NBRSARCHITECTURE.

DESIGN EXCELLENCE/ URBAN DESIGN REPORT

NEW MARSDEN PARK PUBLIC SCHOOL
SEPTEMBER 2019

SEPTEMBER 2019 REPORT

NBRSARCHITECTURE.
Level 3, 4 Glen Street
Milsons Point, NSW 2061 Australia
architects@nbrsarchitecture.com
nbrsarchitecture.com
T +61 2 9922 2344
F +61 2 9922 1308
ABN: 16 002 247 565

Nominated Architects: Andrew Duffin: Reg No. 5602

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3D RENDERED VIEW

1. INTRODUCTION

1.1 PROJECT OVERVIEW

This Design Excellence Report has been prepared by NBRS Architecture on behalf Schools Infrastructure NSW (SINSW) (the Applicant). It accompanies an Environmental Impact Statement (EIS) in support of State Significant Development Application (SSD-9809) for the Marsden Park New Primary School at the corner of Northbourne Drive (to the east) and a proposed future road (to the north) within the Elara Estate, Marsden Park (the site). The site is legally described as Lot 2889 in Deposited Plan 1230906. The development footprint does not include a portion of the site to the west as this is reserved for a future alternative use.

The Marsden Park New Primary School will cater for 1,000 primary school students at completion. The proposal seeks consent for:

- Construction Stage 1 (Temporary School): a temporary school facility constructed within the western portion of the development site located on the future sports grounds. This temporary school facility is to accommodate a maximum of 500 students at any given time. Should the permanent school progress as per the program, the temporary school will not be required.
- Construction Stage 2 (Construction of Permanent School Facility): a permanent consolidated two storey courtyard building with capacity to accommodate a maximum of 1,000 students. This new school building is to comprise:
    1. 40 teaching spaces;
    2. A canteen;
    3. Library;
    4. Multipurpose hall;
    5. Office and administration space;
    6. Staff and student amenities; and
    7. Out of school hours care accommodation.
- Multi-purpose sporting facilities and outdoor play spaces;
- Associated site landscaping and public domain improvements;
- An on-site car park for 48 parking spaces including 1 accessible and a drop-off and pick-up area; and
- Construction of ancillary infrastructure and utilities as required.

The purpose of this Design Excellence Report is to identify and demonstrate the design process, consultation and development of the various considerations in forming the current design.

Response to SEARs

The Design Excellence Report is required by the Secretary's Environmental Assessment Requirements (SEARs) for SSD-9809. This table identifies the SEARs and relevant reference within this report.

Table 1 – SEARs and Relevant Reference

1.2 PROJECT DESCRIPTION

SEARs Item	Report Reference
4. Built Form and Urban Design • Address the height, density, bulk and scale, setbacks and interface of the proposal in relation to the surrounding development, topography, streetscape and any public open spaces. • Address design quality and built form, with specific consideration of the overall site layout, streetscape, open spaces, façade, rooftop, massing, setbacks, building articulation, materials, colours and colours. • Provide details of any digital signage boards, including size, location and finishes. • Clearly demonstrate how design quality will be achieved in accordance with Schedule 4 Schools – Design Quality Principles of State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017 and the GANSW Design Guide for Schools. • Detail how services, including but not limited to waste management, loading zones, and mechanical plant are integrated into the design of the development. • Provide detailed site and context analysis to justify the proposed site planning and design approach including massing options and preferred strategy for future development. • Provide a detailed site-wide landscape strategy, including consideration of equity and amenity of outdoor play spaces, and integration with built form, security, shade, topography and existing vegetation. • Provide a visual impact assessment that identifies any potential impacts on the surrounding built environment and landscape including views to and from the site and any adjoining heritage items. • Demonstrate good environmental amenity including access to natural daylight and ventilation, acoustic separation, access to landscape and outdoor spaces and future flexibility.	Section 4

SEARs Item	Report Reference
5. Design Excellence Provide design quality guidelines for the future built form and integration of landscape design. Provide a Design Excellence Strategy for the future stages of the development which demonstrates how design excellence will be achieved. This strategy should set out: • The design process leading to the proposal • The type and details of the competitive design excellence processes proposed to be undertaken, and clear rationale for this process having regard to established design excellence policy context and best practice • A method setting out how the proposed design excellence, public domain and landscape excellence process will be implemented as part of the planning process • Details of the method for the incorporation of sustainability into design.	Section 5
6. Environmental Amenity • Assess amenity impacts on the surrounding locality, including solar access, visual privacy, visual amenity, overshadowing and acoustic impacts. • Conduct a view analysis to the site from key vantage points and streetscape locations (photomontages or perspectives should be provided showing the building envelope and likely future development). • Include a lighting strategy and measures to reduce spill into the surrounding sensitive receivers. • Identify any proposed use of the school outside of school hours (including weekends) and assess any resultant amenity impacts on the immediate locality and proposed mitigation measures. • Detail amenity impacts including solar access, acoustic impacts, visual privacy, view loss, overshadowing and wind impacts. A high level of environmental amenity for any surrounding residential land uses must be demonstrated. • Recognise and address the adjacent heritage item to the north west of the development site that is identified on the SEPP (SRGC) 2006 heritage map.	Section 6

PROJECT DRIVERS

Marsden Park is situated within Sydney's north-west growth centre. Rapid population growth in this area necessitates the supply of local infrastructure, including educational facilities. Projected population growth within the local Schofields cluster is expected to increase student enrolments by approximately 2,573 students by 2031. The proposed new primary school aims to cater for approximately 38% of this student population.

Standard Education Principles
The Department of Education has provided the following five principles as a guide to create successful, future focused learning spaces.

Education Principle 1:
First and foremost, focus on the **needs of learners and learning.**

Education Principle 2:
Build **community and identity** and create a culture of welcome, inclusion and belonging that reflects and respects diversity within the school's community.

Education Principle 3:
Be aesthetically pleasing.

Education Principle 4:
Provide **contemporary, sustainable learning environments** that:

- Promote learning for students and teachers through collaboration, social interaction and active investigation
- Encourage learner self-management and self-direction;
- Support a full range of teaching strategies from direct explicit instruction to facilitation of inquiry and authentic project and problem based learning;
- Facilitate learning and connection anywhere, anytime by providing seamless access to ICT and integration of learning resources throughout the learning spaces;
- Be integrated into, and maximize the use of the natural environment;
- Enable aspects of the buildings, building design and outdoor spaces to be learning tools in themselves—for example, learning from the ecologically sustainable features of the design and associated energy management systems; and
- Are age and stage appropriate.

Education Principle 5:
Embed the potential for **re-configurability**, both in the present for multi-purpose use and over time for changing needs.

DESIGN IMPACT STATEMENT

The proposed school will provide additional capacity for the local area expected population growth. This will provide a future focused school. Potential adverse impacts on the area include traffic and noise. It is expected that traffic will increase at school start and finish times once the school becomes operational. The risk of neighbouring properties being adversely impacted during school hours will be alleviated through design solutions and management policies. Site investigations will be performed to identify any Indigenous heritage matters. Measures will also be taken to ensure there are no adverse environmental impacts.

OPPORTUNITY FOR COMMUNITY USE

Schools are often centrally located in communities and thus provide shared spaces and facilities that become the focal point of new communities.

Recreational facilities, open spaces and communal halls are components of schools that offer opportunities for wider community use. The school site in Marsden Park will potentially offer facilities in the form of sports ovals, a communal hall, library and canteen. These facilities could be open to the community for recreational sporting events, performance and dance, music, meetings and many other activities. The canteen provides the opportunity to facilitate catering for these activities.

THE PROPOSED NEW PRIMARY SCHOOL AIMS TO CATER FOR APPROXIMATELY 38% OF THIS STUDENT POPULATION

1.3 EXECUTIVE SUMMARY

“IN ORDER TO ACT AS AN EDUCATION FOR THE CHILD, THE ENVIRONMENT HAS TO BE FLEXIBLE: IT MUST UNDERGO FREQUENT MODIFICATION BY THE CHILDREN AND THE TEACHERS IN ORDER TO REMAIN UP-TO-DATE AND RESPONSIVE TO THEIR NEEDS TO BE PROTAGONISTS IN CONSTRUCTING THEIR KNOWLEDGE”

- Lella Gandini (1998)

The Department of Education has initiated this new school project to meet the future projected enrolment growth for the school for the next 20 years. The project will provide 40 permanent teaching spaces accommodating 1000 students, and core facilities, including administration, staff facilities, library and hall. The project planning also allows for future growth beyond this population.

As part of the predesign research into innovative learning environments and flexible, future focussed learning and precedent studies presented during the Function Design Brief Phase, the Design Team during the Concept Design Phase engaged in:

- An educational learning workshop with representatives of the school and specialist education planner.
- Precedent studies of new New South Wales schools including Mowbray, Anzac Park, Bourke St, Point Claire, Bellevue Hill, Wilton, Ultimo Pyrmont and Victoria Avenue: these new projects embody aspects of contemporary features including new flexible and common spaces.

This Report further develops the design based on a courtyard model, aligned with Northbourne Drive which becomes the main public facing address for the school.

The following is a brief summary of the Design Phase investigations and design activities and findings:

- Brief confirmation – the proposed Design largely meets the brief requirements defined

in the Functional Design Brief and EFSG documents.

- A preliminary Life Safety and Building Code analysis has been undertaken. The design will be further developed to meet current building standards and BCA requirements.
- Exploration of a range of environmentally sustainable strategies -
- several of which will be incorporated into the project.
- An aerial point cloud survey has been undertaken of the site.
- Geotechnical Investigations - Geotechnical investigations and report
- is commissioned and completed.
- Civil - Site observations undertaken, including inspection of site with
- overland flow and existing site conditions.
- Landscape- Photographic site survey undertaken, including assessment of existing vegetation, review of overland stormwater flow, and vehicle and pedestrian access as far as possible given that site clearance and road construction is still to occur.
- Site infrastructure was reviewed to:

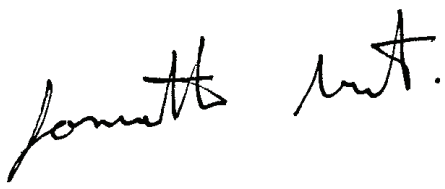
1. Understand current service provisions and new requirements, and its impact on the building design.
2. Plan the available points of service to the proposed building and understand any constraints and opportunities.

- Statutory Planning – Preparation of preliminary report.

The design solution responds to many factors. This design summary document articulates the unique contextual influences that have determined sighting, circulation, environmental responsiveness, heritage and cultural responsiveness.

The design has taken cues from social influences and educational aspirations. Marsden Park is a rapidly developing and changing environment. It is a inclusive, youthful, active growing community, with a cultural mix.

The complex weave of all these levers has led to a design concept that is contextual, environmentally respectful and aspirational in striving for an inclusive campus of wellness and support. The central design idea is to create a symbolically unifying campus which respects context, heritage, circulation and safety. The basic education building block is based around creating neighbourhoods which respond to the Educational Principles articulated by the school community.



Architect
Studio Principal - Education
NBRSARCHITECTURE

1.4 EXISTING SITE SUMMARY CONTEXT & ANALYSIS

The total site is approximately 3 hectares, The New school is proposed on 2.4 hectares of the site with the remaining left for future use. Marsden park is located approximately 50 kilometres north-west of Sydney city centre. The site is currently part of a new land release development. Individual houses have started to be constructed in the area. The site and surrounding sites have been cleared of all vegetation and some of the adjacent roads have been constructed.

The school will be situated adjacent to a new arterial road on the northern side which gives direct access to Richmond Road. It is located on a relatively flat site with a slight fall of 3m from east to west. The external play and learning spaces enjoy a northerly aspect.

The main courtyard building is located to the south east corner of the site adjacent a proposed public park to the south. This location provides the least impact on the amenity of the future residential community. The main entry and drop off is to the east from a new proposed road, Northbourne Drive. There are no significant distant views available from the site. New residential areas are proposed surrounding the site

The site is a regular shaped parcel of land with no natural features. Any past water courses or natural features have been filled by the developer.
The following diagrams show site analysis studies.

Figure 1: City Context

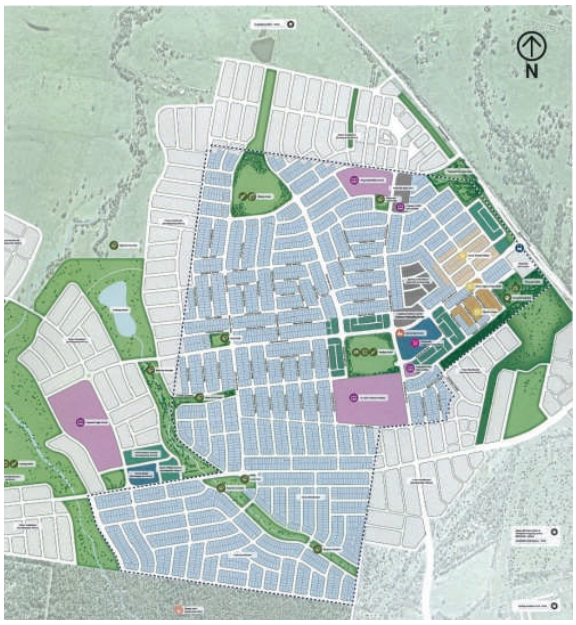


Figure 2: City Context

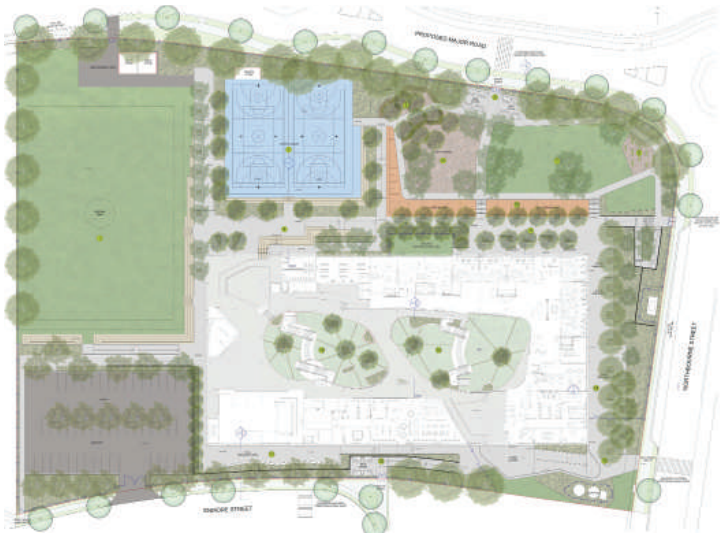


Figure 3: Landscape Plan

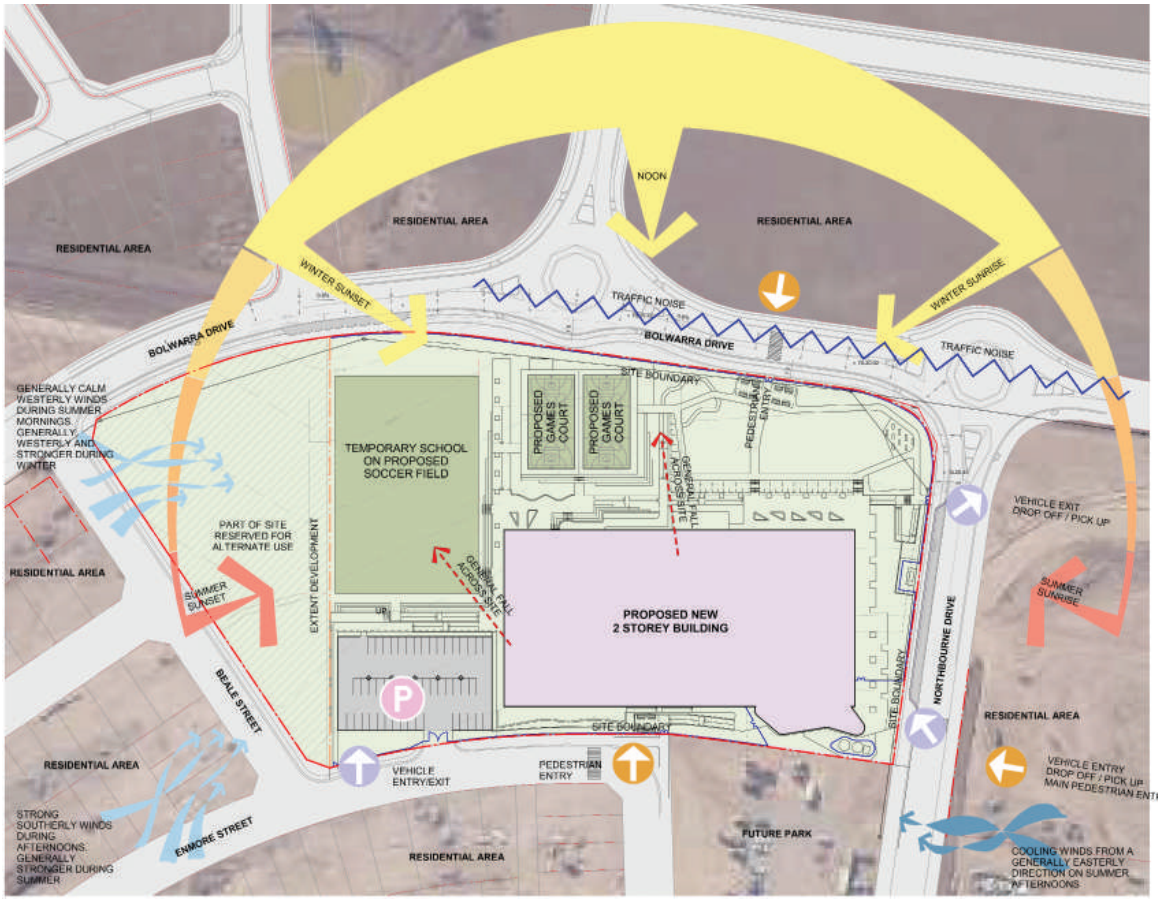


Figure 4: Site Analysis Plan

1.5 DESIGN BRIEF PARAMETERS AND PROCESS

Any design is a response to the Brief and the Parameters.

The brief is to create a new Department of Education Public School for 1000 students on the New Marsden Park Public School site. The Department of Education, in broad terms, defines the curriculum and spatial requirement for the proposed role. The design must answer to the Department of Education's Educational Facilities Standard Guidelines (EFSG).

The design response should then answer to the unique context of the new Elara Estate, Marsden Park region, and site. Many parameters/levers will determine an appropriate design response which in turn will deliver a unique and contextual solution. Diagrammatically, below, are a number of the parameters that play a significant part in shaping the design response.

Within each of the above parameters there will be finer grained levers that may take priority. The design response is to study the above in depth and be immersed in an understanding of the site and prioritise solutions.

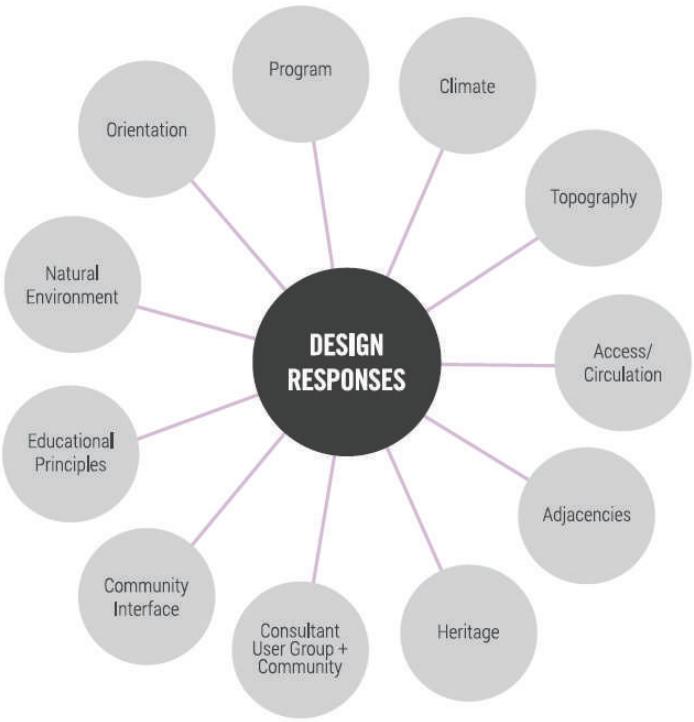


Figure 5: Design Response Diagram

1.6 CONCEPT DESIGN PROCESS

THE DESIGN PROCESS HAS BEEN A METHODICAL ONE STARTING WITH SITE INVESTIGATION AND WORKING THROUGH THE CLIENT PROGRAM AND ASPIRATIONS.

The project program is derived from the basic EFSG Functional Principles to the more complex and aspirational bespoke Educational Principles defined by the School Reference Group (PRG).

The Educational Principles were informed through research, benchmarking tours and engagement with the Design Team's Educationalist.

Following research by Architects, Landscape Architects, Heritage Advisors, Planners and Educationalists the Design Team produced a series of Concept Design Master Plans:

The three Concept Designs were presented to the NSW Department of Education on 7th of February 2018 in the form of a functional design brief. Following this report Schools Infrastructure consulted intensively internally and instructed the Current Design Team to prepare an approved preferred courtyard school concept.

Figure 6: Masterplan Diagrams

1.7 CONCEPT DESIGN

DESIGN PRINCIPLES

Building Design Principles

Flowing from the Educational objectives, site visits, and a series of design meetings with the PRG, four key objectives have emerged as follows:

- A campus with a heart
- A flexible Innovative learning community
- A connected campus
- An intrinsically sustainable design

These have been further explored as follows.

Create a Campus Heart

- Gardens and paved landscaped courtyards to provide shelter and shade as well as weather protection from winds and storms
- Create secure spaces that allow breakout from learning nodes and hall for school gatherings.
- Landscaped spaces as outdoor learning areas - 'The Third Classroom'
- Courtyard design assists in the navigation of the site gradient with integrated ramping
- The courtyard heart provides a visual connectivity to link the learning areas and other parts of the campus

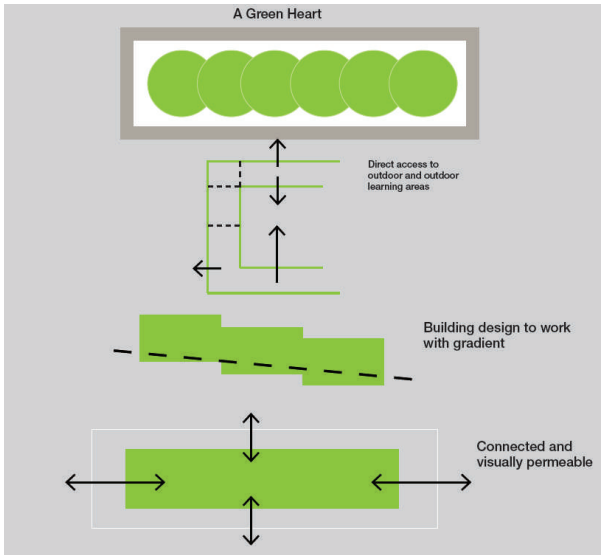


Figure 7: A Campus Heart

A Flexible Innovative Learning Community

- Learning hubs and learning streets as basic node options
- Ability to easily reconfigure space in multiple arrangements to suit different teaching and learning models.
- Changes in pedagogy can be accommodated from traditional classroom through to team teaching and project based distributed models

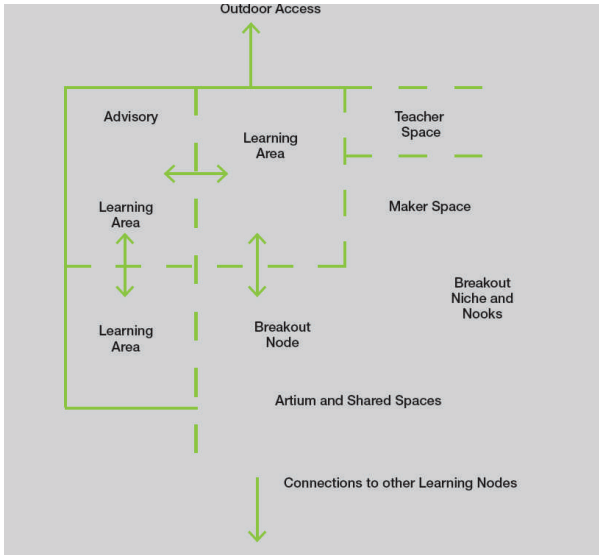


Figure 8: A Flexible Learning community

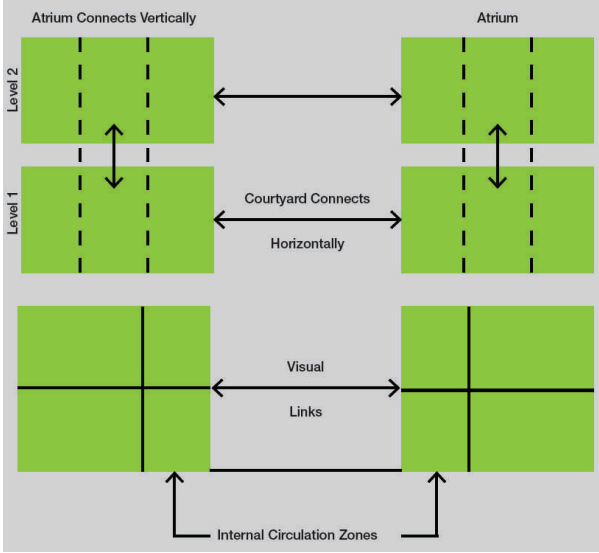


Figure 9: A Connected Campus

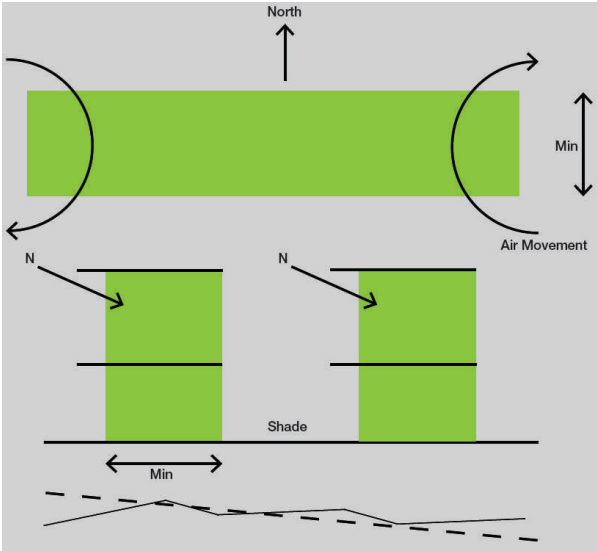


Figure 10: Intrinsic Sustainability

A Connected Campus

- Courtyard links the whole school and learning areas
- Internal circulation provides visual linkage to all parts of the campus

Design to be Intrinsically Sustainable

- Maintain and restore local landscape and create habitat
- Optimise building for natural ventilation and cooling
- Minimise building depth
- Optimise for natural daylighting
- North-South orientation, and minimise exposure to the West
- Reduce building footprint by having a two-storey building
- Treat run off on site and capture run off and rainfall for re-use on site
- Minimise cut and fill- balance earthworks

These Principles have been explored and incorporated into the Concept Design.

STRATEGIES

Building Configuration

As the planning centred on the courtyard design has evolved, it was seen as important to visually connect the internal courtyard with the outside play areas. Working with the fall of the land towards the west, the design now proposes the creation of an under croft at the west end of the campus that incorporates the Hall.

The new building embraces a modern

innovative teaching philosophy, which is research-driven, active and student centred. Learning spaces - both formal and informal in character, are proposed, promoting creativity and flexibility, and allowing for multiple uses concurrently, so that students may undertake a range of activities as individuals or groups.

Break out, informal, flexible learning spaces provide an extension to the formal teaching areas whilst encouraging informal peer-to-peer learning. The use of operable door/walls allow the school to customise spaces to suit the teaching program and class size.

The learning levels are organised with both flexible Learning Street and Hub models. The circulation zones that can be arranged into different learning node configuration through use of sliding and folding doors and movable furniture.

At the eastern end, the two floor plates are connected with an internal atrium with an activated stair that doubles as amphitheatre. Internal connectivity is enhanced through the internal circulation zone that provides visual links between all parts of the campus.

The west façade at the upper levels overlooks the playing fields. The facade takes advantage of these existing views at the upper levels.

The predominant axis of the building is east - west. The buildings' largest surface area face the north sun. Glazing that faces eastern and western sun will be screened appropriately. The condition along the western face of the building often creates a high level of solar heat gain. The design of sun screening can overcome this effect. However, to improve the energy efficiency of the building, the cladding will be designed to reduce heat gain on the west and other faces. Shading that limits solar gain on the western face of the building will respond to the low angle of the sun late in the day. This is expressed as vertical fins or screens. The northern faces of the building will also be designed to reduce solar heat gain in the middle of the day. The design of all facades of the building will be considered with regard to solar orientation.

Envelope Design Criteria

The exterior cladding system will be determined based on a set of criteria that has been generated from the DOE requirements and school/community input.

The intent is to explore a series of cladding options that will be vetted based on their ability to meet these needs. Due to the scale of the building and the number of functions, a variety of systems will likely be employed.

The criteria that we have identified to be a part of the assessment criteria to assist in determining where to best located the cladding options include:

- Contextually appropriate for the local neighbourhood.
- Architecturally represents the building functions both at the whole building and space planning level.
- Ability to be hung or attached to either the existing or proposed structural system.
- Contributes to sustainability of the whole building in the following categories:

1. Energy Efficiency - including solar loading and insulation

2. Local and Regional Materials
3. Renewable Resources
4. Daylight to interior spaces
5. Acoustics

- Ease of maintenance and durability including impact resistance and graffiti removal
- Availability of manufacturers and installers.
- Ease of phasing construction.
- Budgetary constraints.

Exterior cladding systems and materials currently under consideration include, but are not limited to:

- Curtain Wall - Stick Built
- Curtain Wall – Unitized
- Fritted glass for curtain wall systems and skylights
- Metal screen panels with custom cut openings
- Metal panel system, such as Alucobond,
- Fibre Cement Panel rain screen systems
- Brick cavity wall
- Pre-cast concrete panels

The new building is planned to be sympathetic to the fabric of the emerging suburb including the nearby commercial and residential zones, while establishing a presence for the school. Practical materials and finishes selections add colour and contribute to an overall stimulating and engaging environment.

The current proposed façade ensemble under consideration consists of durable and robust materials at the low levels and light weight cladding and glazing systems at the upper levels.

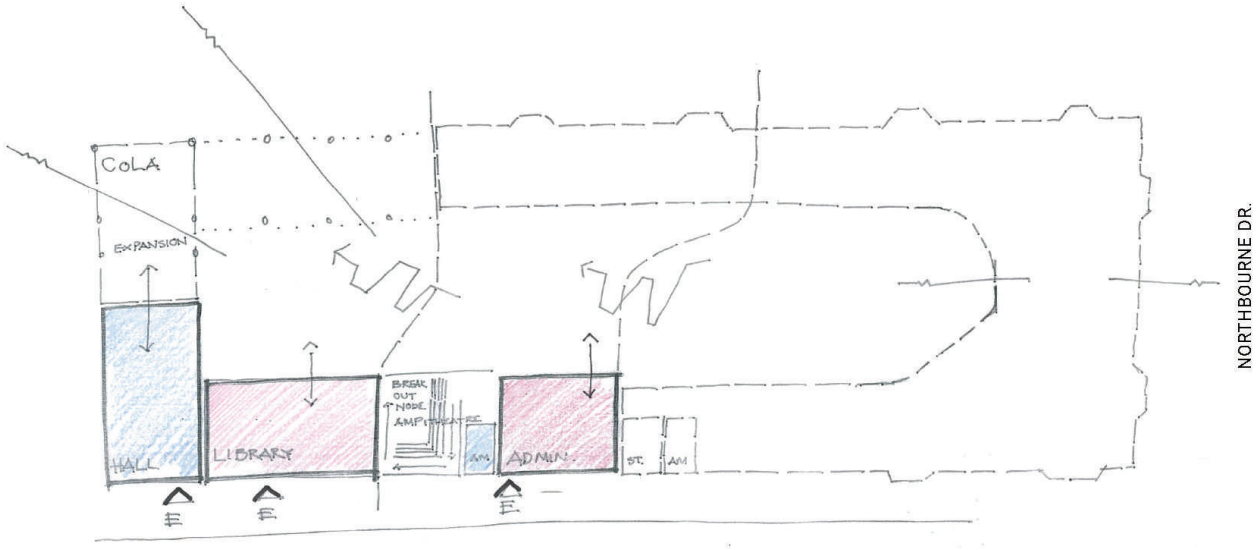


Figure 11: Lower Ground Floor and Ground Floor

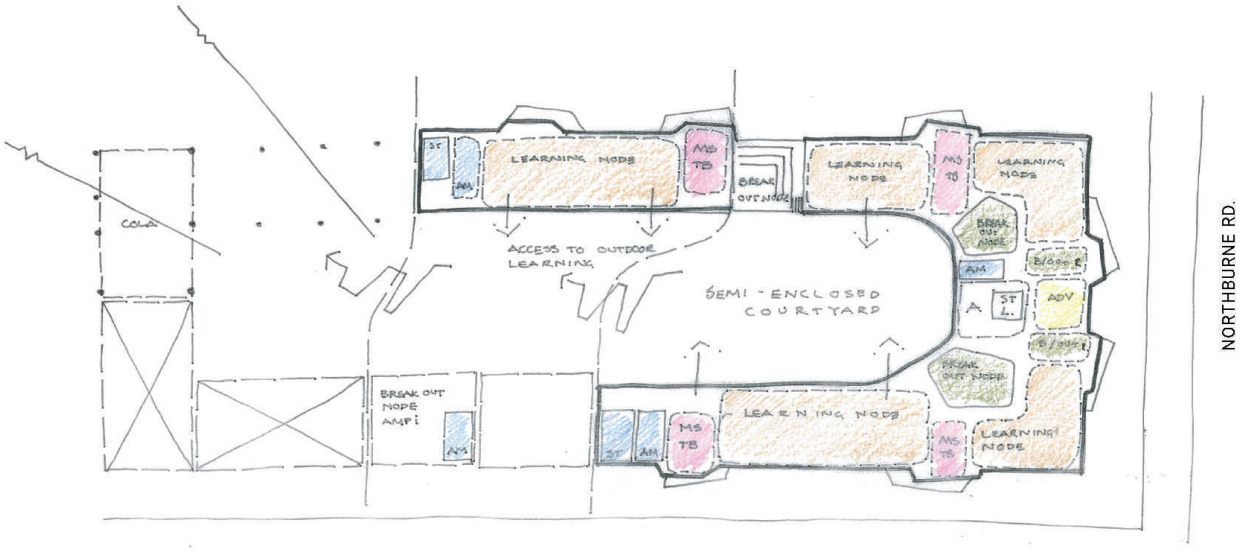


Figure 12: Upper Ground Floor

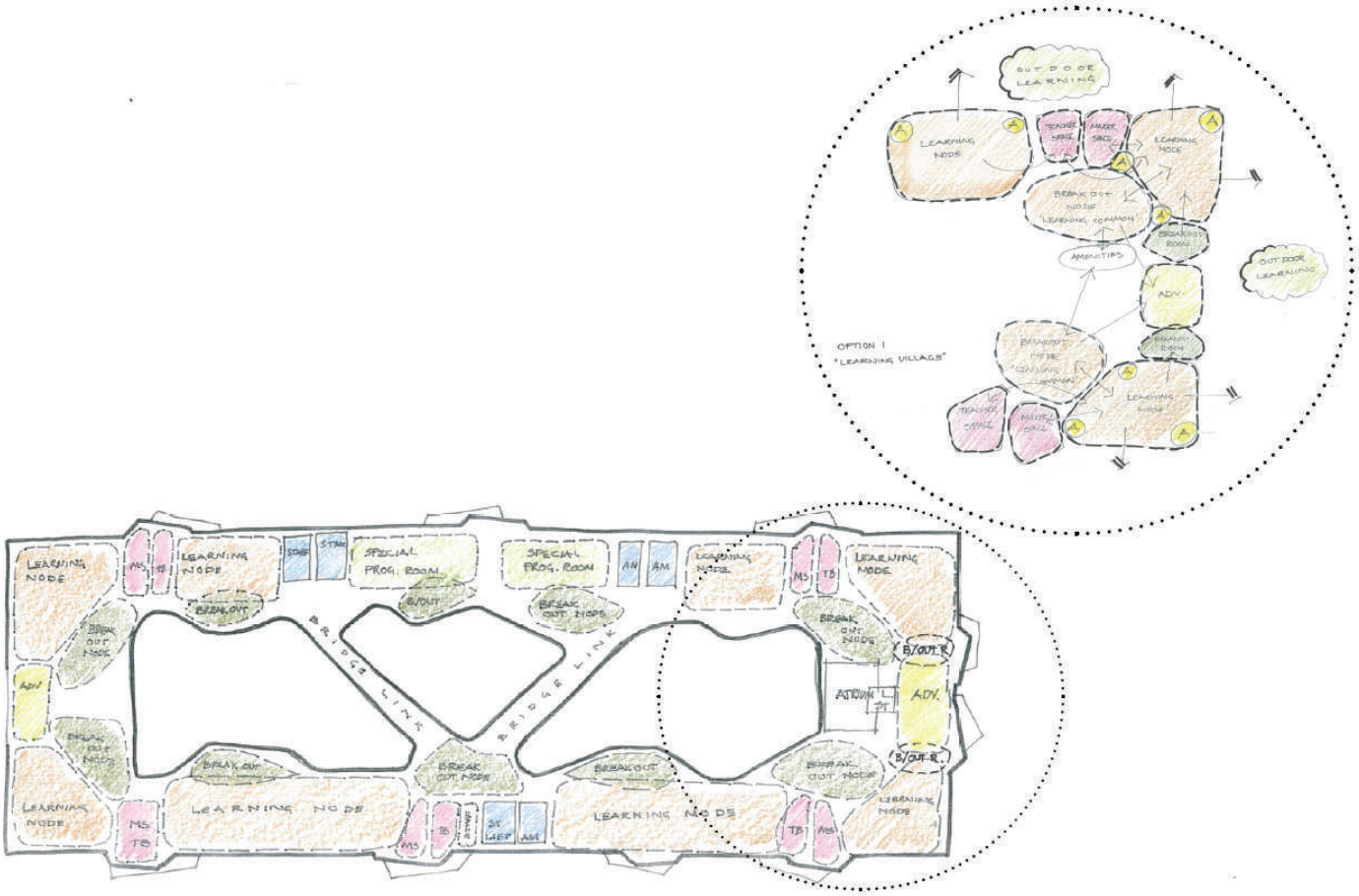


Figure 13: First Floor

2. DESIGN PRINCIPLES

Taking into account the Design Process, the following statement is an articulation of the Design Principles in accordance with the State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017. Many of the principles have been represented in a graphical from.

PRINCIPLE 1
Context, built form and landscape

PRINCIPLE 2
Sustainable, efficient, and durable

PRINCIPLE 3
Accessible and inclusive

PRINCIPLE 4
Health and safety

PRINCIPLE 5
Amenity

PRINCIPLE 6
Whole of life, flexible, and adaptive

PRINCIPLE 7
Aesthetics

2.1 PRINCIPLE 1 - CONTEXT, BUILT FORM AND LANDSCAPE

LANDSCAPE

Marsden Park is evolving as a new urban environment, supporting the growth of wider Sydney. The Nw Marsden Park School site is a greenfield site in an emerging neighbourhood that was once rural but now consists of 1-2 storey modern townhouses and houses. The addition of the school will provide a great asset and education facility for this new community.

The landscape design of the school site will enhance the sites context and surrounds as well as providing onsite amenity.

The design proposes landscape buffer zones to its boundaries as well as street tree planting. The buffer zone will contain native canopy trees with street trees to be selected in conjunction with Blacktown City Council. The subdivision area is currently devoid of tree planting. Areas within the site will also feature tree planting to enhance amenity by providing summer shade to seating and play areas as well as softening building facades. Shade tree planting is proposed to car park areas.

The open space areas of the school are well connected to the building form. The large central courtyard space is accessed from multiple areas including the main entrance, library and circulation spaces. The school hall opens to a covered space to the north and an open terrace to the south. The northern covered space is open to the north and west connecting to sports courts and a sports field. Break out spaces to the east and north are directly accessed from learning spaces.

The areas of native trees, shrubs, grasses, groundcovers and trees will occur throughout the school as a resource for learning (science and visual arts).

DESIGN INTENT

The design approach for the New Marsden Park School landscape concept responds to the unique landscape characteristics of the site as well as general design principles that help to provide the basis for a safe, fun and maintainable school environment. The collection of these design criteria are as follows:

Level Changes and Slopes

- There is a relatively significant fall of approximately 9.0m across the site from east to west. This concept aims to use slopes and planted batters while limiting the use of retaining walls as much as possible, to avoid hard edges and potential fall heights.
- There is scope to incorporate slopes and mounds into the playground areas, or as informal amphitheatres and viewing areas overlooking the sports ovals.

Outdoor Learning

- The concept allows for the Learning Zones to open up directly into a sheltered outdoor learning space, that would be shared between a few of the adjacent Learning Zones.
- These areas would be framed by vegetation or mounding to provide shelter and shade. There is also an opportunity to utilise the low point in the north western area of the site to create a shallow wetland for stormwater retention and treatment as well as outdoor learning around subjects like biodiversity, water cycle and habitat.

Shade

- All major play structures would include a shade structure as well as a designated covered play area that could be incorporated into the internal courtyards.
- Main circulation routes and outdoor seating areas with trees will provide shade relief while moving through the school grounds.

Water

- There is an opportunity to use the natural grades of the site to establish some shallow feature drainage swales, like a dry creek bed, that would direct local runoff to water storage areas.
- These swales could also act as non-prescribed play areas when dry or low flows. Incorporating water sensitive urban design (WSUD) treatments would provide invaluable education experiences for the school students.

Play Areas

- The concept has provided a range of shaded playground areas for different ages and abilities.
- The scheme also proposes some formalised sports areas, both grassed and hard surface. These spaces are useful for assemblies and larger gatherings like school fetes etc.

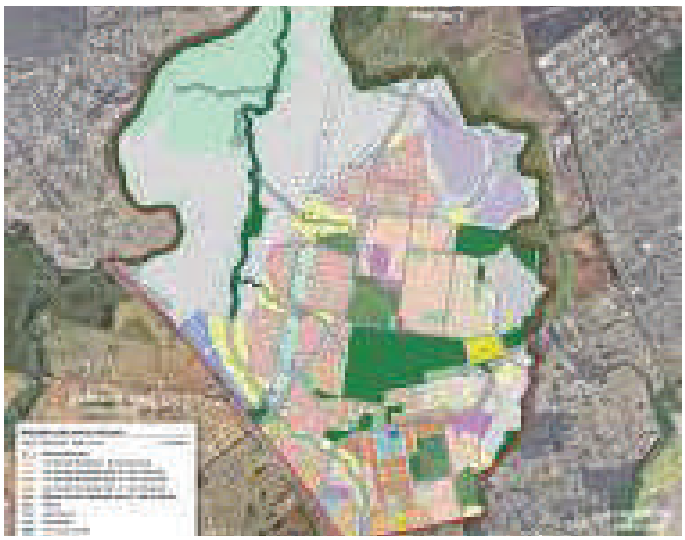


Figure 14: Ariel Map

Figure 15: Commercial Area

Figure 16: Elara Estate Ariel View

Figure 17: Residential Neighbourhood

2.2 PRINCIPLE 2 - SUSTAINABLE, EFFICIENT, DURABLE

DESIGN PRINCIPLES

A complete sustainable building strategy includes a multitude of tactics including, but not limited to, energy efficiency, air quality, and water use reduction. The strategies employed are often hidden to the occupants of the building. However, in a learning environment, it is particularly important to implement techniques that are expressive and are reinforced throughout the built environment.

The concept design proposes identifying a cohesive sustainability story that illustrates multiple sustainable methods for addressing an important environmental theme. This story or grouping of strategies should be graphically illustrated in a cohesive way both inside and outside the building.

SUSTAINABLE STRATEGIES

Sustainable design strategies that shall be incorporated in the Schematic Design include:

Site Sustainability

- Use of native plants, and vegetation of site
- Integrated storm water management best practices, including a rain garden and retention systems for dealing with stormwater runoff.
- Above or below ground rain water tank storage
- Kitchen, Food and Science garden areas

Water Efficiency

- Low flow fixtures
- Tanks

Materials & Resources

- Use of material containing recycled content wherever possible

Indoor Environmental Quality

- Use of shading devices on west facades to minimize glare and solar gain.
- Use of skylights to increase daylight in spaces.

SUSTAINABLE STRATEGIES

Sustainable design strategies that shall be investigated to ascertain if they shall be incorporated into the project include:

Energy & Atmosphere

- Employment of photo-voltaic panels.
- Purchase power generated from renewable resources (sun, wind).
- Provide immediate feedback on energy use to facilitate student monitoring and learning.
- Employment of solar thermal panels for hot water.
- Employment of mechanical cooling systems.

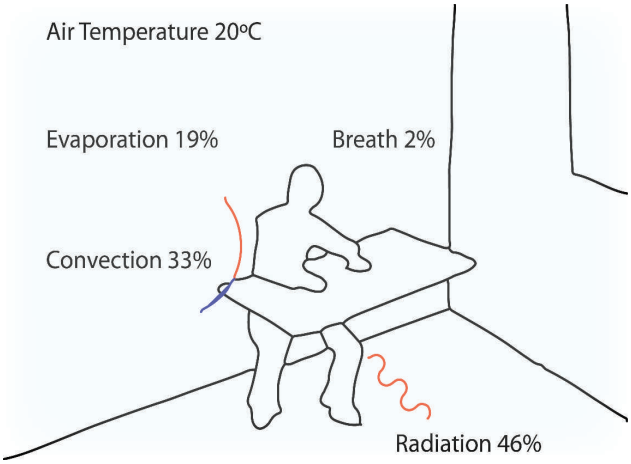


Figure 18: Perfect comfort, perfect physiology and perfect learning
Source: 'Low carbon approaches for high performance schools in the tropics' report by GHD

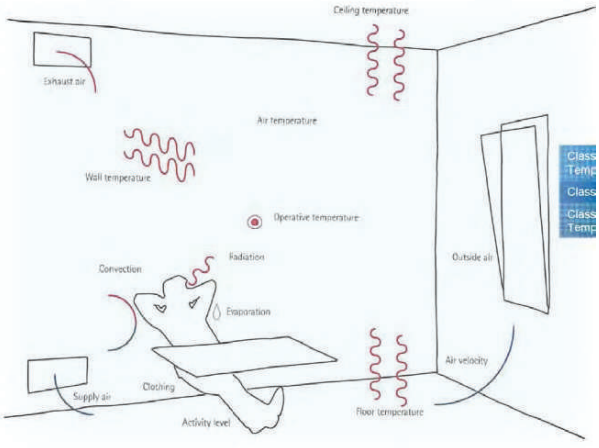


Figure 19: Optimal learning: Thermal comfort
Source: 'Low carbon approaches for high performance schools in the tropics' report by GHD

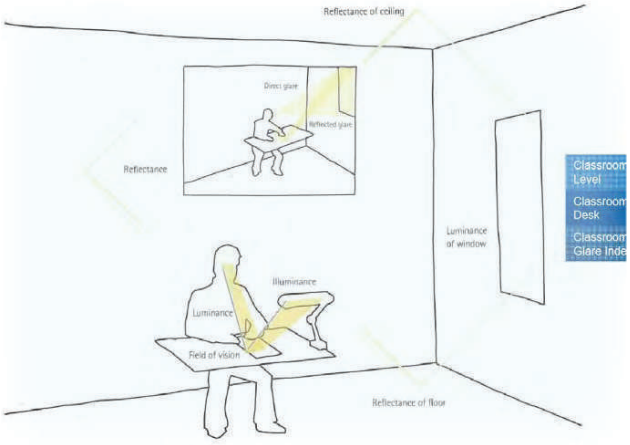


Figure 20: Optimal learning: Light and visual comfort
Source: 'Low carbon approaches for high performance schools in the tropics' report by GHD

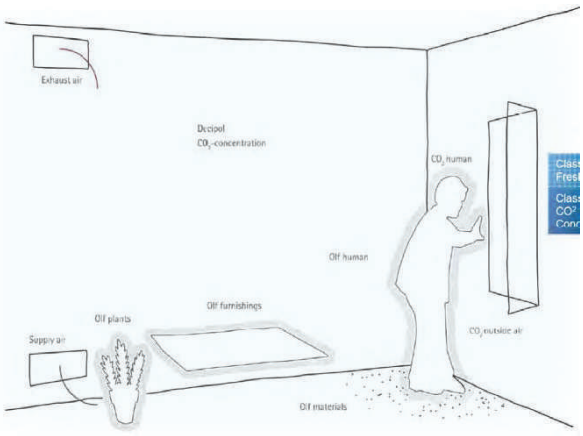


Figure 21: Optimal learning: Internal Air Quality
Source: 'Low carbon approaches for high performance schools in the tropics' report by GHD

2.3 PRINCIPLE 3 - ACCESSIBLE AND INCLUSIVE

ACCESSIBLE & INCLUSIVE

Clear navigation on arrival and through the school is a key driver in the design. Working from the new drop-off adjacent to the main arrival point from Northbourne Drive to the east, the proposal reinforces the arrival sequence and assists the welcoming feel by bringing the main public entry point close to the site edge. Through architectural treatments of volume and canopy complete with generous overhangs define and re-enforce the arrival navigation cues.

Clear navigation will be achieved through importance of form, transparency and close proximity to the arrival edge. Once within the embracing form, clear lines of sight and navigation will be a natural priority. Even with the expansive site and descending contours of the site the proposal encourages ease of circulation.

Pedestrian movement is possible on the ground floor edge of the courtyard internally under a generous overhang for the full perimeter from one end to the other. Where there are gaps in the ground floor buildings to increase external relationships and spaces, these gaps will remain roofed. Accessible paths also connect around the outside of the courtyard school and the various play and external learning spaces

Within the courtyard the second floor contains perimeter breakout spaces that connects through neighbourhoods for the full circumference of the courtyard. Lifts are located in a seamless way to ensure inclusiveness.

The clear navigation and inclusive principles set the design as a community access facility.

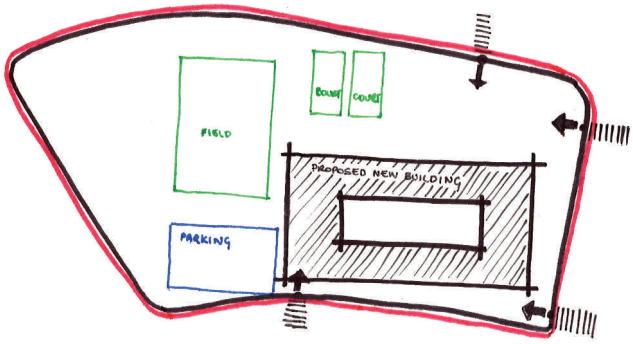


Figure 22: Access and Arrival

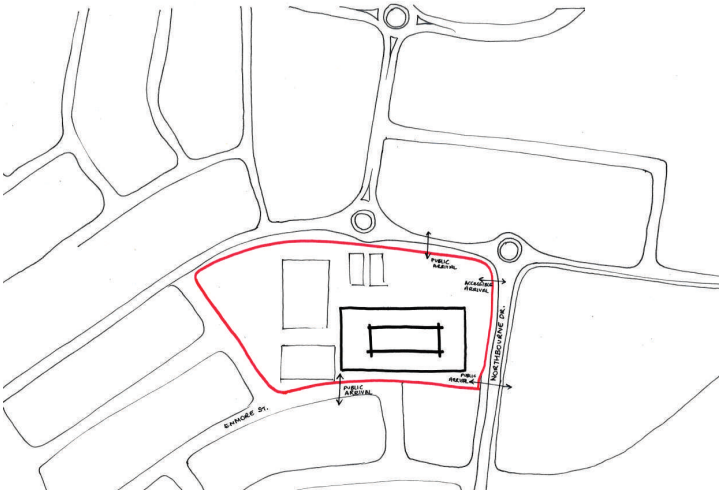


Figure 23: Public Arrival

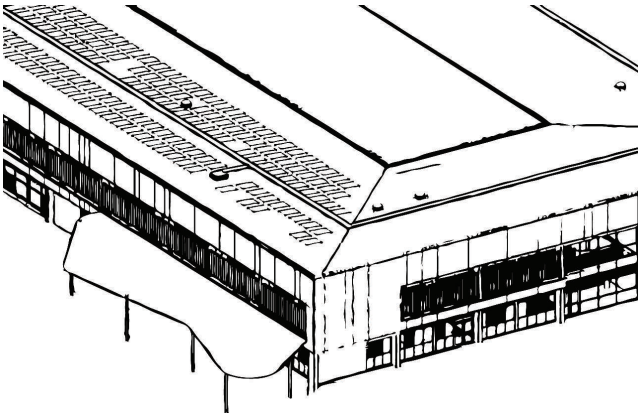


Figure 24: Volume Awning Announcement

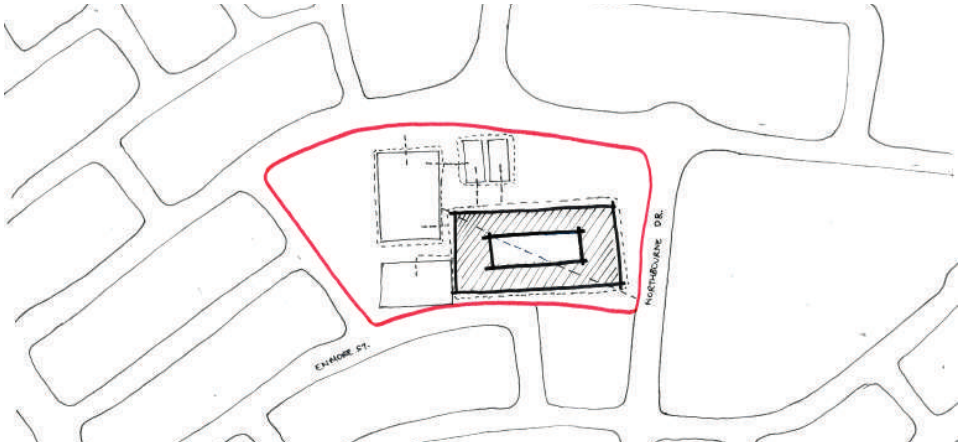


Figure 25: Site Circulation

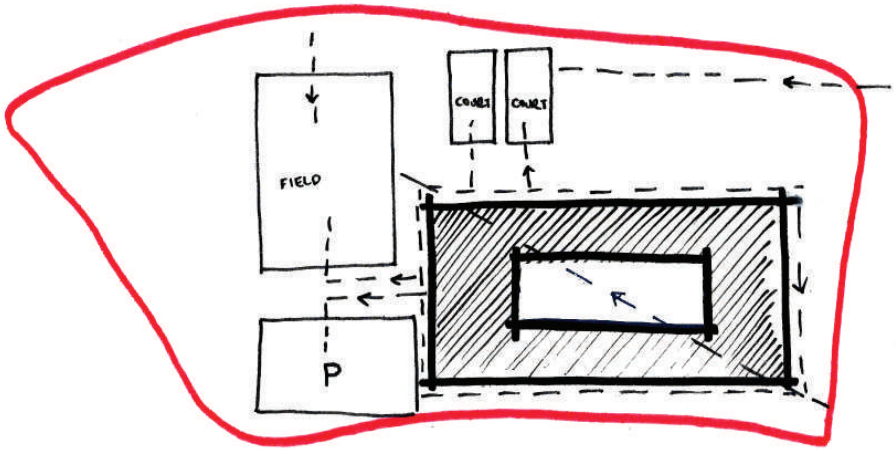


Figure 26: Accessiblity

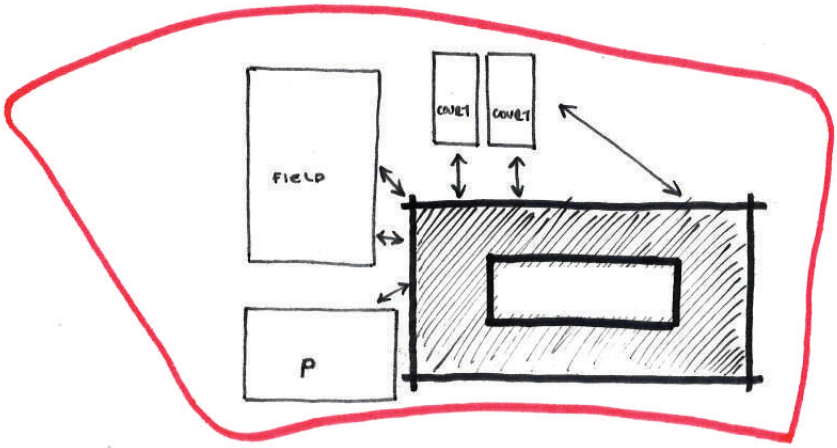


Figure 27: Visual Connectedness

2.4 PRINCIPLE 4 - HEALTH AND SAFETY

HEALTH & SAFETY

The key concept of wellness has been articulated in Principle 2. The design ethos of creating a positive environment is a key lever.

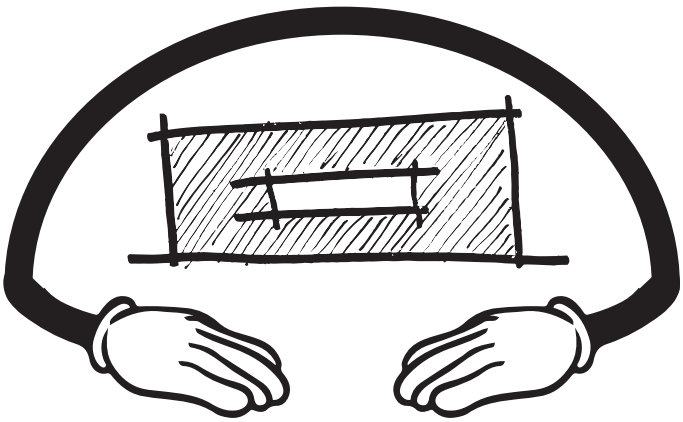
The design clearly reflects the ideas of a caring, embracing community on a social level along with the physical and environmental sensitivities created through site planning and spatial arrangements.

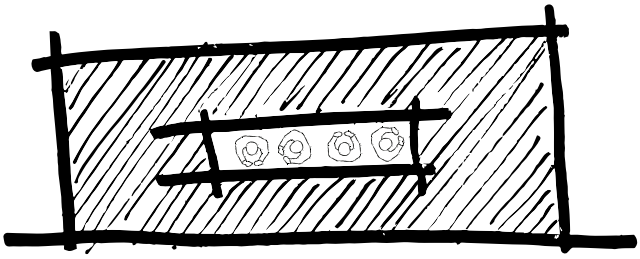
The embracing design reinforces the idea of belonging and community while the neighbourhood breakdown ensures each student and staff are highly valued. The site arrangement is responsive to needs and creates a more intimate sense of identity and belonging.

Safety and security is addressed on a number of levels. The neighbourhood concept supports a safe environment. Each neighbourhood has a staff work station in a distributed format allowing greater student/staff interaction and surveillance.

The large site is challenging to fully fence. The School Leadership has a desire that the school be welcoming and inclusive and that high security fencing be minimised. The outside community is welcomed on to the site to access many of the facilities through continued use and future opportunities.

This freedom of access will require a level of control as directed by the Department of Education. The design approach will be to minimise tall security fencing. The priority principles will be to utilise building edges as a security line, locate tall security fences inboard from the boundaries, ensure good level of design respect, ensure good community access which will support passive surveillance and careful site area lighting.





SOLAR ACCESS

The design principle includes more active / communal spaces to the courtyard centre and more passive / focused spaces to the outer sides.
Active solar devices control heat and glare on all sides. There is universal research that supports learning spaces being best served by southern light. Southern light is best for even, diffused, antiglare conditions.

In support of the amount of light available to these rooms, our calculations show significantly greater than required.

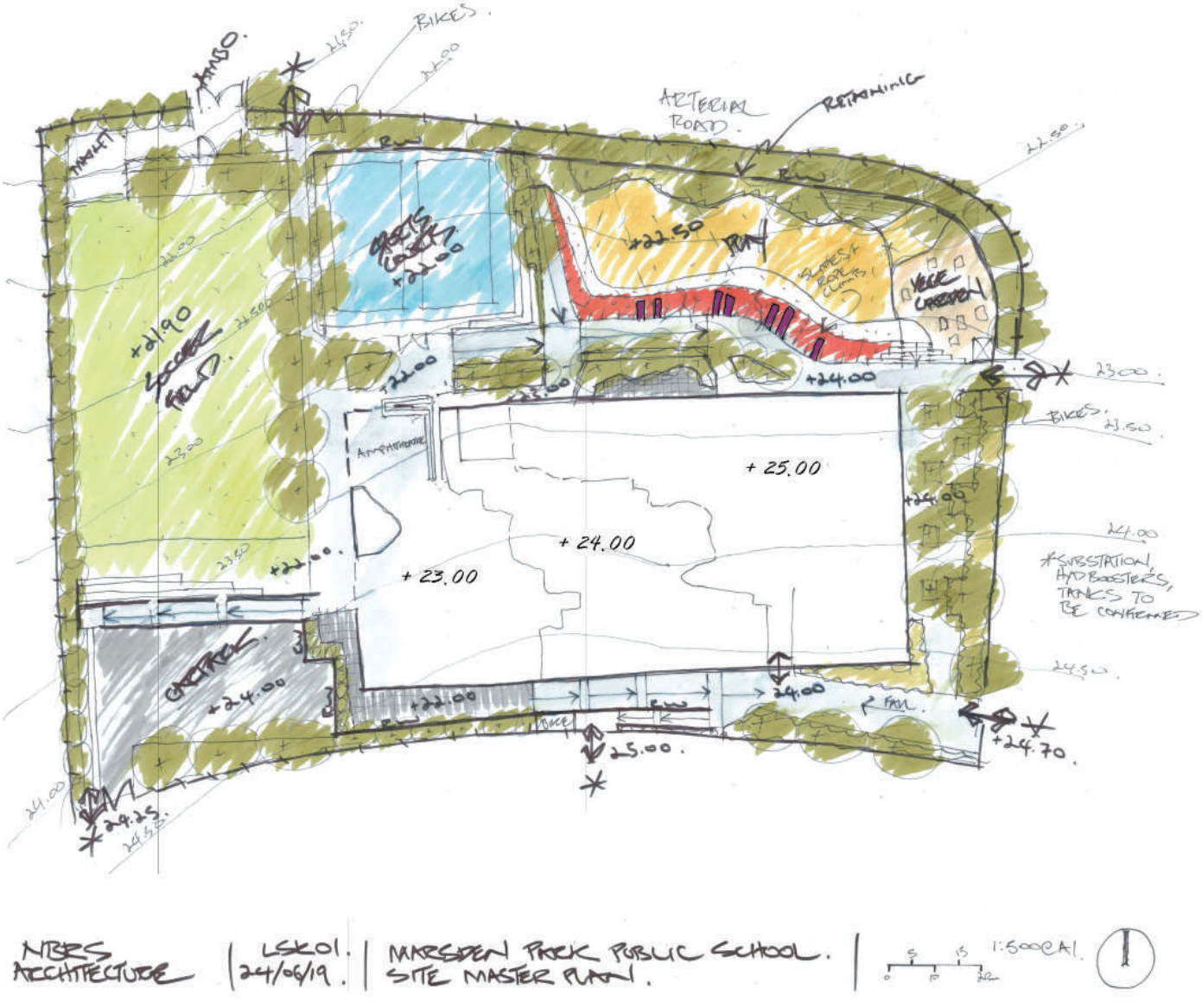
Scotish Government Publication, School design: Optimising the internal Environment

The design and orientation of the proposed building has minimal shadow impact on outdoor, public spaces and neighbouring residential properties. The shadow analysis diagrams show the minimal impact during the summer solstice, with no shadows cast on the residential lots surrounding the site.

The shadow diagrams prepared indicate that the shadow impacts to the East, South and West areas of the building during the winter solstice.
As a result, a large majority of the building perimeter is receiving direct sunlight throughout the year, by maximising compatibility with surrounding areas by mitigating shadow impact.

"GOOD QUALITY DAYLIGHT IS GIVEN BY NORTH-FACING WINDOWS AND GENERAL TEACHING SPACES THAT FACE NORTH WILL RECEIVE EVEN, CONSISTENT LIGHT THROUGH ALL SEASONS."

DIVERSITY OF OUTDOOR SPACES



NBRS ARCHITECTURE | LSK01. 24/06/19. | MARSDEN PARK PUBLIC SCHOOL. SITE MASTER PLAN. | 1:500@A1.

NEIGHBOURHOOD CONCEPT

The school is broken down into General Learning Neighbourhoods.

The concept supports the overarching Educational Principle of Wellness.

Each student will be valued as part of a smaller/ manageable sub community within the large 1580 student campus.

The GL Neighbourhoods are self contained with;

- Flexible learning spaces
- Shared project based Maker Space
- Outdoor learning
- Shared tiered learning
- Visible Staff Study space
- Resource Hub space for learning and socialising
- Adaptable learning settings

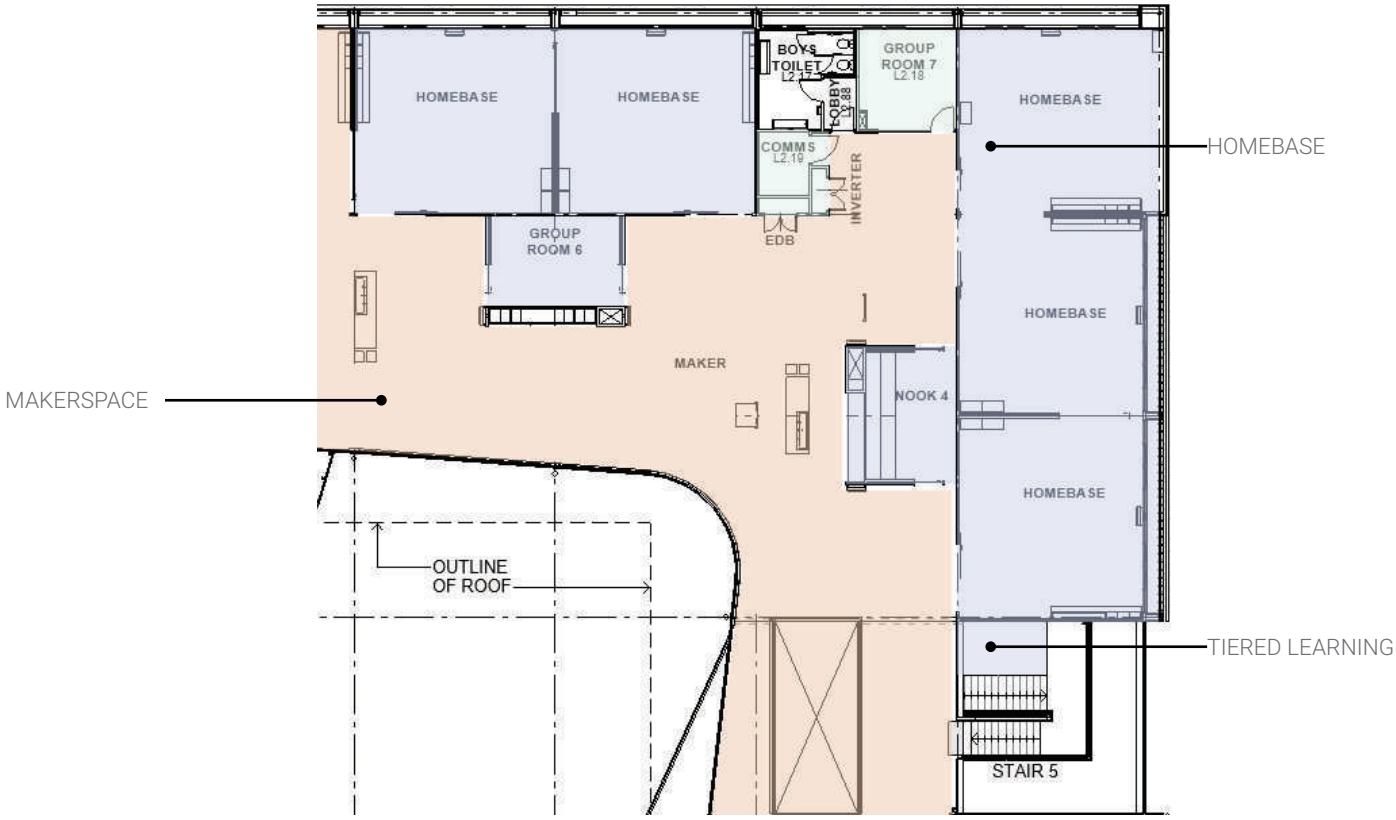


Figure 28: General Learning - Upper Level

CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN

1. CPTED PRINCIPLES

Crime Prevention through Environmental Design (CPTED) is a crime prevention strategy that focuses on the planning, design and structure of cities and neighbourhoods. It reduces opportunities for crime by using design and place management principles that reduce the likelihood of essential crime ingredients (law, offender, victim or target, opportunity) from intersecting in time and space.
Predatory offenders often make cost-benefit assessment of potential victims and locations before committing crime. CPTED aims to create the reality (or perception) that the costs of committing crime are greater than the likely benefits.
This is achieved by creating environmental and social conditions that:

- Maximise risk to offenders (increasing the likelihood of detection, challenge and apprehension);
- Maximise the effort required to commit crime (increasing the time, energy and resources required to commit crime);
- Minimise the actual and perceived benefits of crime (removing, minimising or concealing crime attractors and rewards); and
- Minimise excuse making opportunities (removing conditions that encourage/facilitate rationalisation of inappropriate behaviour).
- CPTED employs four key strategies. These are territorial re-enforcement, surveillance, access control and space/activity management. All CPTED strategies aim to create the perception or reality of capable guardianship.

2. SAFER BY DESIGN EVALUATION

The Safer by Design program commenced in NSW in the early 1990's. The program is a co-operative initiative involving the NSW Police, local councils, government departments and key private sector organisations. The aim of the program is to ensure that development application proposals are routinely assessed for crime risk, and that preventable risk is reduced before the development is approved.

The NSW Police assessment tools Safer By Design Evaluation and a Companion to the Safer By Design Evaluation are based upon Australian Risk Management Standard 4360:1999. The Safer By Design Evaluation process is a contextually flexible, transparent process that identifies and quantifies crime hazards and location risk. The evaluation measures include crime likelihood (statistical probability), consequence (crime outcome), distributions of reported crime (hotspot analysis), socio-economic conditions (relative disadvantage), situational hazards and crime opportunity. Crime, Design and Urban Planning: From theory to Practice.

The best time to apply this theory is in the design stage, before a building or neighbourhood is built. However, you can also successfully apply it later, but retro-fitting an existing environment can sometimes be costly. By conducting this process and using the Companion (which outlines research-based strategies capable of minimising crime risk within the built environment), NSW Police can suggest treatments to be considered in order to reduce opportunities for crime following CPTED principles of:

- Natural
- Technical/Mechanical (low)
- Organised (low)

2.1 TERRITORIAL RE-ENFORCEMENT

Community ownership of public space sends positive signals to the community. Places that feel owned and cared for are likely to be used, enjoyed and revisited. People who have guardianship or ownership of areas are more likely to provide effective supervision and to intervene in crime than passing strangers and criminals rarely commit crime in areas where the risk of detection and challenge are high. Effective guardians are often ordinary people who are spatially 'connected' to a place and feel an association with, or responsibility for it. Territorial Re-enforcement uses actual and symbolic boundary markers, spatial legibility and environmental cues to 'connect' people with space, to encourage communal responsibility for public areas and facilities, and to communicate to people where they should/not be and what activities are appropriate.

2.2 SURVEILLANCE

People feel safe in public areas when they can see and interact with others, particularly people connected with that space, such as shopkeepers or adjoining residents. Criminals are often deterred from committing crime in places that are well supervised. Natural surveillance is achieved when normal space users can see and be seen by others. This highlights the importance of building layout, orientation and location; the strategic use of design; landscaping and lighting – it is a by-product of well-planned, well-designed and well-used space. Technical/mechanical surveillance is achieved through mechanical/ electronic measures such as CCTV, help points and mirrored building panels. It is commonly used as a 'patch' to supervise isolated, high risk locations. Formal (or Organised) surveillance is achieved through the tactical positioning of guardians. An example would be the use of on-site supervisors, e.g. security guards at higher risk locations.

2.3 ACCESS CONTROL

Access control treatments restrict, channel and encourage people and vehicles into, out of and around the development. Way-finding, desire-lines and formal/informal routes are important crime prevention considerations. Effective access control can be achieved by using physical and symbolic barriers that channel and group pedestrians into areas, therefore increasing the time and effort required for criminals to commit crime. Natural access control includes the tactical use of landforms and waterways features, design measures including building configuration; formal and informal pathways, landscaping, fencing and gardens. Technical/Mechanical access control includes the employment of security hardware. Crime, Design and Urban Planning: From theory to Practice Formal (or Organised) access control includes on-site guardians such as employed security officers. Formal (or Organised) access control includes on-site guardians such as employed security officers.

2.4 SPACE/ACTIVITY MANAGEMENT

Space/Activity Management strategies are an important way to develop and maintain natural community control. Space management involves the formal supervision, control and care of the development. All space, even well planned and well-designed areas need to be effectively used and maintained to maximise community safety. Places that are infrequently used are commonly abused. There is a high correlation between urban decay, fear of crime and avoidance behaviour.

PERFORMANCE CRITERIA, DESIGN REQUIREMENTS/SUGGESTIONS AND PURPOSE/EXPLANATION

NATURAL SURVEILANCE

Performance Criteria	Design Requirements / Suggestions	Purpose /Explanation	Example	Project Strategies
A. Avoid Blind Corners				
Avoid blind corners in pathways, stairwells, hallways and car parks	Pathways should be direct. All barriers along pathways should be permeable (see through) including landscaping, fencing etc. Consider the installation of mirrors to allow users to see ahead of them and around corners. Install glass panels in stairwells where appropriate.	'Blind corners' or concealed areas make people feel uneasy and unsafe. Not knowing 'what is around the next corner' can discourage genuine users of a space to use and maximise it.	Blind Corners Eg: Poor consideration of 'blind corners' in design creates concealed areas from view of approaching passers.	Pathways, stairwells hallways and carpark are designed to be open and not enclosed to minimise any blind corners.
B. Communal/Public Areas				
Provide natural surveillance for communal and public areas	Position active uses or habitable rooms with windows adjacent to main communal/ public areas (eg playgrounds, swimming pools, gardens, car parks). Communal areas and utilities (eg laundries and garbage bays) should be easily seen. Where elevators or stairwells are provided, open style or transparent materials are encouraged on doors and/or walls of elevators/ stairwells. Waiting areas and entries to elevators / stairwells should be close to areas of active uses, and should be visible from the building entry. Seating should be located in areas of active uses.	In this instance, natural surveillance serves two main purposes: • Makes legitimate users of a space feel safe as they 'are not alone' in a secluded area. There is always the potential for someone to 'help' if there are any problems. • Deters illegitimate users as their presence in and misuse of the space will be rapidly noticed.		Communal/ Public areas are designed either open or have display panels at doors to provide natural surveillance. For example, enclosed airlocks with glazed curtain walls to allow visibility from surrounding buildings. All home bases and withdrawal rooms have display panelled doors for teacher's monitoring.
C. Entry Points				
Provide entries which are clearly visible	Entrances should be at prominent positions. Design entrances to allow users to see in before entering.	Prominent entrances allow: • Natural surveillance from street • Users to feel safe and to easily access the area • Emergency services to access the property rapidly		Signage provided at site entrances, exits and throughout school in accordance with EFSG Guidelines policy.

NATURAL SURVEILANCE				
Performance Criteria	**Design Requirements / Suggestions**	**Purpose /Explanation**	**Example**	**Project Strategies**
D. Fencing				
Fence design should maximise natural Surveillance from the street to the building and from the building to the street, and minimise opportunities for intruders to hide	Front fences should be predominantly open in design (eg pickets and wrought iron) or low in height. A sense of privacy can be increased by light coloured fencing. High solid front fences should have open elements above 1m.	Although high fences may provide privacy, they restrict natural street surveillance from potential intruders. Fencing below one meter, or open design fencing allows for adequate privacy and adequate levels of natural surveillance.		Fencing used throughout school will screen service areas such as waste collection bays, services equipment bays and surrounding playground areas do not provide opportunities for entrapment and lack of surveillance from other areas.
F. Lighting				
Ensure lighting does not produce glare or dark shadows Entrances, exits, service areas, pathways, car parks etc. should be well lit after dark when they are likely to be used	Use diffused flood lights and/or movement sensitive lights. Direct these lights towards access / egress routes to illuminate potential offenders, rather than towards buildings or resident observation points. Lighting should have a wide beam of illumination, which reaches to the beam of the next light, or the perimeter of the site or area being traversed. Avoid lighting spillage onto neighbouring properties as this can cause nuisance and reduce opportunities for natural surveillance. As a guide, the areas should be lit to enable users to identify a face 15m away. Use energy efficient lamps / fittings /switches to save energy.	Adequate lighting is essential in making people feel safe and in deterring illegitimate users. Allows people to see what is ahead Encourages legitimate users to use a facility after daylight hours; their presence will deter potential illegitimate users Allows natural surveillance after daylight hours Facilitates formal surveillance (by Police or security patrols).		Lighting installed to enhance natural surveillance and provide an appropriate level of visibility at night.

NATURAL SURVEILANCE				
Performance Criteria	**Design Requirements / Suggestions**	**Purpose /Explanation**	**Example**	**Project Strategies**
G. Mixed Land Uses				
Where permitted, provide appropriate mixed uses within buildings to increase opportunities for natural surveillance	Locate shops and businesses on lower floors and residences on upper floors. In this way, residents can observe the businesses after hours while the residences can be observed by the businesses during business hours. Incorporate car wash services, taxi ranks and shop kiosks etc within car parks. Include shop kiosks and restaurants etc within parks. Refer to the relevant planning instrument for permissible uses in the zone of the property. Some uses may require rezoning.	Mixed land uses allow for natural surveillance of areas across a range of various days/hours (ie weekday or weekend, AM or PM).		The design of strong linkages with the wider pedestrian and land use network supporting surveillance over the site to minimise illegitimate/anti-social activities. Include new access points at street frontage to create better levels of active and passive surveillance during both day and night times.
H. Security				
Security grilles, shutters and doors should allow natural observation of the street and be sympathetic to the architectural style of the building. Use security hardware and/ or human measures ONLY where required to reduce opportunities for unauthorised access	Security grilles and security doors should be permeable (see through). Avoid solid shutters on front windows and doors. Install quality locks on external windows and doors. Install viewers on entry doors. If security grilles are used on windows they should be openable from inside in case of emergencies. Ensure skylights and/or roof tiles cannot be readily removed or opened from outside. Consider monitored alarm systems. Provide lockable gates on side and rear access ways. Consider building supervisors or security guards	Traditional security related equipment will help make a space more difficult for intruders to break into, however its overuse may impinge on adequate levels of natural surveillance. Traditional security systems can be very effective in reducing illegitimate access. It is important however to be reasonable and not over secure a location as this may make genuine users feel unsafe and even restrict legitimate access.	Main entry doors should be fitted with a door viewer and door chain.	DOE EFGS requires school site to be entirely enclosed. The security measures for the specific site is still to be determined. The approach is to prohibiting access to potential concealment spaces such as school carparks and playgrounds areas outside of operating hours. All security grilles, shutters and doors in the new works to allow natural observation of the street and are sympathetic to the architectural style of the building. All security hardware are used as per the DOE EFSG required level of security for each room and space.

NATURAL SURVEILANCE				
Performance Criteria	**Design Requirements / Suggestions**	**Purpose /Explanation**	**Example**	**Project Strategies**
J. Building Identification				
Ensure buildings are clearly identified by street number.	Street numbers should be at least 7cm high, and positioned between 0.6m and 1.5m above ground level on the street frontage. Street numbers should be made of durable materials, preferably reflective or luminous, and unobstructed (eg by foliage). Location maps and directional signage should be provided for larger development.	Clear building identification prevents unintended access and assists persons trying to find the building - particularly emergency vehicles in an urgent situation	Clearly identify your street number	Signage will be provided at site entrances, exits and throughout school appropriate to location and in accordance with the DOE EFSG signage policy.
K. Maintenance				
Create a 'cared for' image.	Ensure the speedy repair or cleaning of damaged or vandalised property Provide for the swift removal of graffiti. Provide information advising where to go for help and low to report maintenance or vandalism problems	Research indicates that well maintained and 'cared for' properties are less likely to experience crime		The proposal will utilise construction materials which are robust and where appropriate adopt anti-graffiti surfaces.
L. Materials				
Use materials which reduce the opportunity for vandalism	Strong, wear resistant laminate, impervious glazed ceramics, treated masonry products, stainless steel materials, anti-graffiti paints and clear over sprays will reduce the opportunity for vandalism. Flat or porous finishes should be avoided in areas where graffiti is likely to be a problem. Where large walls are unavoidable, consider the use of vegetation or anti-graffiti paint. Alternatively, modulate the wall, or use dark colours to discourage graffiti on vulnerable walls. External lighting should be vandal resistant. High mounted and/or protected lights are less susceptible to vandalism. Communal/ street furniture should be made of hard-wearing vandal resistant materials and secured by sturdy anchor points or removed after hours.	A reduction in vandalism through careful selection of materials will contribute to beautifying and maintaining an area. This will reduce expenditure on unscheduled maintenance.		Use of building articulation and permeable building materials will discourage vandalism and illegitimate/anti-social activities.

NATURAL SURVEILANCE				
Performance Criteria	**Design Requirements / Suggestions**	**Purpose /Explanation**	**Example**	**Project Strategies**
M. Spaces				
Spaces should be clearly defined to express a sense of ownership and reduce illegitimate use/entry.	Physical and/or psychological barriers (eg fences, gardens, lawn strips, varying textured surfaces) can be used to define different spaces.	The definition of clear boundaries allows: • People to know when they are trespassing on private property. • Passers-by to clearly identify when someone is trespassing and illegally using the premises.	Create boundaries between private space and public space	Signage will be provided at site entrances, exits and throughout school appropriate to location and in accordance with the DOE EFSG signage policy.
N. Pride & Involvement				
Encourage design that promotes pride and a sense of place for community	Encourage community involvement in design. Encourage volunteer management and maintenance of areas. Encourage wide community use of areas.	A sense of community pride in a particular area will help: • Maintain an area • Identify and report any problems • Identify illegitimate behaviour.		Design of the project improves access to functional areas. New COLAs will give good sheltered assembly areas for school during wet weathers.
O. Site & Building Layout				
Ensure clear sight lines throughout the parking area Design car parks to allow for natural surveillance	Avoid large expanses of car parks. Where large expanses of car parks are proposed, provide surveillance such as security cameras. Access to lifts, stairwells and pedestrian pathways should be clearly visible. Avoid hidden recesses. Locate disabled parking spaces in highly visible and convenient areas. Locate car parks in areas that can be observed by adjoining uses	Whilst car parks can be areas with large flows of traffic, there is rarely people sitting in their cars with the opportunity to observe any suspicious behaviour (unlike in an office or commercial environment). In order to facilitate natural surveillance, it is important to ensure that clear sight lines (ie. Not blocked by blind corners, buildings or landscape) are incorporated to its design.		The surrounding school buildings to ensure high levels of active and passive surveillance over the new works. Furthermore, the new works to street frontage will ensure that a high level of surveillance is maintained outside school grounds.

NATURAL SURVEILANCE				
Performance Criteria	**Design Requirements / Suggestions**	**Purpose /Explanation**	**Example**	**Project Strategies**
P. Carpark Security				
Provide security to monitor access to area.	Use security devices (eg intercom or remote lock facility) where appropriate. For large developments, locate a help point on each parking level and/or allocate security staff. For a multi level car park, use only a limited area of the car park outside peak hours. Consider the installation of boom gates or similar devices at entrances and exits of the car park.	It is important to reduce opportunity for unauthorised access without affecting legitimate users. Due to the ongoing flow of people/traffic through car parks it is very difficult to identify legitimate users from trespassers.		The new works will be designed to avoid the creation of potential concealment spaces. The school security to be determined, to prohibiting access to potential concealment spaces such as school carparks and playgrounds areas outside of operating hours. Vegetation utilised comprises low shrubs and high canopy planting to reduce vegetation concealment areas. Fencing used throughout the school to screen service areas such as waste collection bays, services equipment bays and surrounding playground areas do not provide opportunities for entrapment and lack of surveillance from other areas.

NATURAL SURVEILANCE				
Performance Criteria	**Design Requirements / Suggestions**	**Purpose /Explanation**	**Example**	**Project Strategies**
Q. Site and Carpark Layout				
Ensure ease of access and safety within the car park Clearly distinguish between private and public space	Minimise the number of entry and exit points. Pedestrian corridors should be created for large developments. Where possible, locate entry/ exit points in close proximity and close to the car park operator or shops, cafes etc. Staff car park should be separated and secured	At the best of times, car parks are places where people can feel unsafe. The site and building layout should be aware of this fact and ensure that all entry/exit points are easily accessible, well signed, lit and designed in line with strategies outlined within Sections 1.1, 1.2 and 1.3 of the document. This is particularly relevant for staff car parks, which are often used outside of regular business hours.		The proposed car park is an open air parking space offering good natural surveillance. The locations of the car parking area, which is within school grounds, is fenced off ensure a high level of natural surveillance over the car park is maintained. No items that could block vision for vehicles or pedestrians or allow concealment of people or hazardous items at these entry points will be included.

2.5 PRINCIPLE 5 - AMENITY

DESIGN PRINCIPLES

The design will provide socially and environmentally responsive solutions creating pleasant and engaging spaces internally and externally.

The school courtyard neighbourhood concept creates a variety of learning modes through flexibility of spatial arrangement control, agile furniture, interactive indoor/outdoor practical Maker Spaces.

The learning spaces support Gathering, Team and individual modalities of Learning.

Figure 29: Healthy Protected Environment

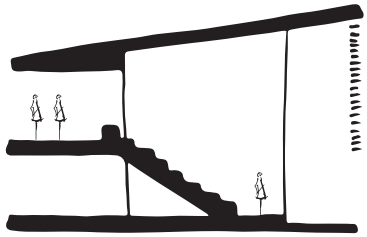


Figure 30: Gathering Space

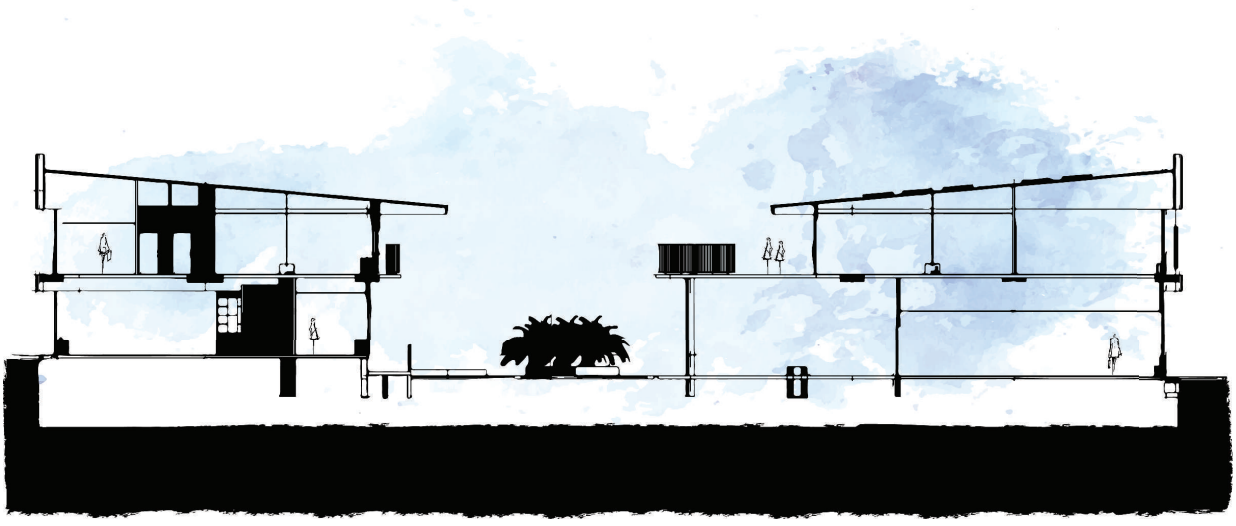


Figure 31: Natural Light & Natural Ventilation along with mixed mode heating

AMENITY

The embracing courtyard concept supports any consideration for the adjacent neighbourhood amenity. The siting and form of the design respects privacy and acoustic control.

Generally, the adjacent residential pattern is not dense and yet to be developed. Because of the large site, the Northbourne Drive edge to the east is really the only potential impact on neighbouring properties. The southern edge is substantially separated from the neighbouring properties by land zoned for a future park however a small number of residences are potentially impacted along Enmore Street. Both these sides are separated by streets. There are no boundaries shared directly with neighbours. The surrounding streets separate the site from any direct neighbours.

The courtyard design will provide acoustic and privacy protection from Northbourne Drive and the major arterial road to the north whilst school is functioning.

Northbourne Drive is proposed as the main arrival edge.

As Northbourne Drive will be the main address and arrival point, the traffic will increase. Northbourne Drive is yet to be constructed. This issue will be addressed as part of the SSD documentation within the Traffic Assessment.

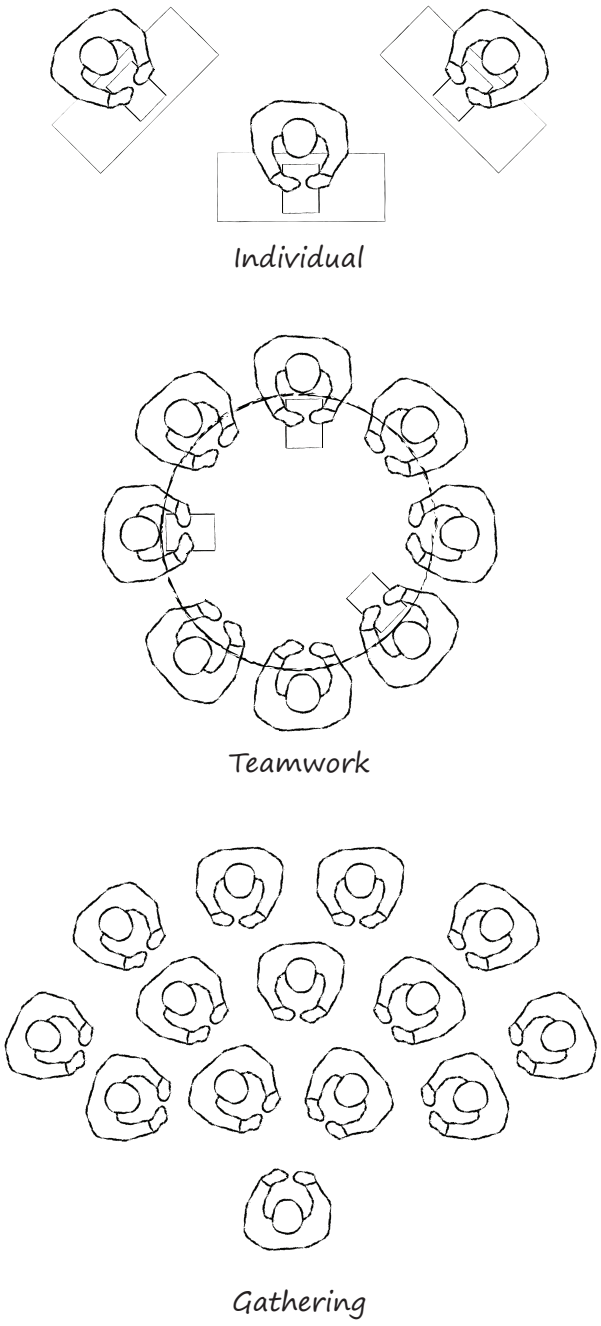


Figure 32: Learning Modalities

2.6 PRINCIPLE 6 - WHOLE OF LIFE, FLEXIBLE AND ADAPTIVE

DESIGN PRINCIPLES

The design will respond to flexibility of space, maximise multi use functionality and allow for growth.

At the time planned for opening the school and student population has been designed for the final density planned by the developer of the estate. Inherently there will be room for growth.

The structural system planned will allow for suitable reconfiguration if space redefinition is required.

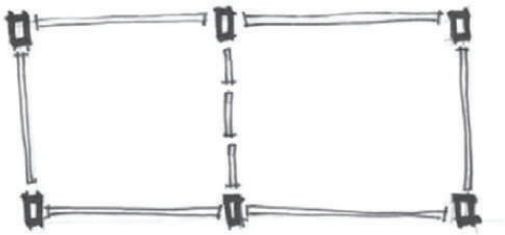


Figure 33: Concrete frame & infill walls

The key learning space configuration ensures flexibility, maximising multi use. Through space control and careful furniture selections various learning modalities can be achieved.

If ever there is the need to expand the school numbers and facilities the following diagram suggests possible areas to accommodate the footprint.

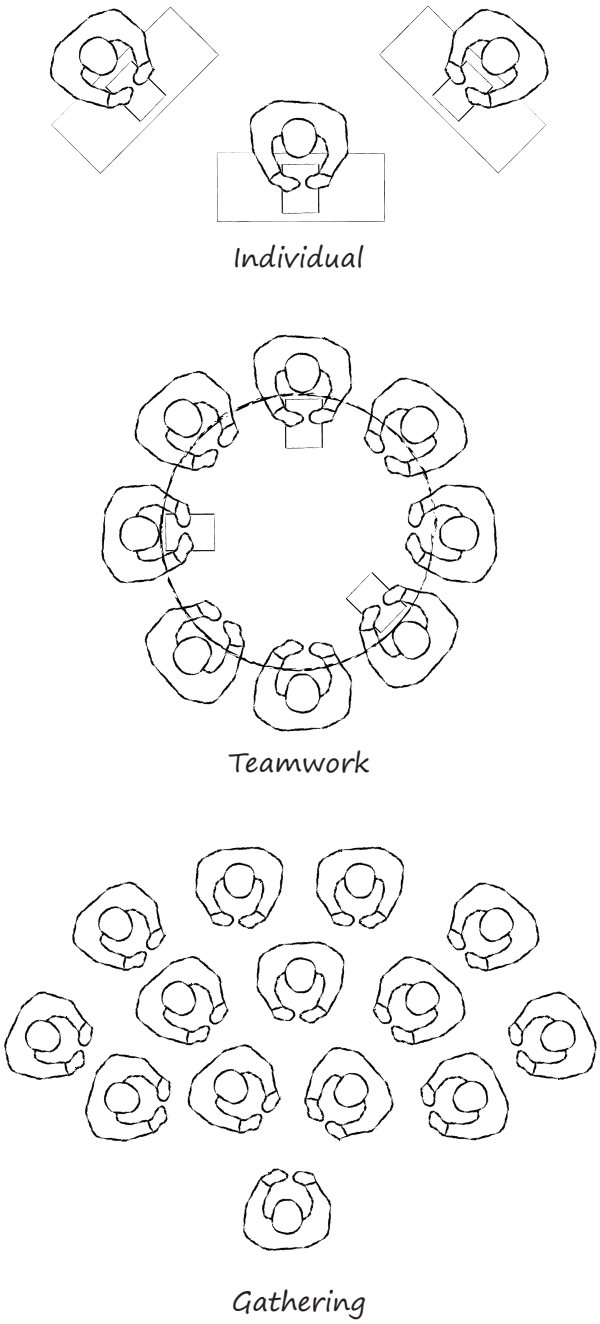


Figure 34: Learning Modalities

THE LEARNING COURYARD

The Design has been created in response to understanding:

- The character and future character of Marsden Park
- The site context
- The environment
- The desired educational principles
- The desired community connections

The design reflects the colours and textures of the Cumberland Plains. It will reflect the emerging character of being an education hub, multicultural, creative, community connected, youthful, supportive and adaptable.

The unique climate and environment of Western Sydney. The design will provide protection when the cold winter hits, excluding the westerly winds and capture the beautiful clear sunny days and the expression of bright clear days that is unique to Western Sydney.

Marsden Park Education Principles drive the design outcome. Key to the outcome is the focus on the wellbeing of all learners and the creation of a campus heart. The design concept creates learning neighbourhoods where student centred learning will be supported. The overall design will be generally a two-storey courtyard arrangement stepping as it works down the sloping site. Outdoor terracing will work with the contours creating engaging learning and socialising spaces on the northern side of the building.

The Learning Courtyard concept creates a symbol of protection, an embracing form which centres the school focussing on an inclusive heart to the campus. The final design will explore connections between indoor and outdoor learning. It will embrace partnerships between the school and the wider community and it will add to the significance of the new built environment in Marsden Park.

EDUCATION PRINCIPLES

- Focus on the needs and wellbeing of all learners and their learning
- Facilitating pathways that enable confident, responsible lifelong learners who are active, informed global citizens
- Build community and identity, and create a culture of welcome inclusion that celebrates diversity
- Provide creative, collaborative and sustainable learning environment

2.7 PRINCIPLE 7 - AESTHETICS

DESIGN PRINCIPLES

From the outset the design process has considered the physical and social context of the Cumberland Plain Region and newly developing Elara Estate along with the site. The colours and textures of the natural environment of western Sydney have been folded into the design palette. Greys, Greens and brown cladding panels will be used, Care has been taken that the thematic contextual aesthetic will be evident in the design. Where contemporary materials are proposed, such as metal sheeting, it will be dark and recessive. The rich autumn and spring colours and the bush green colours will be used sparingly but as identifiers and navigation definition.

The colour palette will have consistency inside and outside.

The composition of materials will be refined and reflect the uses allowing for clear navigation expressed through form and transparency.

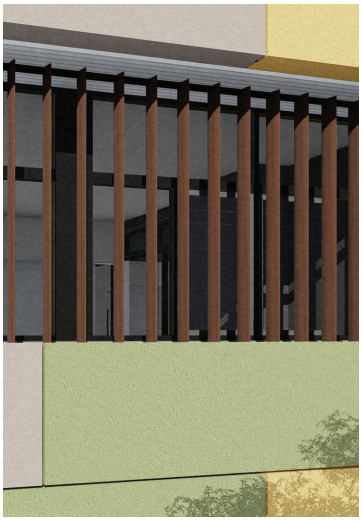
The Arrival and Administration entry is a large cantilever canopy of angular form contrasting the rectangular building emphasising importance and navigation. The siting is angled to draw the view line into the courtyard campus heart. The view line technique draws pedestrians into the heart of the new school. The materiality narrates the story of the emerging suburban development and community. The louvre blades capture the colours of Western Sydney. Both the natural environment and developing youthful fun family life.

Figure 35: Colour Palette

Figure 36: 3D Rendered Image - Entrance

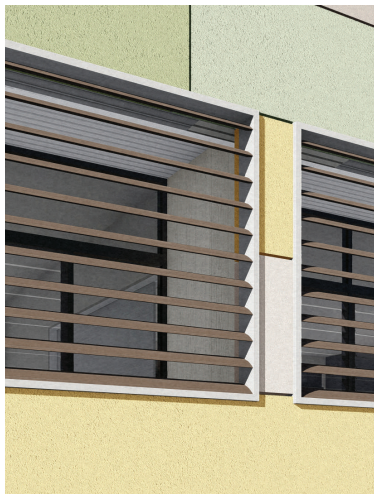
Figure 37: 3D Rendered Image - Hall

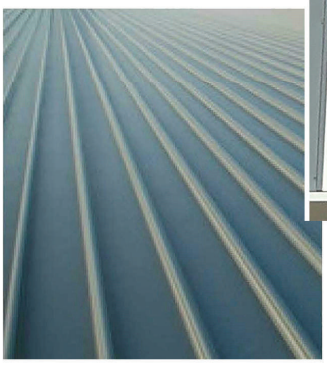
LOUVRE WINDOWS



VERTICAL LOUVRES

HORIZONTAL LOUVRES





METAL DECK
ROOFING

PROFILED METAL
CLADDING

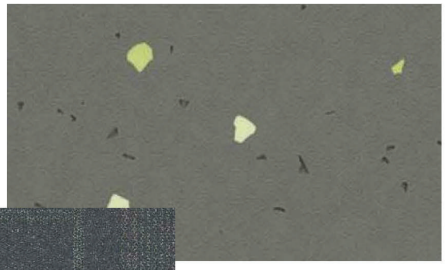
COLOUR PALETTE

EXTERIOR COLOUR SCHEME

Design Principle - Neutral & dark to be a recessive backdrop with highlight colours as identity / navigation

INTERNAL FURNITURE

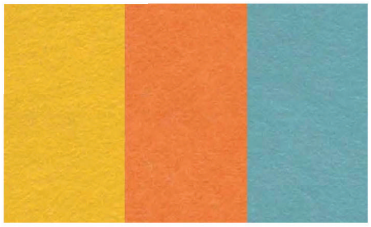
COLOUR PALETTE



VINYL FLOOR

CARPET TILES

TIMBER LAMINATE JOINERY



PINBOARD FEATURE WALL

INTERIOR COLOUR SCHEME

Similar principle to exterior colours - the feature colours will be Neighbourhood Identifiers

AESTHETICS

With respect to Marsden Park built scale the overall form is predominantly 2 storey and stepping with the contours and so responding to the shape, of the level form.

The overall form responds to the environment through capturing the sun and restricting the harsh westerly winds. The site design and form of building creates usable outdoor learning and socialising spaces with a variety of climates for year around use.

A large cantilevered canopy is located at the Northbourne Drive arrival. The volume creates an announcement and draws attention to the main public entry. A new sense of identity will be created.

The embracing courtyard design reflects the caring environment that is desired. It appropriately controls the environment to maximise comfort and usability. It ensures a focusing/centred environment supporting safety and surveillance and a sense of belonging. The design supports the concept of arrival and circulation.

The simplicity of the rectangular form of the courtyard building provides a backdrop externally for the coloured sun louvres of the first floor to provide articulation and sense of movement. Each positioned independently as a response to its unique location. The proposed form and aesthetics is in response to environmental, social, historical and contextual factors. The first floor contrasts the broken-down façade of the ground floor where gaps and more organic shapes provide a strong relationship with the site and outdoor learning and play spaces beyond the courtyard.

The proposed roof form and shape is purposefully simple not slavish to the surrounding pitched suburban roofs. The pretence is not to mimic but to form a passive backdrop and minimise the bulk and scale of the school. Materiality referencing will be key. The new form is not unusual as nearby there are large scale shallow pitched forms on commercial buildings

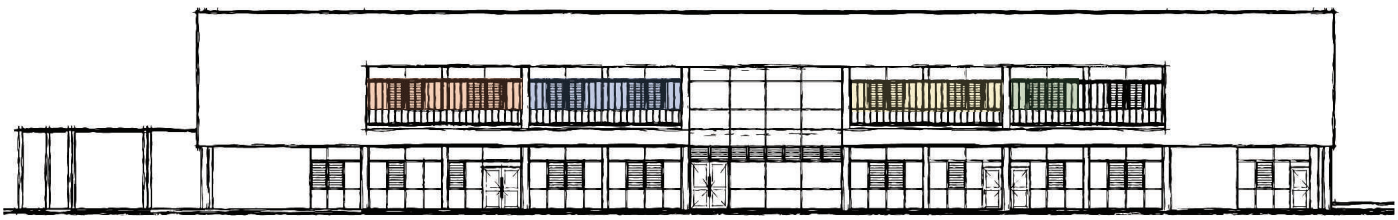


Figure 38: Elevation Sketch

Figure 39: 3D Rendered Image - Hall Breakout Space

The general roof height has been set in order to be no higher than necessary for the school function. The horizontal form references the horizontal division of upper and lower levels to the school which will be well defined upper and lower level by material banding.

Material selections have been made with reference to the history of the area and the new buildings emerging in the surrounding neighbourhood.

3. RESPONSE TO GAO (GOVERNMENT ARCHITECTS OFFICE) COMMENTS

The following comments were received from GAO following a meeting held on the 24.07.19. A response to the comments have been included below after each item".

GANSW met with the project team for New Marsden Park Public School on 24.07.19. It was made apparent during the meeting that the overarching concerns for this project are cost and delivery time with little investment in design quality. This approach in general and the scheme as presented cannot be supported by GANSW. In particular the scheme fails to address the design quality principles of the SEPP (Educational Establishments and Child Care Facilities) as follows:

- The scheme is a near identical copy of North Kellyville Public School. It therefore fails to provide a contextual response derived from its location and social setting. The design is not place-based and does not contribute to a unique future character for the area.

The current site is part of a Stockland Development of land known as Elara Estate. The area has been cleared of all vegetation and filled, the Cumberland plain natural environment has been completely cleared. The immediate and surrounding area is similar with some residential houses under construction as are some local roads. A new residential social setting is yet to start to evolve. The context and social setting is identical to that at North Kellyville when that school was successfully constructed and therefore using it as a successful precedent is appropriate. The assumption that it therefore fails to provide a contextual response is in our view incorrect. The unique character of the area is not yet determined on which to draw reference. The proposed design responds to the future context in the following ways:

- The school is a courtyard school. This concept is designed to be inward looking in order to form a heart. The donut concept is chosen for its sense of inclusion. This is important in a community that is yet to develop. It speaks to the idea that all students are embraced and made feel that they belong. (Better for Community – Objective 3) (Better working – Objective 5)
- The courtyard building is positioned on the site to south east corner of the site. This enables the building to take advantage of the small descending change in contours allowing the hall with higher ceiling height requirements to sit lower to the west and allow the height of the overall building to be minimised. (Better working – Objective 5) (Better look and feel – Objective 7)
- External shaded courtyard spaces provide a juxtaposition to the sun drenched larger north facing external landscaped play and learning spaces making the most of all environmental conditions and allowing choice for the students in varying weather conditions. (Better Performance – Objective 2)
- The building is orientated with the longer lengths facing north and south making the most of the natural light and reducing summer heat gain. (Better Performance – Objective 2)
- The facades have been articulated using stepping parapets and various cladding types to reduce the scale and reflect the functional planning, deep reveals and sun shading elements orientated differently on each façade have been introduced to respond to the unique orientation and associated environmental factors. (Better for People – Objective 4)
- The building has been located away from the busy proposed northern road for safety reasons. Adjacent to Northbourne Ave where drop off and pickup can occur with the least amount of impact on the residential lots. The staff carpark and accessible parking is located away from the drop off so to minimise traffic congestion on the surrounding community. (Better for People – Objective 4)
- The school entry has been purposely positioned adjacent the proposed park to the south. The perimeter fence of the school has been removed at the entry to the school to engage with the park where it is envisaged many parents will be able to enjoy while waiting to drop off or collect their children before and after school. (Better for People – Objective 4) (Better working – Objective 5)
- The colours of the cladding along with the vegetation have been selected to reflect the native

landscape of the area before it was cleared. Light and dark greys reflect the bark of the native gum trees. Various tones of olive and light greens reflect the native grasses and leaves and the splashes of yellow reflect the wattle once prominent in the area. (Better look and feel – Objective 7)

For all these reasons the design is a contextual response to its location. It contributes to forming the emerging social setting of a new community and contributes greatly to a thoughtful future character for both the students and the surrounding area. (Better Fit – Objective 1)

- The scheme does not incorporate Aboriginal cultural heritage.

Aboriginal Cultural Heritage can be included in the project in future stages during developed design and documentation. Options will include the introduction of a sandstone yarning circle along with the bush tucker planting and, an aboriginal mural to the canteen wall or other lower level walls maybe incorporated. An acknowledgement to country inscribed on the entry glass to the foyer could also be introduced. These options will be explored in conjunction with advice of local aboriginal community leaders.

- The scheme does not demonstrate an integrated landscape approach.

The landscape design of New Marsden Park Public School integrates strongly with the design and arrangement of the proposed built form and site context itself. At each building elevation the landscape levels have been carefully designed to meet flush with internal floor levels, providing unobstructed physical and visual access between inside and out, while providing strong circulation links. Outdoor learning environments have been carefully positioned adjacent each major building opening with aim to encourage external class breakout and outdoor teaching environments adjacent internal classroom areas. Each classroom breakout area has been designed to include integrated seating with either a range of raised seating planters or tiered amphitheatre steps. Thought has been given to provide lush shade vegetation to provide greenery and shade to each unique class breakout area. (Better Fit – Objective 1) (Better for Community – Objective 3) (Better for People – Objective 4) (Better working – Objective 5)

Moving outwards from each building elevation and classroom breakout area, the landscape opens up to provide a range of diverse and flexible outdoor play environments that are well connected from each area and from the building itself. These outdoor play environments include both informal and formal play environments including fixed play equipment, nature adventure play, vegetable gardens, sports courts and playing fields. In order to ensure these environments are comfortable and pleasing to be within, the design incorporates a range of tree planting to provide shade and greenery. (Better for People – Objective 4) (Better working – Objective 5)

The proposed structured planting palette including native groundcovers, grasses, shrubs and tree planting aims to screens and soften the proposed built form while integrating the site with surrounding proposed future vegetation. (Better Fit – Objective 1) (Better Performance – Objective 2) (Better look and feel – Objective 7)

Access has been concentrated to 3 main student access points, each centred with proposed pedestrian crossings to promote clear and safe foot traffic. Gates include one to the North on the proposed major road, one in the South East corner and one in the South on Enmore Street. These 3 points of access factor in surrounding existing and proposed residential areas and the flow of anticipated local foot traffic. (Better for People – Objective 4)

- The scheme does not demonstrate sustainable outcomes and an adequate level of internal amenity, including daylighting, natural ventilation, outlook, visual and acoustic privacy.

All daylighting and ventilation requirements will be met with the proposed design. It must be remembered that the use of technology in school is increasing and therefore the need to have a lower level of glare from direct sunlight is required. Diffused natural light is required however large amounts of direct sun can be problematic to the function of teaching and learning. The design has been developed the achieve these requirements. All teaching spaces have an appropriate level of outlook whether it be outward to the community or over the playing filed and landscape areas or to the internal courtyards. The visual and acoustic privacy has been thoughtfully considered in the design and placement of the school. The courtyard building provides both visual and acoustic privacy for the students and community while they use the external courtyard spaces. The playing field and the northern play ground and courts are located closer to the noisier main arterial road to the north and away from the

residential houses to the south (Better Performance – Objective 2)

- The interface with the public domain is dominated by fencing and small gates, and does not present a welcoming and engaging frontage.

The perimeter fencing of every school is a departmental requirement for child safety which must be complied with and respected. That said we have endeavoured to reduce its impact by making the building the barrier at the entry and enabling a more welcoming and engaging frontage and association with the proposed park. (Better look and feel – Objective 7) (Better for People – Objective 4)

- There is no indication of how the school will share facilities with the community and engage with the local park adjacent.

The onsite carpark has been located with access from the quieter residential street to allow parking immediacy for the community adjacent to both the hall and playing field which are both the most likely facilities that could be shared with the community outside school core hours. The school entry has been purposely positioned adjacent the proposed park to the south. The perimeter fence of the school has been removed at the entry to the school to engage with the park where it is envisaged many parents will be able to enjoy while waiting to drop off or collect their children before and after school. It is also worth noting that the school will decide how they share their facilities once it is operating, however the design has allowed ease of access to these facilities for the community. (Better for Community – Objective 3) (Better for People – Objective 4) (Better working – Objective 5) (Better Value – Objective 6)

Conclusion

The design of this project has responded to the 7 principles of design as set out in the E-SEPP - State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017. These principles have been addressed in the Design Excellence / Urban Design Report and further expanded on in the comments above. The Report individually addresses how the design has taken into consideration:

PRINCIPLE 1 - Context, built form and landscape
PRINCIPLE 2 - Sustainable, efficient, and durable
PRINCIPLE 3 - Accessible and inclusive
PRINCIPLE 4 - Health and safety
PRINCIPLE 5 - Amenity
PRINCIPLE 6 - Whole of life, flexible, and adaptive
PRINCIPLE 7 - Aesthetics

The design has also referenced the "Better Placed" document - "a strategic design policy for the built environment of new south wales". The clauses which have been applied have been referenced through this response to the GAO comments and indirectly in the body of the Design Excellence / Urban design Report.

4. SUMMARY

GENERAL

The Campus heart is created within the main Courtyard which is modelled on the traditional educational cloister. The Courtyard design assists in the navigation of the site gradient with integrated stairs and ramping to provide accessibility while providing visual connectivity to links the learning areas. The consolidated two-level plan also preserves the major part of the site for play areas and expansion. The courtyard space is proportioned to be attractive paved green space with planters and signature trees. Upper level bridges connect the blocks. While the main drop off zone is from the facing Northbourne Drive, the main pedestrian access to the public facing components of Administration, Library and Hall are from a semi-public and secured pedestrian entrance plaza to the south. A one-way vehicle drop off lane is proposed for the eastern end of the site to enable drop off adjacent the site separate to the road network. The site will be fenced at the boundary. The internal courtyard is visually connected with the western and northern playgrounds. Working with the fall of the land towards the north west, the design proposes the creation of an under croft at the west end of the campus that incorporates the Hall breakout and canteen. The building embraces a modern innovative teaching philosophy, which is research-driven, active and student centred. Learning spaces - both formal and informal in character, are proposed, promoting creativity and flexibility, and allowing for multiple uses concurrently, so that students may undertake a range of activities as individuals or groups. Break out, informal, flexible learning spaces provide an extension to the formal teaching areas whilst encouraging informal peer-to-peer learning.

The use of operable door/walls allow the school to customise spaces to suit the teaching program and class size. The learning levels are organised with both flexible Learning Street and Hub models. The circulation zones that can be arranged into different learning node configuration through use of sliding and folding doors and movable furniture. At the eastern end, the two floor plates relate to an internal atrium with an activated stair that doubles as amphitheatre. Internal connectivity is enhanced through the internal circulation zone that provides visual links between all parts of the campus. The west façade at the upper levels overlooks the playing fields. The facade takes advantage of these existing views at the upper levels. The predominant axis of the building is east – west and proportioned to allow cross ventilation of internal spaces. The buildings' largest surface area has a northerly orientation. The facade is designed to reduce heat gain on the west and east faces through shading that limits solar gain and responds to the low angle of the sun late in the day. This is expressed as vertical fins. The northern faces of the building are designed to reduce solar heat gain during the heat of the day in warmer months while allowing the winter sun to enter. The proportion of glazing and openable area is modelled to optimise the internal comfort levels.

BUILDING HEIGHT AND SCALE

The proposed building has been kept to two levels to reduce its mass while maintaining adequate outdoor areas for school use for play, sports and recreation. The building is stepped with the fall of the land to the west. The courtyard form is compact and consolidated on the site. The roof is kept to a minimal pitch to further reduce the massing. The maximum height of building is 10.5 metres from natural ground level at the eastern (Northbourne Drive) end and 10.5 metres above natural ground level form the western end. The main building is located to the eastern end of the site to establish a civic presence and drop off from Northbourne Drive – the main access road to the site.

BUILDING SETBACKS

The proposed setbacks from the boundaries exceed the minimum requirements and are appropriate to the scale of the building. The Northbourne Drive boundary setback is approximately 14.5 metres which far exceeds a typical boundary of 6 – 8 metres. As the area is yet to be fully developed there is no existing building line on Northbourne Drive. Immediately to the south of the proposed building is land reserved for a public park and therefore no future building line will be set by neighbouring development. There are three potential nearby residential areas in the proximity of the development.

1. The small number of residences to the south are 25 metres from the proposed building location and overlooking potential is limited but possible. These residences are separated from the school building by Enmore Street
2. The future residences to the east across Northbourne Drive are 40 metres from the proposed building and any potential overlooking is limited to the front of the properties.
3. Future residences to the north are approx. 70 metres form the proposed school building and are separated by an arterial road. There will be no overshadowing of these properties. There is no potential visual access into the rear yards of these properties.

No residential developments share a current boundary with the school. Parks and/or roads provide immediate adjacencies. Landscaping will be provided in the setback area between property boundary and buildings to provide screening and ameliorate the visual impact of the new structure.

DESIGN QUALITY

The aesthetic approach has been to provide a façade that can be read at different scales – establishing a civic presence while identifying the main entries and functional elements – Administration, Library and Hall. Against this, patterns of colour and materials are used to provide contrast. The structural frame and integral shading elements provide depth and visual interest. These elements also allow the incorporation and demonstration of the passive design elements in the visual expression of the building. The durable material choices incorporate standard product dimensions and connections and the structural grid allows easy reconfiguration.

STREETSCAPE, FACADE AND BUILDING ARTICULATION

The façade of the building – particularly the eastern – street elevation, have been carefully designed to integrate with the emerging built context of two-level development. The light-coloured solid ends of the proposed building refer to the existing light-coloured two-level houses being constructed in the area. The expressed structure of the façade provides shading and depth to create visual interest and variation in the play of light and shade across the building. While the main entries are created from the pedestrian plaza to the south, a two-level atrium in the centre of the eastern façade is expressed as a large window to provide visual connection from the street through to learning areas and to the green courtyard heart of the school. At night this will be lit to present a warm glowing interior to the street.

MATERIALS AND COLOURS

A neutral palette has been proposed for the building, composed of expressed concrete columns and feature white panel walls. Coloured metal louvre shading in a bar-coded pattern plays against this regular framework. This colour and pattern play against the civic massing and column grids.

NBRSARCHITECTURE.