging, protection and passing on knowledge to future generations.



Figure 31 Wedgetail eagle

The Australian Wedgetail Eagle is a protected species, with wings span up to 2.3 m. Identified by long diamond shaped tail resembling a wedge, it is local to the Hunter Valley Region. Taking this as an important totem of the land, we further incorporated its form into the built structures, shape into the plan and roof forms, concept into the light weight cladding and structures, colour & patterning into the palette of materials for landscape, architecture and wayfinding, to our design.

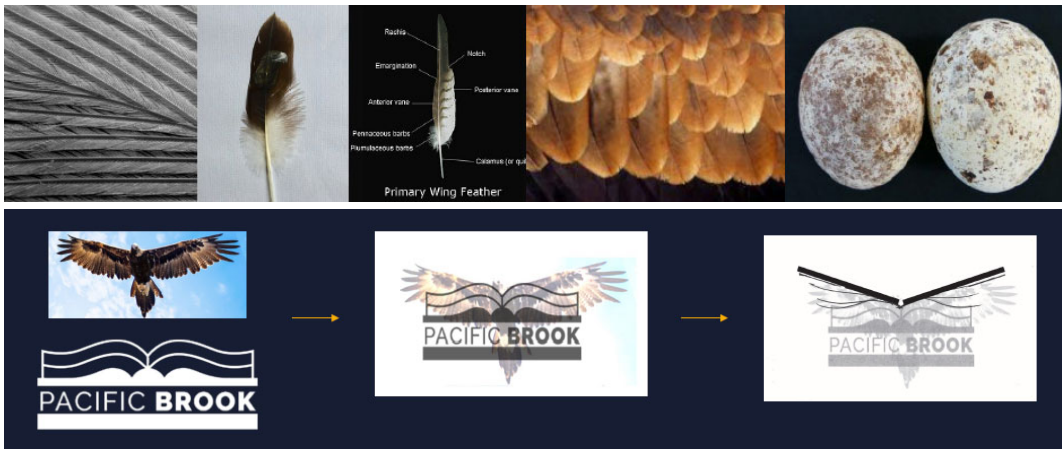


Figure 32 Concept images

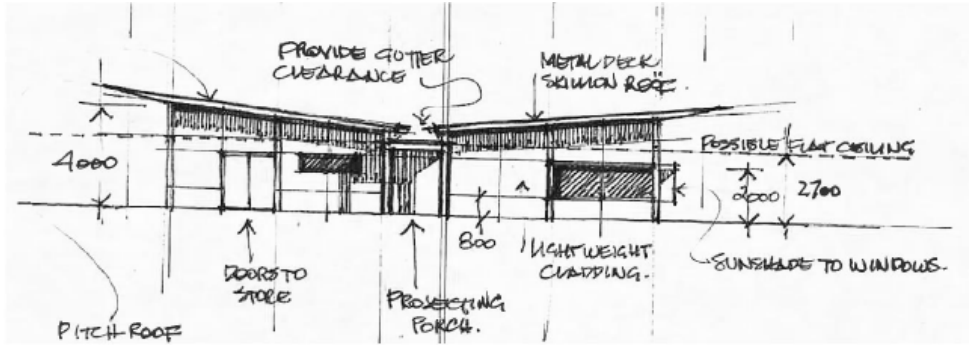


Figure 33 Early sketches of building design

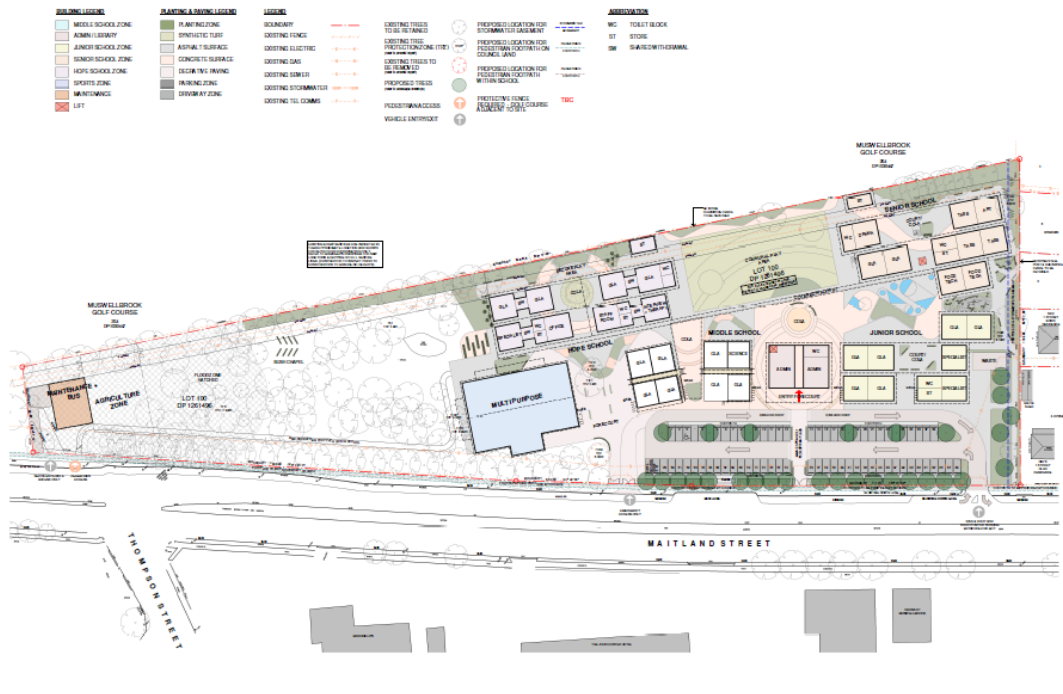


Figure 34 The Masterplan

The buildings have been designed and orientated to capture views of the landscape and to maximise the connection between internal and external cultural teaching spaces.

The School is designed around the central library and administration area which embraces the central Meeting Place, the architectural form of the Library roof protecting the gathering space below. The Library symbolically and literally being a place of shared knowledge and stories.

Radiating out from the central entry building are the various faculty clusters. Each a cluster is a collection of homebases and support buildings arranged around a central courtyard which is designed for the specific needs of that group. The junior school provides play and learning opportunities for younger students, carefully designed for good supervision of shared outdoor spaces and to maximise learning opportunities both inside the homebases and in the adjoining outdoor areas.

The middle school is designed for increasing independence and to encourage the transition towards the senior years.

The Senior spaces are design around outdoor spaces that reduce stress from the pressure of the more senior study years, offer relaxation and connection to nature in a more mature space.

The Hope School spaces have been designed to accommodate the increased sensitivity to their environment of the Hope School students, with careful consideration of transitions, considered supervision of outdoor learning spaces and connection visually and physically to outdoor learning opportunities that are linked to decreased stress and increased learning outcomes.

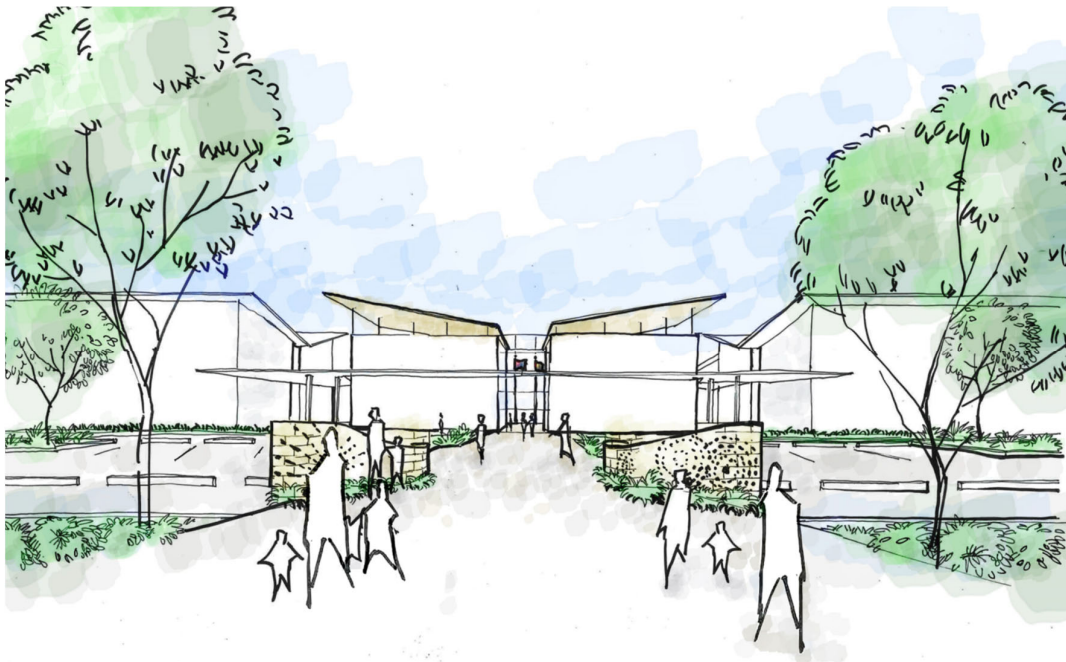


Figure 35 Sketches of the Main Arrival

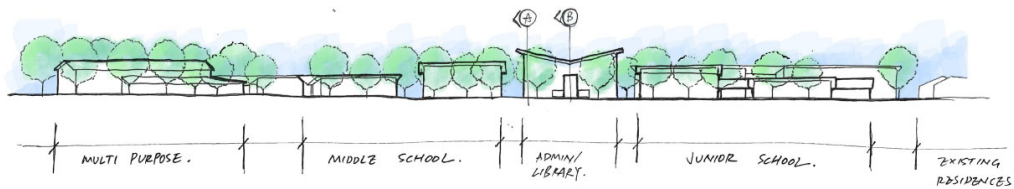


Figure 36 Sketch site section

The concept design focuses on developing a strong axial link back to the central spine with a pedestrian plaza and promenade coming from the main road, Maitland Street.

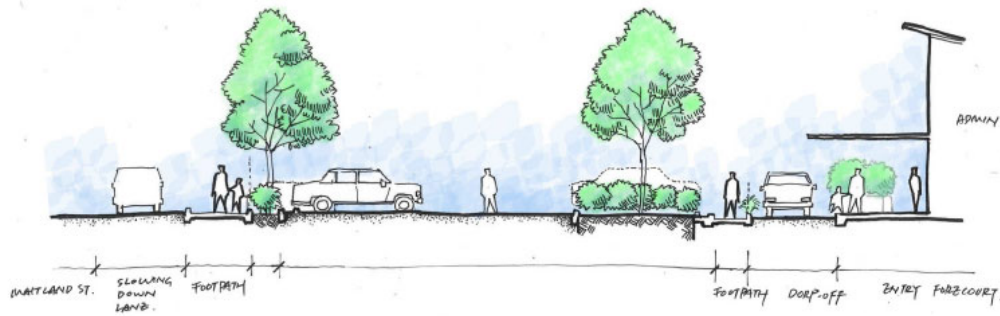


Figure 37 Sketch car arrival

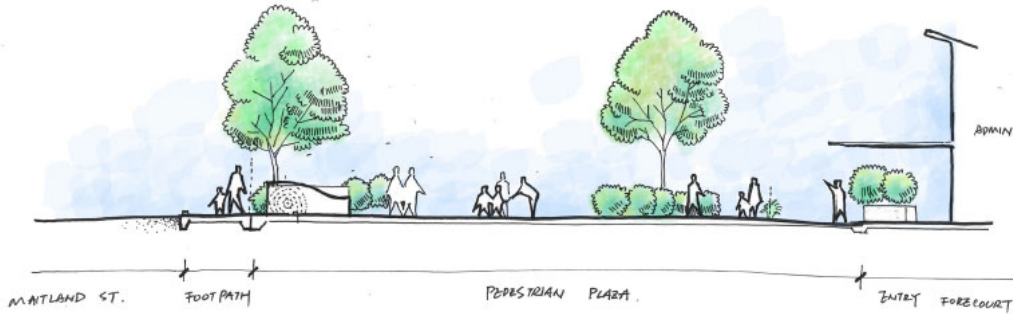


Figure 38 Sketch pedestrian plaza

Once a week, first thing in the morning, students and staff will gather at the Meeting Place to express their Christian faith, connect with Country and be thankful for nature, knowledge, and community. The meeting place is an outdoor environment to facilitate the connection with nature. The Meeting Place is sheltered from the southerly winds and with a northeaster aspect that provides views of the distant hills. The eagle wings of the library/ admin building provide weather protection and shelter, which re-enforces the totem protecting and watching over the school community and promotes the sharing of knowledge and culture.

The other key gathering space is the bush chapel. This is a more intimate and secluded space that allows for small groups of students to gather to celebrate nature and spirituality. It is in a quiet area surrounded by existing trees on the site and is away from the teaching spaces and the road.

Lastly the forecourt area. This is the public frontage of the school where parents, students and staff will gather during events such as ANZAC Day, NAIDOC, PBCS open day and end of year events. It provides direct access to the multipurpose area. Its main focal point is the existing large (10-15m in height) Acacia Macradenia (Wattle) in the centre of the space. This space welcomes the public and encourages connection with the broader township. It creates opportunities to gather and celebrate with both the immediate and wider community.

**2.2 MOVEMENT AND ARRIVAL**

The Entry to the School has been designed to address the public frontage of the Site, and provide a welcoming arrival for students, staff and visitors with green spaces, a variety of surface treatments, glimpses into the internal spaces of the campus and legible entries and circulation paths. From arrival via vehicle, walking, cycling or public transport, pedestrian circulation has been revised to remove any conflict between pedestrians and vehicles. Students, staff, and visitors can now access the site without having to cross an internal vehicular road within the site. The major vehicular entry into the site and drop facility has been kept to the south edge of the site and pedestrians coming from the east or the west do not need to cross it to access the school.

This approach was considered to provide a buffer between the internal courtyards and gardens of the School and the public areas towards Maitland Street, whilst optimising the learning and teaching spaces opportunity for views across the open northern aspect of the Site.

The Masterplan caters for 656 students and 65 full time staff.

Two bell times are being implemented for different year groups.

- High School and Middle School – Start 8:50am & Finish 3:10pm
- Junior and Hope School – Start 8:35am & Finish 2:55pm

In addition, before and after school activities will be provided:

- Before School Care – Starting at 7:30am
- After School Care – Finishing at 6:30

Management of parent drop off and pick up will allow for students to wait within the school grounds for parents to collect siblings at the same time, streamlining traffic flow at peak times. This practice has been implemented across other operations by the Client and has proven successful.

In addition, the masterplan includes end of trip facilities such as shower facilities for staff and students as well as adequate bicycle parking.

Currently the closest bus stop is 400m away and there is no footpath connecting the bus stop to the site. The masterplan includes a new bus zone immediately adjacent to the Site, and new footpaths to facilitate staff and students arriving by bus. The current design provides a footpath for students travelling by public transport that also connects the school with the new intersection at Thompson Street. This will improve access to public transport for both the school and the community.



Figure 39 Pedestrian circulation diagram



Figure 40 Private vehicles drop off and pick up diagram



Figure 41 Diagram showing bus stop and pedestrian access



Figure 42 Diagram showing Bike access

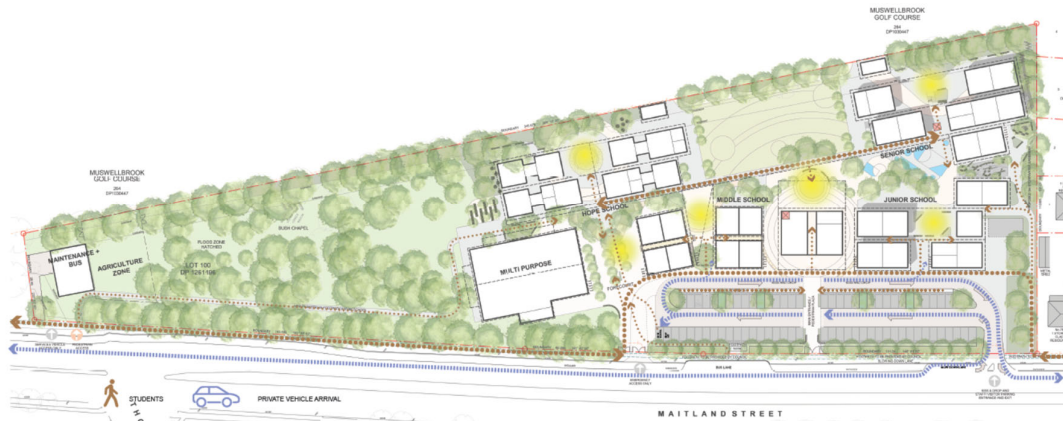


Figure 43 Diagram proving the absence of conflict between pedestrians and vehicles



Figure 44 Diagram staff access before and after school hours



Figure 45 Diagram showing community activities movement

Out of school hours, the school can let the community utilise the carpark and multipurpose building spaces. Community events such as weekend plazas/ markets, hall hire, voting, community meetings, festive events. This will not only give back to the community but also establish a good place for gathering to enhance the close-knit community even more.

### **2.3 BUILDING ENVELOPE**

Modular construction systems have been selected as one aspect of the masterplan to minimise disruption to the ongoing school operation as each stage is constructed. As required further modular units can be constructed off site and, with minimal site preparation, can be scheduled to be delivered & installed over holiday periods. This will allow for minimum noise, vibration & visual disruption to the school operation and will minimise the number of construction workers, materials and vehicles having to enter and carry out work within the operational school. It will also ensure that during the school term, construction vehicles do not disrupt the kiss and drop process.

Pacific Brook Christian School has been designed to incorporate a Hope School, to provide learning environments for physical and behavioural special needs students. Special needs students are particularly sensitive to extended disruptions of the type that would be involved with traditional construction methods. Many of these students are also likely to be more sensitive to disruptions in routine and changes to their regular physical environment.

With regard to the architectural design of the modules, best practice principals are universal to design of most physical environments for learning however, as discussed above, students with behavioural and physical special needs are particularly sensitive to many aspects of their day-to-day environment.

Over and above the minimised disruption through speed of installation of the modular classrooms and core facilities, there is the ability to control the quality and materials due to factory-controlled conditions of manufacture. The modular construction methodology allows for increased efficiency due to repeated modules such as classrooms, for repeated elements.

Other benefits not limited to special needs students, include Sustainability through choice of materials and minimisation of construction waste and flexibility for future reuse options for modules to adapt to future pedagogical changes or specific group needs.

The main objectives for special needs learning spaces are to improve attention, reduce anxiety, and support emotional and behavioural self regulation through the physical environment. This is best practice for all children, but this is especially so for special needs children.

Modular construction systems allow for clear spanning spaces and flexible openings for doors and windows, considered finishes for robust and clean spaces, use of cladding etc. within the basic module. This is ideal for the considered design of special needs learning environments to meet the following aspects of design, which need particularly considered approach:

#### Naturalness

- High performing acoustic spaces for sensory perception sensitive, hearing impaired and limiting overstimulation
- Temperature, well designed to maintain comfortable temperatures for optimised concentration and comfort.
- Well design lighting for visually impaired, lighting within particular colour range. This has also been shown to improve learning outcomes.
- Natural lighting, control of glare, enhanced learning outcomes with increased quality natural lighting to learning spaces; &
- access to external landscape views for better learning outcomes
- Ventilation for high air quality, fresh air, air movement.

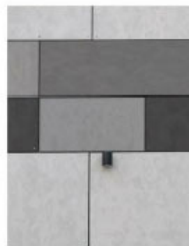
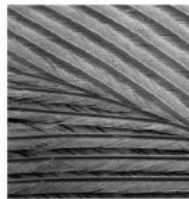
- Connection to external learning spaces through design of openings / orientation and adjoining weather protection for rain / shading.

## Individuality

- Flexibility for alternative furniture to provide choice of seating, spaces for learning to allow for all learning types
- Appropriate design for the user age group
- Ownership and pride in surroundings – identifiable to individuals, flexible to adapt to users' requirements, ownership flows to responsibility

## Stimulation

- Limited visual clutter for ADHD / autism, streamlined and well-designed spaces for consistent materials palette, door and window head heights, patterns and rhythm in facades and internal elevations.
- Room organisation – logical with clear zones for different areas such as group learning, individual learning. Well organised resources and materials with labels. Support student's ability to maintain focus.
- Considered materials palette with considered use of colour – neutral wall colours, colour coordinated decorations which are used only to highlight important features (not ad hoc and competing)



SUNSHADES  
BALUSTRADES  
LANDSCAPE ELEMENTS

LIGHTWEIGHT CLADDING  
GREY TONAL, NATURAL FINISH

ARCHITECTURAL FEATURES  
SIGNAGE  
PATHWAYS, PAVING

Figure 46 Colours & Materials Architectural Palette

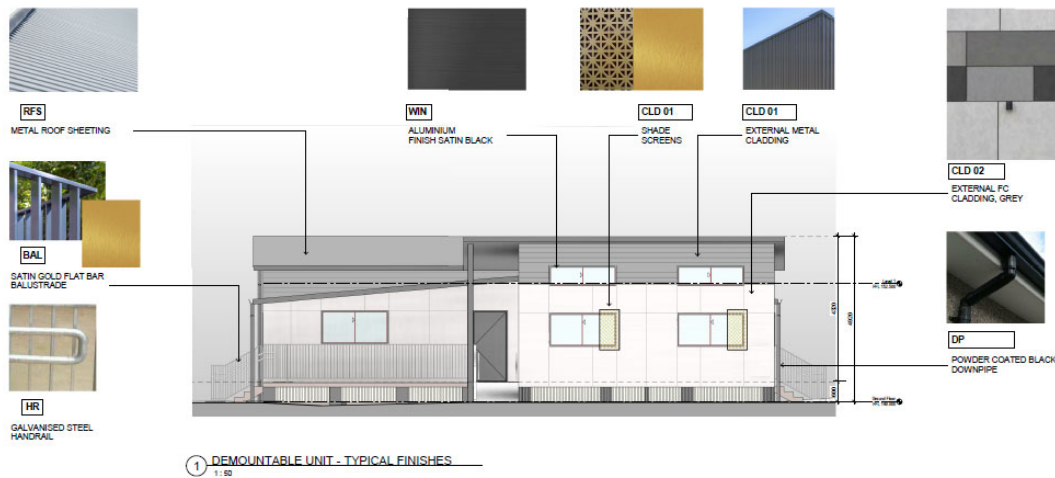
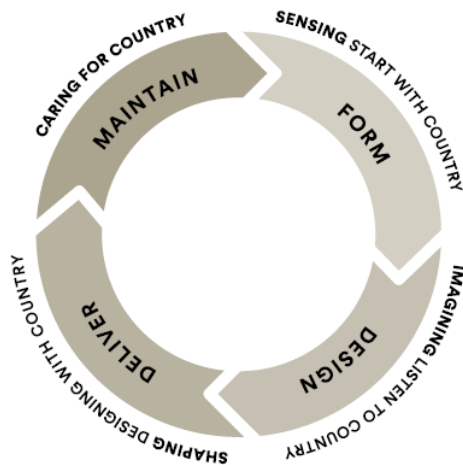


Figure 47 External finishes to building elevations

**2.4 CONNECTING WITH COUNTRY**

The buildings have been designed with the Connecting with Country guidelines in consideration. This is represented via the 4 stages:

- 1- Sensing: Start with country
- 2- Imagining: Listening to country
- 3- Shaping: Designing with country
- 4- Caring: for country



Concepts and ideas incorporated in the design includes:

*Sensing*

- Wanaruah Community: stories of the dreamtime i.e., Baime
- The Wanaruah, Awabakal & Kamilaroi are the traditional inhabitants of the lands of the Hunter Valley.
- The Site is located in low, gently rolling grasslands nearby Muscle Creek, a tributary to the Hunter River.
- The grasslands and rolling hills have expansive vistas to the sky and surrounding Mountains.

*Imagining*

- Language: Wanaruah means 'people of the hills and valleys'
- Map - scar trees, cave painting site telling the Creation stories of the Wanaruah; sacred sites

*Shaping*

*Opportunities to design around traditional ideas of community and passing on of knowledge by incorporating*

- Yarning circles, passing on of traditional learning,
- Bush tucker gardens; traditional knowledge of plants for food, medicine and tools,
- Weaving grasses, craft and traditional tools and skills and art,
- Traditional names, used throughout the site to continue the use of language,
- Images / motifs throughout site in paving, signage, palette and building form,
- Walking country (walkway through site allowing connection with Country – listening, feeling smelling, seeing)
- Provide animal habitats (native bees & insects, habitat trees, diversity of planting for food sources...)
- Materials palette (architecture & landscape) to reflect the stories and traditions of Country

*Caring*

- Bushfire / flood / water conservation opportunities incorporated into design of the landscape and architecture to conserve precious resources and withstand fire or weather;
- Guided by traditional custodians (information along the walk) gathered through Consultation and ongoing care and involvement in caring for the site,
- Ongoing lessons & involvement (weaving, bush tucker, stories) passing on traditional knowledge, language and culture.
- Remediation of the Site for future generations.

**2.5 LANDSCAPE CONCEPT**

Indigenous stories learnt through the Connecting with Country consultation inform the development of the landscape design and treatment of open spaces, meeting places and circulation zones. The expression of the story is not limited to the use of pattern and colour but is also fully expressed in form and arrangements.

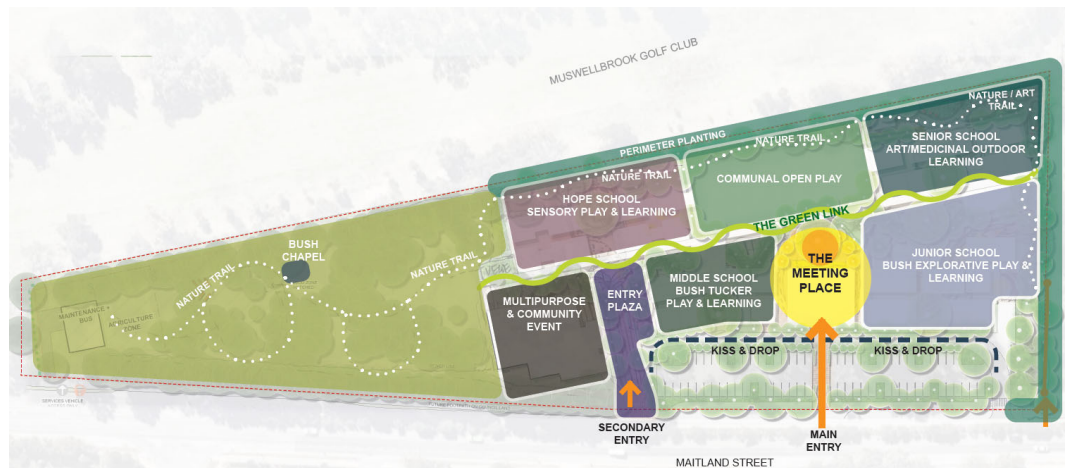


Figure 48 Landscape framework plan

Through consultation with the local aboriginal maintenance team (Johnson's Contracting) that manages the site and the School Principal, NBRSLandscape have developed a landscape masterplan design that facilitates the connection between students, staff, natural ecosystems, and the elements

(Summer breeze, eastern morning sun, rainwater catchment). The school has also been in touch with Wanarua Elders to discuss the school design and the facilities it will provide to the local students.

## DETAILED PLAN 01



Figure 49 Landscape concept: Nature trail and bush chapel

*Features incorporated into the design encourage care of Country, relationship with the environment, passing on of traditional knowledge of food, medicine, environment.*

*The Northern portion of the Site provides the school community with a variety of opportunities to connect with the natural environment to learn, reflect, play and gather.*

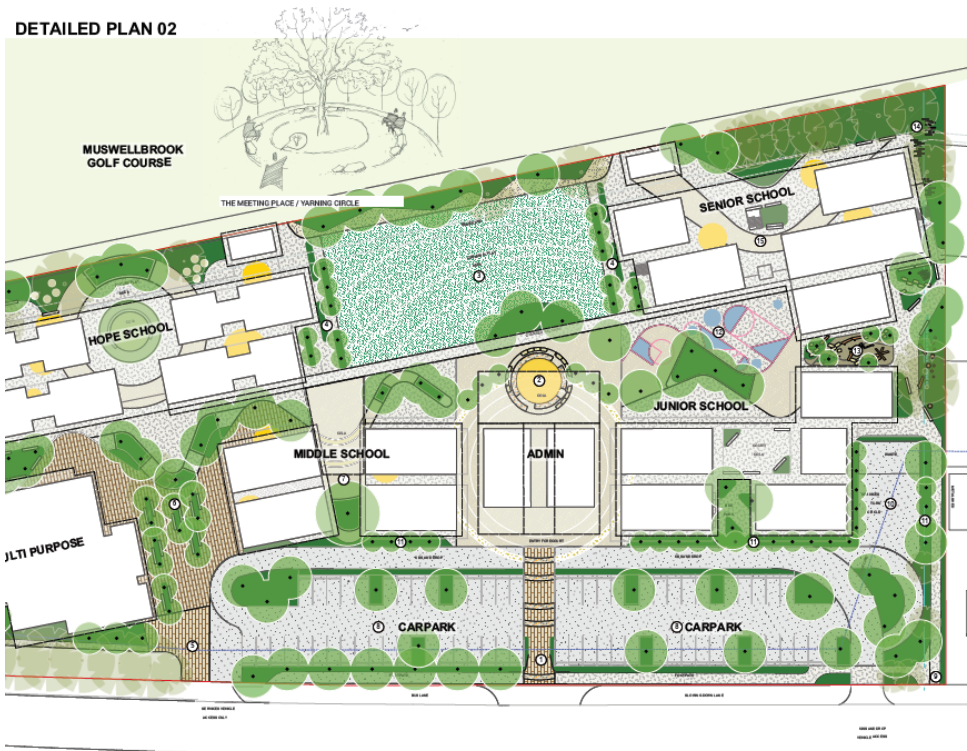


Figure 50 Landscape Concept: Meeting places

The landscape focuses on highlighting key existing trees on the site and complementing them with new tree canopy lines that connect different areas within the campus.

The school likes to provide each part of the school with their own sense of identity and belonging. Rather than a large single open space, the school functions as a collection of villages interconnected by sight lines and tree canopy.

Outdoor Learning spaces for students of different age groups that focus on activities that have a direct correlation to their needs and teaching curriculum and are conducive to Connection with Country.

- a) Hope School – Calm environment away from background noise that provides a secure play area. Native sensory planting heightens sense of smell and texture.
- b) Junior School - Bush explorative play that challenges physical skills such as climbing, jumping, and testing ideas with balances and water courses.
- c) Middle School – Play becomes learning. Learning to understand where our food comes from and the ecosystems around us. Opportunities for worm farms, bush tucker garden, insectarium, native grass weaving.
- d) Senior School - Art and science as way to connect to Country. Medicinal plants, spaces to test scientific knowledge like weather data gathering. Space for arts and craft.



Figure 51 General landscape arrangement plan

In addition, the masterplan provides gathering spaces where students and staff go on Country to engage with each other and their elders.

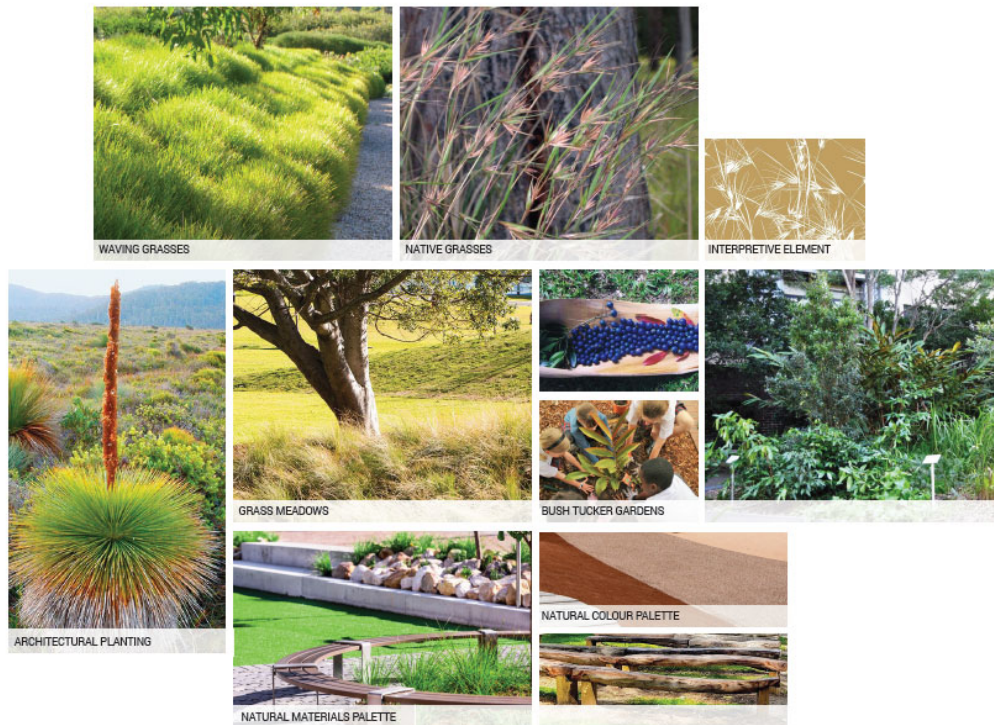


Figure 52 Landscape Materiality Palette

## **2.6 ECOLOGICAL SUSTAINABLE DEVELOPMENT (ESD)**

The proposed development will be designed with the view to ensure sustainability is incorporated through a broad range of ESD goals in service design, building construction and operations. The development team will ensure that building minimises the impact on the environment.

A strong emphasis on efficient electrical and mechanical design to minimising energy and water use, building materials, environment friendly refrigerants and maximising controls efficiencies will be taken into account to prevent irreversible damage to the environmental. In addition, PBCS will be guided to explore the use of renewable energy sources. Best possible design practices with a requirement to exceed BCA/NCC Section J – Energy Efficiency Targets by a minimum 10%. Design will be referenced to guidelines under Australian Green Building Council Green Star benchmarks, and GANSW Environmental Design in Schools manual to help drive a balanced approach with risk weighted assessment.

The proposed building embraces sustainable design principles to maximise natural daylight and natural ventilation. The orientation and massing of built form allows optimal natural daylight into the teaching spaces. Roof material will be carefully selected, and the retaining of existing landscaping contributes to the cooling of the immediate environment. The design also introduces new trees and planting across the site to mitigate effects of urban heat island effect through evaporative cooling by trees and plant and providing canopy for well shaded outdoor areas. Hardstand areas are minimised & where possible shaded by light coloured COLAs. Building construction will be expected to be resource efficient, cost-effective and to deliver enhanced sustainability benefits with respect to impacts on the environment and health and well-being of students and staff for the best possible learning facilities.

Refer to the Ecological Sustainable Development report in Appendix 15 of the EIS for details of the sustainable design initiatives suggested for the project.

## **2.7 INTERIOR DESIGN**

NBRS had a series of client engagement sessions to develop the design. The main aims and aspirations for the look and feel were:

- Provide engaging informal learning environments
- Bring the gardens into the building
- Ensure there are opportunities for small group discussions – meeting spaces

The result is a design concept that embraces natural materials, shapes, & textures. The colour pallet is mature & subtle, in keeping with the topics being discussed within the spaces. The Internal design intent for the spaces would be a cool calm Palette of Greens, Blues a reflection of water & plant growth.



Figure 53 Example interiors palette

## 2.8 SIGNAGE

A signage is being developed for the project and the below signage items have been identified:



Figure 54 Signage concept

## 2.9 VISUAL IMPACT ASSESSMENT

A visual impact assessment of the proposal has been undertaken through site visits and 3D visualisation models to determine relevant factors such as existing place character of the primary visual catchment, sensitivity, magnitude, applicable planning instruments, the need for mitigation strategies and measures and consideration of residual impact. The VIA concludes that considering all relevant factors, in its current form the proposal has an acceptable visual impact.

## **2.10 WASTE MANAGEMENT**

The Waste Management Plan indicate measures that encourage the management and minimisation of waste during construction.

The following measures may be considered, where possible or practical:

- Removal of contaminated waste in accordance with all applicable standards and legislation.
- Recycling and reuse of all materials.
- Separation of vegetation from general construction waste to be mulched for reuse.
- Disposing general waste that is not recyclable to an approved waste management facility.
- Ensuring that material transported to or from the site is secure.

All material disposals should be undertaken in accordance with the relevant regulatory requirements. Asbestos removal and disposal should only be undertaken by contractors with appropriate licences to do so for the materials encountered and disposed of correctly to licenced receiving disposal facilities with suitable transportation precautions implemented. Any soil to be disposed of must be assessed in accordance with the NSW EPA Waste Classification Guidelines Part 1: Classifying Waste. Refer to Waste Management Plan prepared by Waste Audit in Appendix of the EIS.

## **2.11 GOVERNMENT ARCHITECTS NSW FEEDBACK**

The project was presented to the Government Architect NSW (GANSW) on the 3<sup>rd</sup> March 2021(SDRP01) and on the 23<sup>rd</sup> June 2021(SDRP02). The aim of the design review session was to demonstrate the strategy for achieving design excellence, in accordance with Schedule 4 Schools design quality principles of State Environmental Planning Policy (Education and Child Care Facilities) 2017. Refer to SDRP 01 and 02 feedback, presentations and SDRP 02 response letter in Appendix of the EIS.

## **2.12 CONSULTATION**

Throughout the design process, the project team undertook fortnightly design workshops with Client, stakeholders, and planners of which the below items were discussed:

- Service Location
- Built Form and Materiality
- Access / Traffic
- Planning Proposal
- SDRP
- SSDA

These meeting dates were as follows:

- 15/04/2020 PCG 1: Discussion on client brief, rooms required and scope of works
- 21/01/2021 PCG 2: Demolition DA works and preparing for Planning Proposal
- 04/02/2021 PCG 3: Planning Proposal program and SEARs request preparation
- 18/02/2021 PCG 4: Preparing for SDRP01, Masterplan and Stage 1 design
- 04/03/2021 PCG 5: SDRP01 feedback discussion
- 23/03/2021 PCG 6: Refining masterplan design as a response to SDRP comments
- 15/04/2021 PCG 7: On site meeting with Principal, local indigenous contacts, client representatives, and Muswellbrook council planner.
- 28/04/2021 PCG 8: working for BGA submission
- 12/05/2021 PCG 9: Discussion on SEARs checklist, distribution to consultant team

- 26/05/2021 PCG 10: Project program monitoring and preparing for SSDA
- 09/06/2021 PCG 11: Discussion on presentation for SDRP02
- 23/06/2021 PCG 12: SDRP02 feedback discussion
- 07/07/2021 PCG 13: Working to finalise submission for SSDA

Other key consultant meetings were held in support to develop our design. These meetings include:

- January 2020 Meeting with council: discussion on rezoning the site for school use and the potentials the site has to the community.
- April 2021: On site meeting with Principal, local indigenous contacts, client Mark Smith, and Muswellbrook council planner.
- May 2021 Meeting with local indigenous contact: discussion on the strategies where we can incorporate indigenous culture into the design of the school.
- June 2021 Meeting with landscape team: discussion of the outdoor meeting places, how they can mimic indigenous tradition of gathering in small circles in the bush and natural surrounds.
- July 2021 The school has been in touch with Wanaruah Elder to discuss the school design and the facilities it will provide to the local students
- August 2021 Meeting with TfNSW

### **2.13 COMMUNITY CONSULTATION**

In preparation for the SSD application, PBCS has engaged Sarah George Consultancy, a community engagement consultant, and APEX Archeology, to undertake an Aboriginal Cultural Heritage Assessment (ACHA).

Summaries of these community consultation are as follows:

#### **Social Impact Assessment:**

In total, 33 notices were distributed on the 20th May 2021 to properties in the immediate vicinity of the subject site that were most likely to be able to see, hear or otherwise be affected by the proposed development. Recipients were asked to respond to the notice within 21 days. Comment was also sought from groups representing the interests of the local communities, including:

- Wanaruah Local Aboriginal Land Council (letter returned to sender)
- Hunter Valley Aboriginal Corporation
- Hunter Youth Services
- Muswellbrook Showgrounds

The proposed development is unlikely to generate any long term negative social impacts. Short term negative impacts are likely to be associated with excavation and construction of the school, however these impacts are unlikely to be noticeable in the context of the Maitland Street and the traffic it carries and can be controlled through conditions of development consent.

The proposed school is unlikely to generate any material adverse social implications for the surrounding area and given the minimal feedback from the local community during the consultation process, it is reasonable to assume that the proposed school is generally supported by the local community. As such, there are no reasons from a Social Impact perspective, to refuse the application.

## **Aboriginal Cultural Heritage Assessment Report (ACHAR):**

A total of thirteen Aboriginal people and organisations registered an interest in being consulted for the project. The following list comprises the registered Aboriginal parties (RAPs) for the project:

- A1 Indigenous Services
- Aboriginal Native Title Elders Consultants
- Alieria French Trading
- Divine Diggers Aboriginal Cultural Consultants
- Gunjeewong Cultural Heritage Corp
- Hunter Traditional Owner
- Robert Syron
- Ungoороо Aboriginal Corporation
- Wanaruah LALC
- Wattaka Wonnarua CC Service
- Widescope Indigenous Group
- Wanaruah Nation Aboriginal Corporation
- Yinarr Cultural Services

The report concluded that there are no registered Aboriginal sites within the study area and no surface expressions of artefacts were identified within the study area. The area was not considered to have potential for subsurface archaeological material to be present as the area was considered to be heavily disturbed. The recommendation is no further archaeological assessment is required.

For further information of the community consultations, refer to the Social Impact Assessment report and Aboriginal Cultural Heritage Assessment Report (ACHAR).

Continued engagement will take place with stakeholders and communities during the statutory exhibition of the SSDA, as well as during future stages of the planning and development process.

PBCS will continue to update the school's webpage and produce updates at key project stages for stakeholders and communities.

### 3.0 DESIGN PRINCIPLES

#### 3.1 PRINCIPLE 1 – CONTEXT, BUILT FORM AND LANDSCAPE



Communication through architecture by being mindful of the existing site conditions, transport, demographic, and local schools. Respecting the areas sense of place within the existing site and streetscape. The building heights are generally single storey and are not higher than the surrounding buildings to blend in with the local topography.



Figure 55 Concept sections

The two storey buildings within the site are used as a main focal point, creating a sense of welcoming entry at arrival.

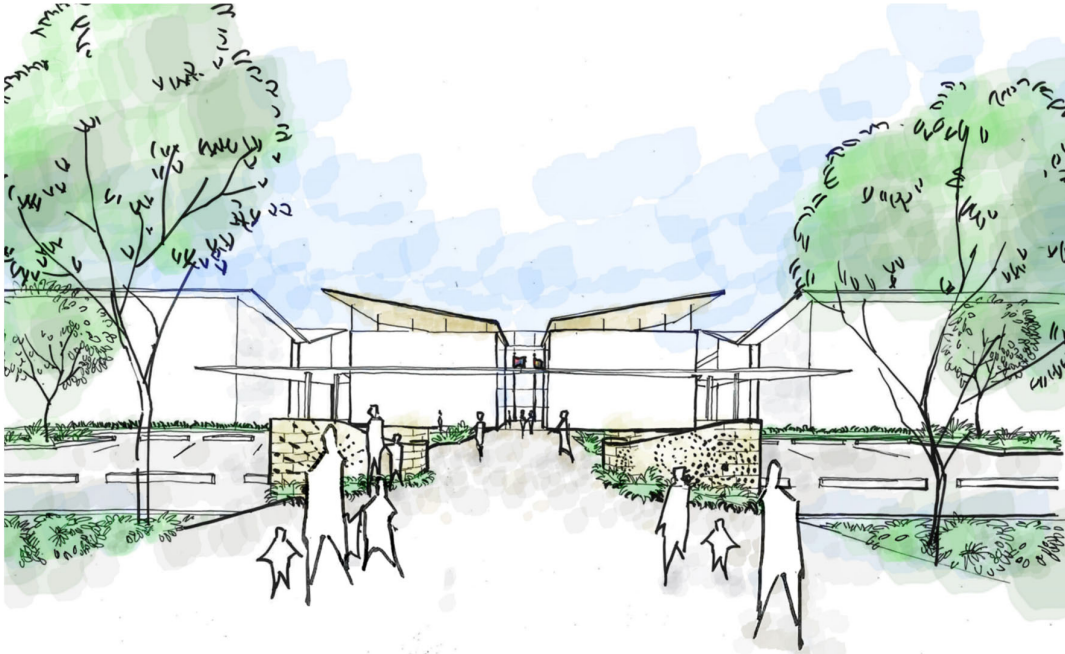
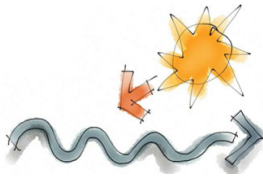


Figure 56 Sketch concept entrance

**3.2 PRINCIPLE 2 – SUSTAINABLE, EFFICIENT AND DURABLE**



Environmental sustainability is vital in the design of schools, with natural lighting and ventilation to maximize learning opportunities. It is understood that natural light is critical in the circadian rhythm of the human body in adjusting to day and night conditions, this informing routine, which is vital in the structure of a child's day. There are highlight windows to capture sunlight during the best parts of the day and eaves to protect from the harsh noon summer sun.

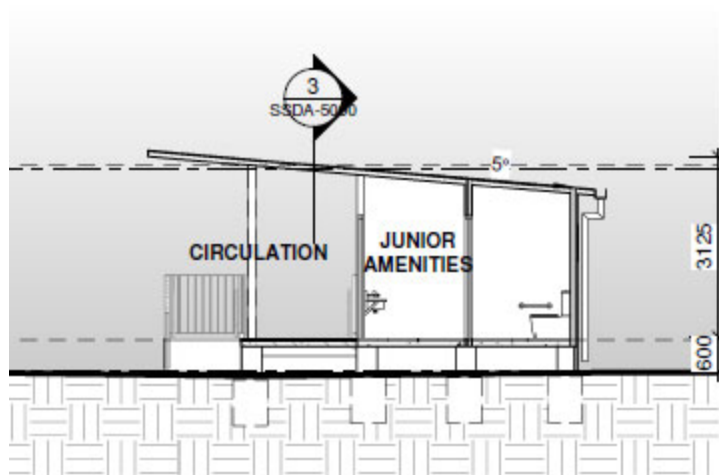


Figure 57 Stage 1 section

The materiality of the building is driven by locally sourced materials used reflect the natural surroundings of the site. For example, imaging the native kangaroo grass and the eagle against the open sky with neutral blends of bronze, greys and light blue tones as the colour palette.

The School will be constructed of durable, resilient, and adaptable materials which will preserve their look and feel over time and have timeless and durable qualities, to ensure they knit into the existing community. Long life, low embodied energy and high recycled content materials will be prioritised in the selection of materials during detailed design phase.

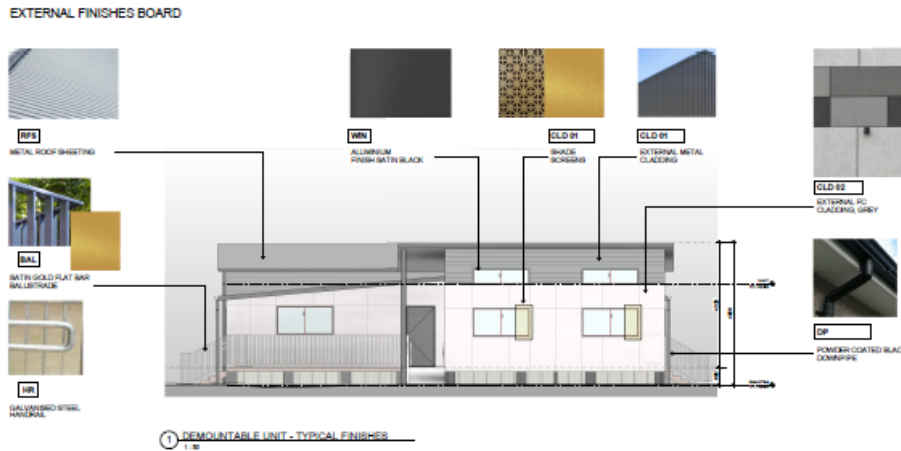


Figure 58 Stage 1 materiality

The Solar shading - created through metal framed eaves - will control solar gain, while the timber look panels will add warmth and texture. Integrated landscaping strategies soften the architectural composition, with planting enhancing the public facing areas. Natural light to learning spaces will be optimised through orientation of windows and shading devices.

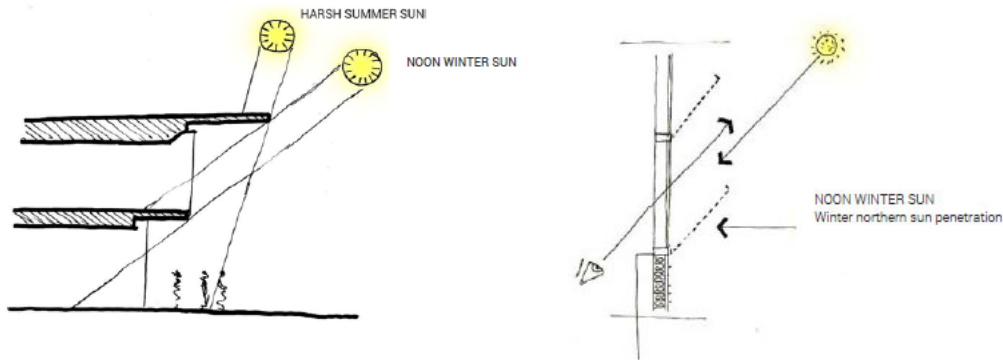


Figure 59 Sketch concept of sunshading strategy

**3.3 PRINCIPLE 3 – ACCESS AND INCLUSIVE**



Different environments accessed via ramps encourage spontaneous, voluntary, and joyful learning opportunities for children to explore and interact with their peers and the world around them. This provokes way finding between indoor learning areas, intimate courtyards, outdoor play areas, vegetable gardens and breakout spaces promoting learning activities for teamwork and hands on experiences.

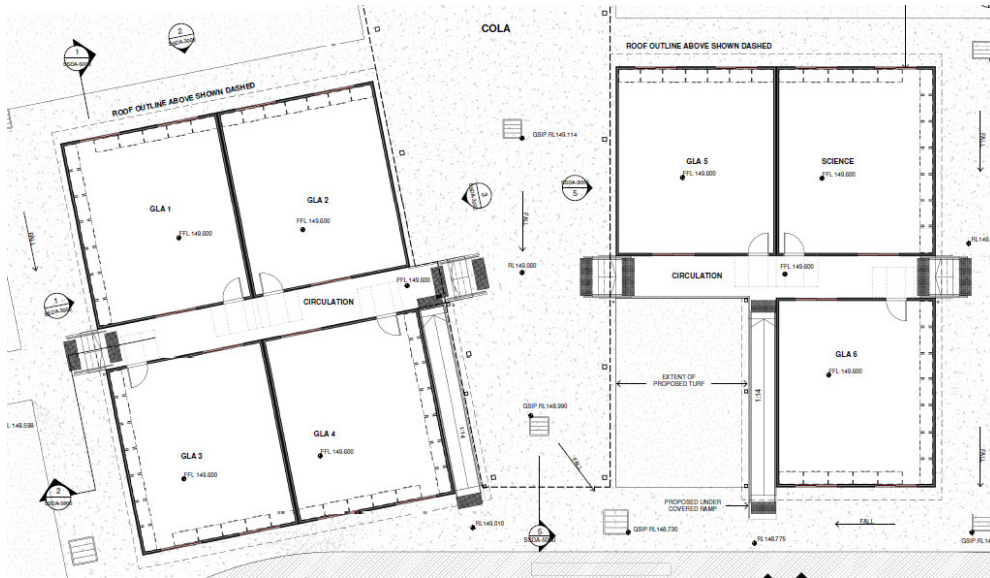


Figure 60 Stage 1

The Stage 1 demountable buildings are designed with multiple access routes in order to avoid unnecessary congestion during peak times. Hallways or corridors are substantially sized for good circulation and clearances spaces for wheelchair access.

The design ensures that there is always an alternative ramped access into the building and that access routes to/from the outdoor environment are visible and welcoming, making the way finding strategy intuitive rather than prescriptive.

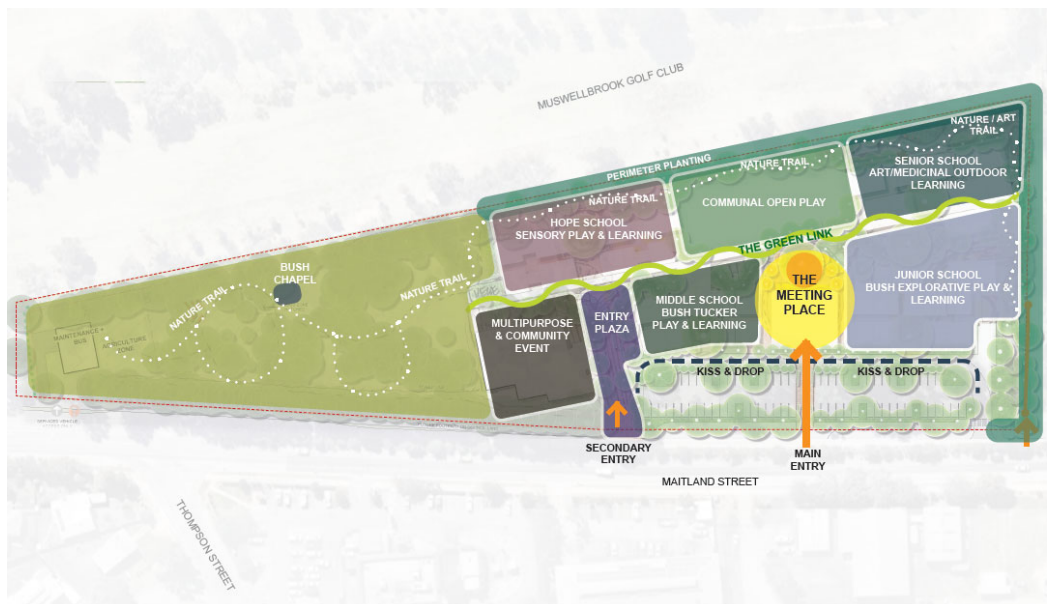


Figure 61 Landscape concept

Schools often have multiple entrances for different purposes. The main entrance to Pacific Brook Christian School will be at the heart of the site for day-to-day access. For large school community gatherings in the multipurpose hall, the forecourt has direct access from the carpark and pedestrian entries.

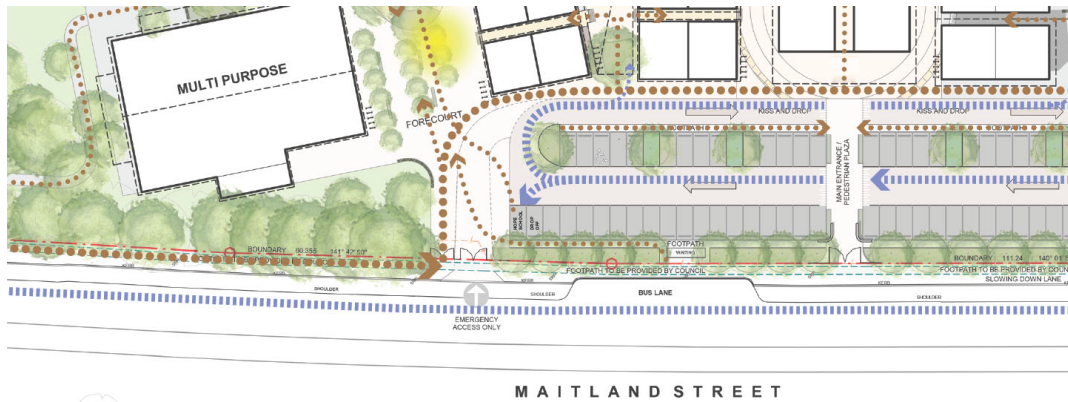
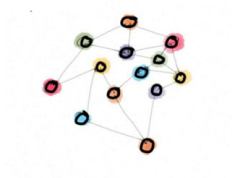


Figure 62 Site access diagram

There is dedicated Hope school pick up and drop off zones for ease of school access. This is particularly important for some special needs students who are sensitive to extended exposure to outside distractions on their route of getting to and from school entrance and to their classroom. The location of parking in proximity to the forecourt also minimises difficulty for mobility impaired students and allows assistance by parents to the Hope School campus.

### 3.4 PRINCIPLE 4 – HEALTH AND SAFETY



Safety, access, and connection are critical in providing a welcoming and secure place for children. Landscaped areas and materials have been considered to minimise safety risks, safety gates control access and open areas promote sight lines and passive surveillance. The development has been designed following Crime Prevention through Environmental Design (CPTED) strategy principles. The design aspires to create a safe pedestrian route for students, staff, and members of the PBCS community along Maitland street with footpaths on one side of the road and frequent pedestrian crossings.

Safe design is achieved through clear, well lit, passively surveilled pathways through the Site and legible and accessible entries to and within the buildings.

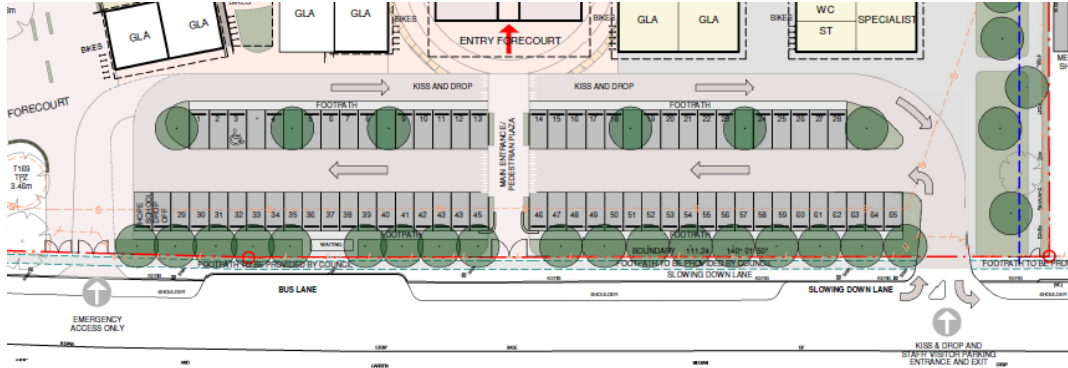


Figure 63 Masterplan carpark

Access via the different modes of transport (car, bus, cycle, foot) from all directions of the site have been considered carefully to ensure safety for all is maintained.

The Stage 1 buildings are all single storey with minimum 950mm sill height windows, design to prevent students climbing out or falling from too high up. The number of windows provided has been selected to provide adequate amounts of natural daylight which will minimise the need for artificial light and therefore save energy. Exposure to sun is another risk factor, so design allows for all windows to have enough eaves to protect the teaching spaces from the glare and heat gain produced by direct sun exposure.

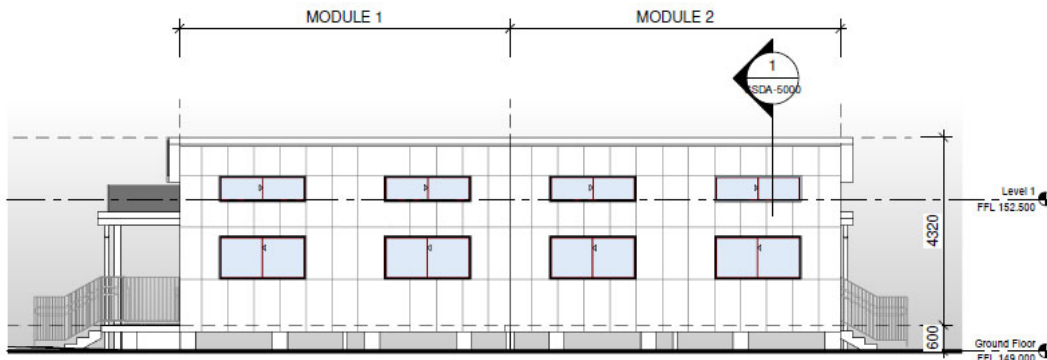


Figure 64 Elevation

**3.5 PRINCIPLE 5 – AMENITY**



The most beneficial relationships between children are grounded in equality, learning, and gaining insight from each other. There is a need for a variety of learning styles, thus sensory indoor spaces and experiences should be encouraged. In this way many modes of learning are valued including verbal, visual, kinaesthetic, logical, tactile, and rhythmic.



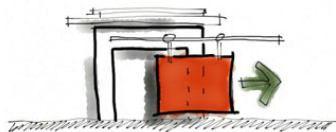
Figure 65 Landscape concept images

The design will provide socially and environmentally responsive solutions creating a pleasant and engaging spaces internally and externally. The design provides a variety of learning modes through flexibility of spatial arrangement, agile furniture, interactive indoor / outdoor environments that allow for individual, teamwork and gathering forms of learning.



Figure 66 Landscape concept sketches

### 3.6 PRINCIPLE 6 – WHOLE OF LIFE, FLEXIBILITY AND ADAPTION



Adaptability is a response to evolving learning outcomes. The children’s needs can be supported by the manipulation of fixtures and furnishings. It addresses the ability for multi modal spaces to become efficient and personal environments. Catering for children to be free in their learning experience.

Modular design allows for wide span open spaces that are able to be adapted to future changes in pedagogy and learning needs or adapted for other uses should the needs of the community change over time.

All the schools within the site have their own COLA, this allows for small intimate gatherings (#12 & #15 in figure) and also large assembly spaces for all schools to unite as one school in the communal

outdoor area (#2 & #3 in figure). There is flexibility in the spaces to encourage combined teaching and healthy learning arrangements.

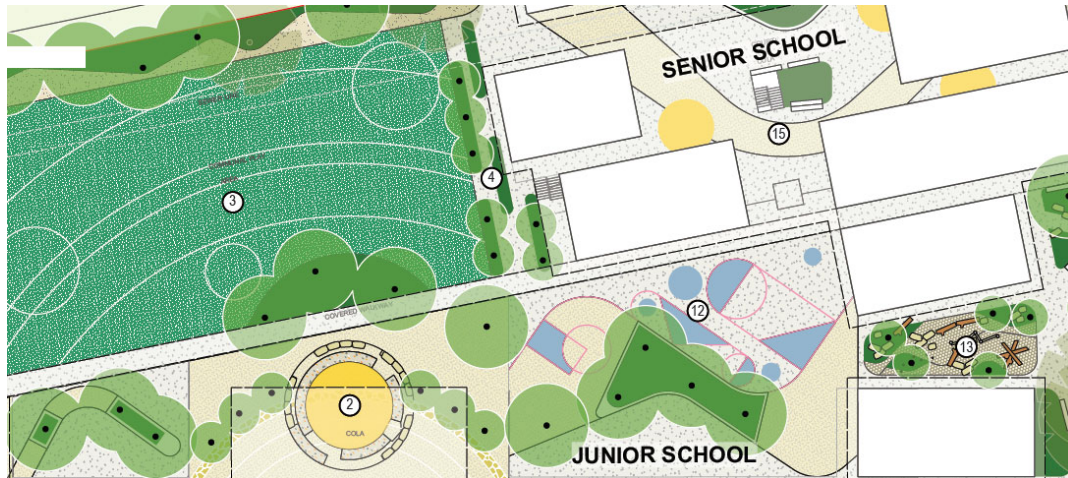


Figure 67 Landscape plan

Outdoor Learning and Play is strongly desired by the School and landscaping will encourage the use of outdoor areas for school activities beyond lunch & recess play. The landscape is designed to provide comfortable microclimates, educational material and encourage native fauna including birds and insects.



Figure 68 Landscape materiality

### 3.7 PRINCIPLE 7 – AESTHETICS



Scale and height of the proposed masterplan respects the neighbouring rural residential context. Materials are to be neutral and natural to reflect the surrounding context. Green and bluish tones represent the hills and valleys of the local Wanaruah Community, the surrounding bushland within the campus and the grey barestone cladding reflects the bark shedding from the native Eucalyptus.

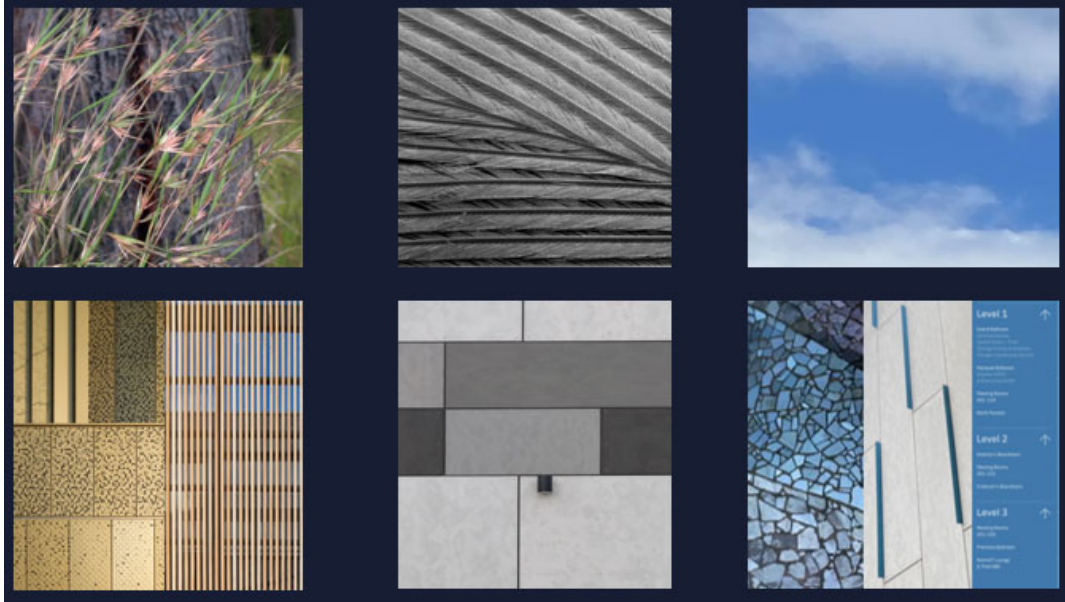


Figure 69 External building fabric materiality

The bulk and scale of the buildings overall respects the users experience focusing on the human scale and interface with the surrounding PBCS environment.

The site design and form of building creates usable outdoor learning and socialising spaces with a variety of climates for year-round use. The materiality and shading strategy appropriately controls the environment to maximise comfort and usability. It ensures a focusing/centred environment supporting union and a sense of belonging. The design supports the concept of arrival and circulation.



Figure 70 Landscape section diagrams

The simplicity of the central axis and the orientation of the buildings draws the attention of the user and facilitates the way finding strategy.

The interior design of the general learning spaces and science labs will be incorporate subtle colour in specific locations to add warmth and texture. Indicative interiors materials and furniture below.



Figure 71 Internal finishes and furniture concept