

Architectural Design Report

February 2015

Wahroonga Adventist School

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Project Wahroonga Adventist School
Fox Valley Road, Wahroonga NSW
Job No 1318.10
Date February 2015

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1.0 Introduction

1.1 Purpose of this Statement

This Architectural Design Report has been prepared for the proposed Wahrenonga Adventist School in support of the project's State Significant Development Application (SSDA) submitted to the Department of Planning & Infrastructure (DPI).

This report provides an outline of architectural content included within the Environmental Impact Statement accompanying the SSDA for the above development proposal, prepared by MacroPlan Dimasi. The SSDA seeks approval for a new Prep to Year 12 educational facility and outdoor playing fields/courts area, within the Wahrenonga Estate.

This report serves to address architectural considerations of the 'Key Issues' within the Director General Assessment Requirements (DGRs) for the proposed new School, and should be read in conjunction with the drawings and reports accompanying the application.

1.2 Director General's Requirements

Director General Requirements (DGRs) for the development proposal were issued on 6 September 2012 which included the following 'Key Issues';

3. Built Form and Urban Design

- Address the height, bulk and scale of the proposed development within the context of the locality, including the existing church, Sydney Adventist Hospital and future high density residential development envisaged under the Wahrenonga Estate Concept Plan.
- Address design quality, with specific consideration of the overall site layout, details of and access to recreational space/playing fields, axis, vistas and connectivity, open spaces and edges, primary elements, gateways, façade, rooftop, mechanical plant, massing, setbacks, building articulation, materials, choice of colours, including an assessment against the Crime Prevention Through Environmental Design Principles.

4. Amenity

- Assess solar access, overshadowing, view loss, visual privacy, servicing requirements (including but not limited to, waste management, loading zones, and mechanical plant), acoustic impacts and wind impacts. A high level of environmental amenity for land uses immediately adjacent and the surrounding residential areas must be demonstrated.

5. Ecologically Sustainable Development (ESD)

- Detail how ESD principles (as defined in clause 7(4) of Schedule 2 of the Environmental Planning and Assessment Regulation 2000) will be incorporated in the design, construction and ongoing operation phases of the development.
- Include a description of the measures that would be implemented to minimise consumption of resources, water and energy, including an Integrated Water Management Plan which details any proposed alternative water supplies, proposed end uses of potable and non-potable water, and water sensitive urban design.

In addition to the above, the DGRs also include the following requirements;

Plans and Documents

- The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the Environmental Planning and Assessment Regulation 2000. Provide these as part of the EIS rather than as separate documents.
- In addition, the EIS must include the following:
 - architectural drawings
 - site survey plan, showing existing levels, location and height of existing and adjacent structures/buildings and boundaries
 - site analysis plan
 - shadow diagrams
 - view analysis/photomontage

- landscape plan
- preliminary construction management plan
- preliminary construction traffic management plan
- geotechnical and structural report
- arborist report
- sample board and schedule of materials and finishes.

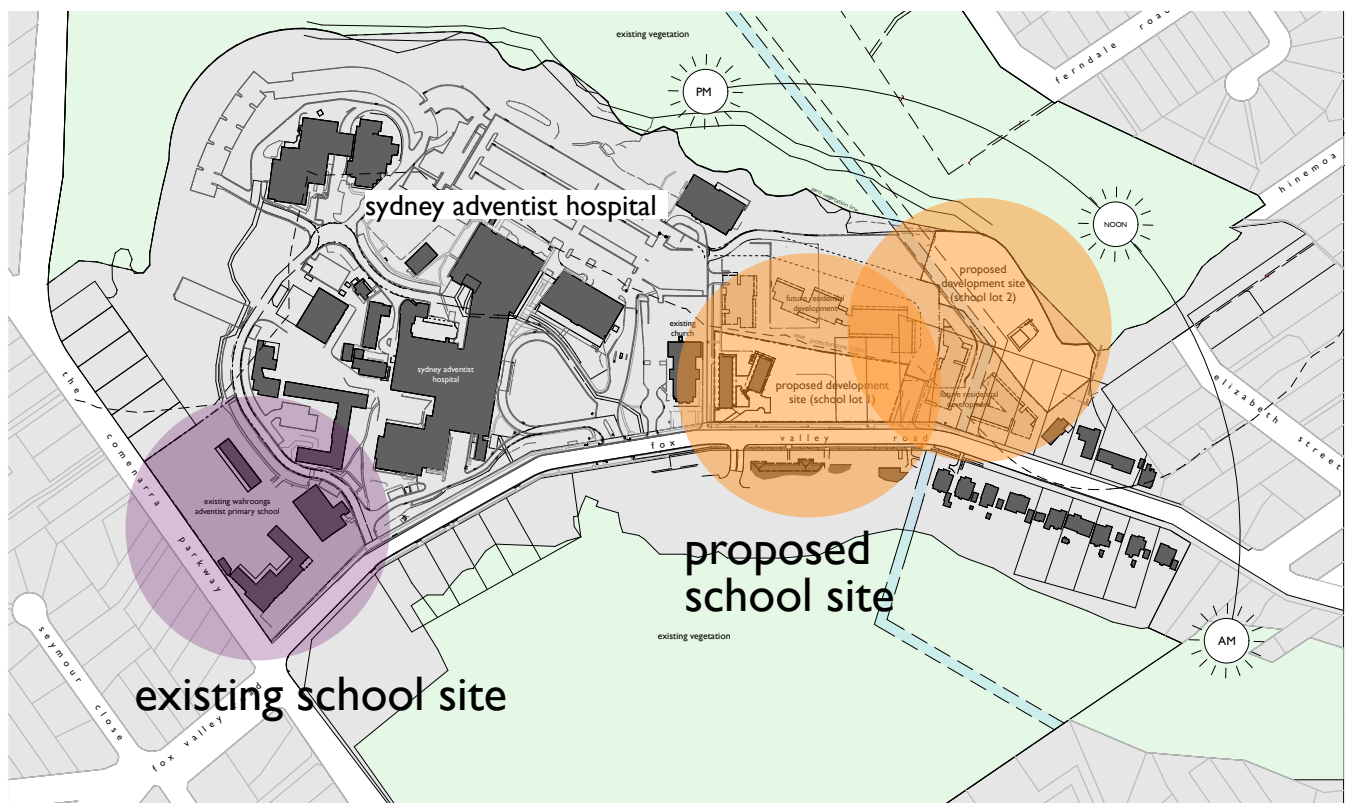
All drawings and documentation prepared to meet these requirements have been included in the appendices of the EIS document. The architectural drawings are included in the appendices of this report.

1.3 Wahroonga Adventist School

Wahroonga Adventist Primary School has been located on the Wahroonga Estate site since 1905 and serves the local Wahroonga community and wider catchment area extending to suburbs from Berowra, Cherry Hills, Epping and Turramurra. The School has had a longstanding role in the surrounding community, and there is current and future demand for school places in the existing catchment. Being co-located with Sydney Adventist Hospital and Seventh-Day Adventist Church, the school benefits from direct access to facilities on the Wahroonga Estate site, including a swimming pool, tennis courts and chaplaincy support.

At present, Wahroonga Adventist School provides primary education facilities to 200 students from its current location at 189 Fox Valley Road on land adjacent to the Sydney Adventist Hospital (SAN) at the intersection with The Comenarra Parkway. Under the Wahroonga Estate Concept Plan, the existing site of the School is designated for development as proposed student accommodation and key worker housing, ancillary to Sydney Adventist Hospital.

It is essential that the school relocates from its current site and continues to operate from its new site within the Wahroonga Estate. The new location of the school is intended to retain existing links to the Estate for both students and staff, to enhance the relationship with the existing church, and to maintain access to the wider facilities of Sydney Adventist Hospital. It is proposed that the new location will safeguard the future of this educational establishment by providing appropriate facilities to meet the demand within the existing school catchment.

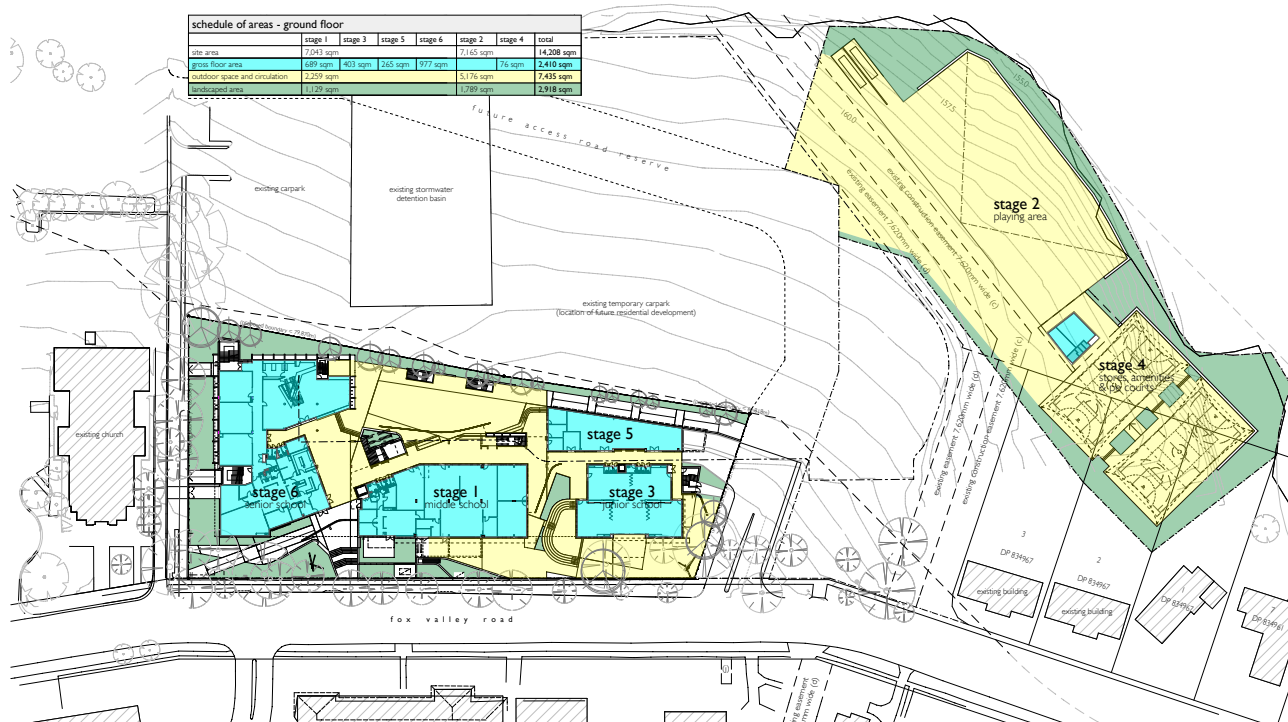


School site relocation

I.4 Development Proposal Overview

The existing Wahroonga Adventist School site is identified in the Wahroonga Estate Concept Plan Approval as the location for essential hospital accommodation to support key workers and students associated with Sydney Adventist Hospital. The School therefore needs to relocate to a new site further along Fox Valley Road, north of the existing Hospital facilities.

The SSDA seeks approval for the construction of a new Prep/K-12 school campus and playing fields area, to be procured in stages, linked with the growth of the School over time. The new school is proposed on two separate parcels of land known as; School Lot 1 (the main campus) on Fox Valley Road, and School Lot 2 (the playing fields area) to the north.



Proposed school development and staging

The proposed new Wahroonga Adventist School will provide modern, well-equipped buildings and grounds in a co-educational campus to accommodate expansion of school enrolments from the current 235 student Primary school to an 800 student Prep/Kindergarten to Year 12 (K-12) facility.

Relocation of Wahroonga Adventist School to the new site will make provision of the existing site for development of the proposed Sydney Adventist Hospital essential accommodation.

It is proposed that the new School be procured in the following stages;

- Stage 1: New Middle School facility for the accommodation of Prep to Year 8 students.
- Stage 2: New Playing Area (west portion of School Lot 2).
- Stage 3: New Junior School (east) facility for the accommodation of Prep to Year 12 students.
- Stage 4: New Stores, Amenities & PE Courts (east portion of School Lot 2).
- Stage 5: New Junior School (west) facility for the accommodation of Prep to Year 12 students.
- Stage 6: New Senior School facility for the accommodation of Prep to Year 12 students.

2.0 Context

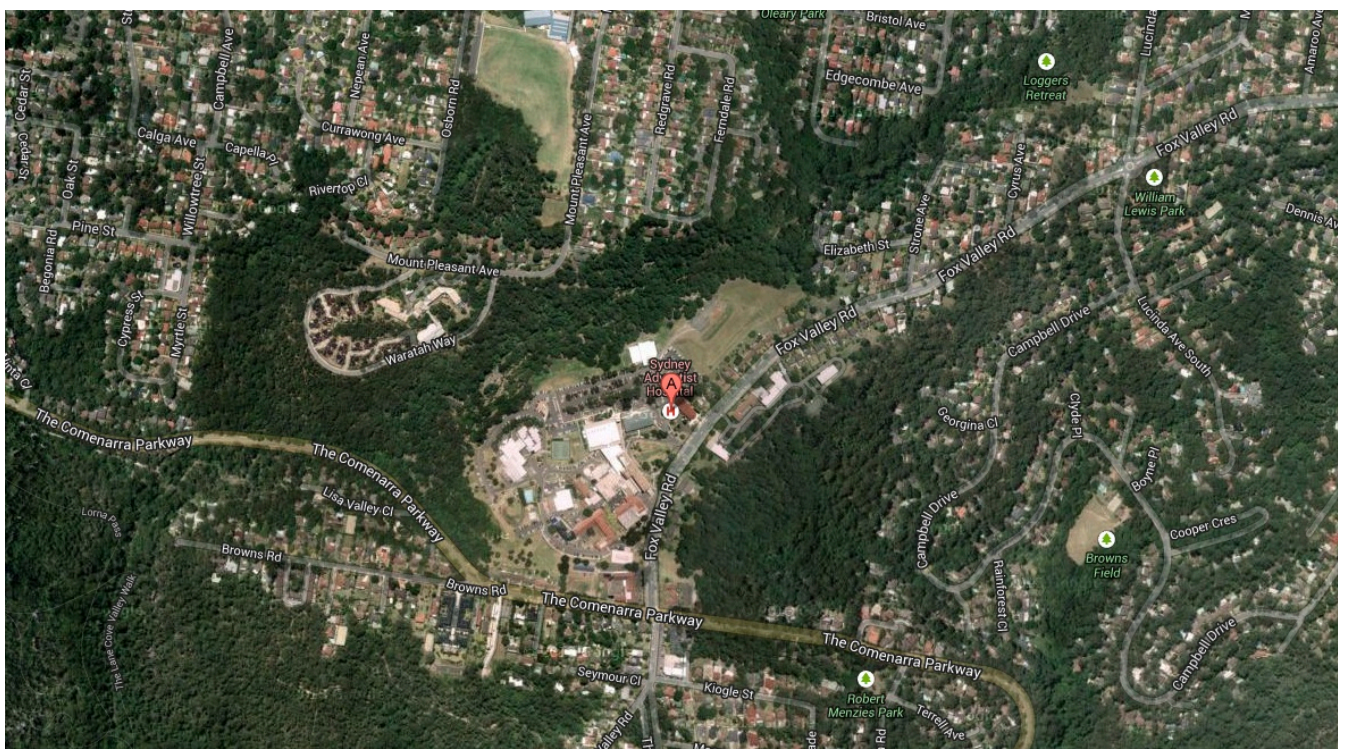
2.1 Locality

Wahroonga is located approximately 5km south of Hornsby and 23 kilometres north-west of the Sydney CBD. Wahroonga Estate comprises Sydney Adventist Hospital, Wahroonga Seventh-day Adventist Church and Wahroonga Adventist Primary School. The areas surrounding Wahroonga Estate are predominantly low density residential dwellings and bushland.

2.2 Urban Context

The Wahroonga Estate is a 62.4 hectare site comprising 59 separate property titles managed by the Australasian Conference Association (as property trustees of the Seventh Day Adventist Church) and two titles in private ownership. The majority of the site is located within the Ku-ring-gai Local Government Area, with a small portion located in the Hornsby Local Government Area.

The Wahroonga Estate comprises the following precincts; Precinct A - Mount Pleasant; Precinct B - Central Church; Precinct C - Central Hospital; Precinct D - Fox Valley Road East; and Precinct E - Residential East. Approximately 60% of the Estate is currently developed and includes; the existing Hospital, Wahroonga Adventist Primary School, churches, residential accommodation and car parking in the Central Precinct; residential, aged care and retirement accommodation in the Mt Pleasant Precinct; commercial and residential development to the Fox Valley Road East Precinct.



Aerial view of Wahroonga Estate

The balance of the Estate site comprises open space and bushland, including remnant urban bushland along riparian corridors. The Coups Creek riparian corridor is located to the north-west of the hospital site, and extends southwards across The Comenarra Parkway into the Lane Cove National Park.

The area immediately surrounding the Wahroonga Estate is characterised by residential development within a bush setting. Fox Valley Shopping Centre is located to the south of the intersection of Fox Valley Road and The Comenarra Parkway. Higher density forms of development are located along the Pacific Highway, including residential flat buildings.

The Estate benefits from access to the regional road network which provide linkages to arterial roads to the north, east and west. Fox Valley Road connects to the Pacific Highway to the north east; the F3 Freeway interchange is located a short distance to the north; while The Comenarra Parkway connects to both Pennant Hills Road and through to Ryde Road.

2.3 Wahroonga Adventist School Proposed Site

Wahroonga Adventist Primary School has been located on the Wahroonga Estate site with a longstanding presence within the surrounding community. Co-location with Sydney Adventist Hospital and Seventh-Day Adventist Church affords the school the benefits of direct access to facilities on the Estate site.

The proposed site for the new school campus is located to the north east of the existing Sydney Adventist Hospital facility, and on the north east side of the existing church building on Fox Valley Road. The new School will comprise two separate parcels of land known as; School Lot 1 (the main campus) on Fox Valley Road, and School Lot 2 (the playing fields area) to the north.



Aerial view of the proposed school site

2.4 Wahroonga Estate Concept Plan

The Wahroonga Estate is subject to a Concept Plan, having been declared a State Significant Site in 2009, with a Concept Approval being issued in 2010. The Concept Plan provided the framework for future development within the Estate. The Concept Approval outlines permissible land uses and maximum gross floor space area across five precincts within the Estate. The construction of a 3 to 4 storey education facility in Precinct B (Central Church) was included as part of the proposed works in the Project Approval.

Under the Concept Plan, the existing Wahroonga Adventist School site, located on the south edge of Sydney Adventist Hospital on the corner of Fox Valley Road and the Comenarra Parkway, is designated for development as proposed student accommodation and key worker housing, ancillary to Sydney Adventist Hospital. The School must therefore relocate from its current site to a new location to the north east side of the existing church building, further along Fox Valley Road.



Wahroonga Estate Concept Plan (incorporating MOD 5)

The Concept Plan also includes a number of approved modifications, the most recent of which is MOD 5 relating to development in Precinct B (Central Church). MOD 5 includes modifications to the layout of building footprints for the proposed educational facility, and modifications to the alignment of the internal road and connection to Fox Valley Road with a new signalled intersection.



Precinct B: Central Church detail (incorporating MOD 5)

3.0 Site Analysis

3.1 The School Site

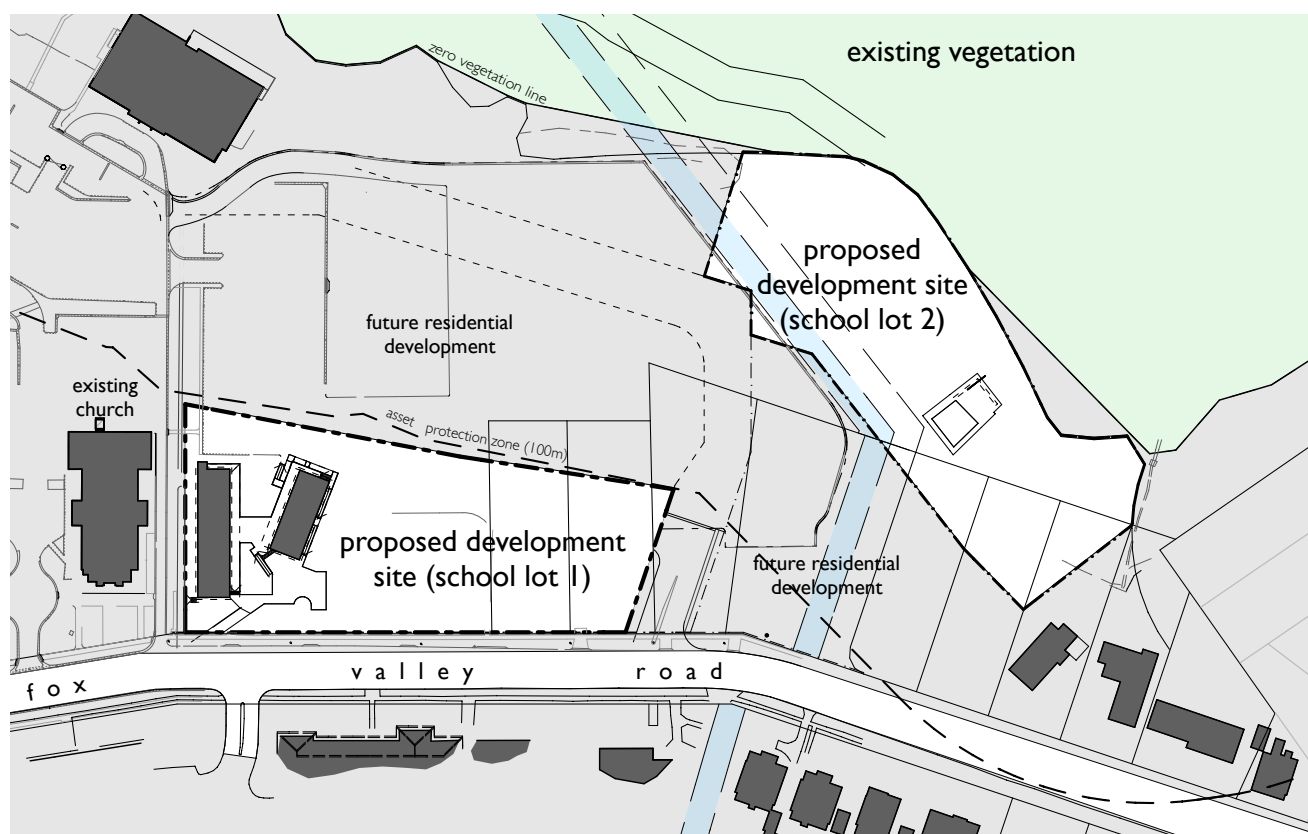
The proposed site for the new school campus is located on Fox Valley Road and will comprise two separate parcels of land known as; School Lot 1 (the main campus) on Fox Valley Road, and School Lot 2 (the playing fields area) to the north.

School Lot 1 was formerly occupied by existing residential dwellings which have undergone demolition and removal from the site in 2012. The site is currently occupied by temporary demountable classroom buildings which were recently constructed on site as part of the first phase in the process of relocating the School. An existing area of temporary car parking also partially occupies the site, currently used as a construction parking area for projects underway at the Hospital.

School Lot 2 is located to the north of School Lot 1 between an existing easement and an area of native vegetation. The existing easement traverses Fox valley Road and continues westward through the existing area of native vegetation.

A internal access link road is proposed under the Wahrenonga Concept Plan, connecting from Fox Valley Road, which will service both school lots as well as the future residential development sites located to the north and west of School Lot 1.

It is proposed that School Lot 1 will accommodate the Junior, Middle and Senior School campus buildings, while School Lot 2 will accommodate an outdoor playing area and physical education courts.



School Lot 1 and School Lot 2

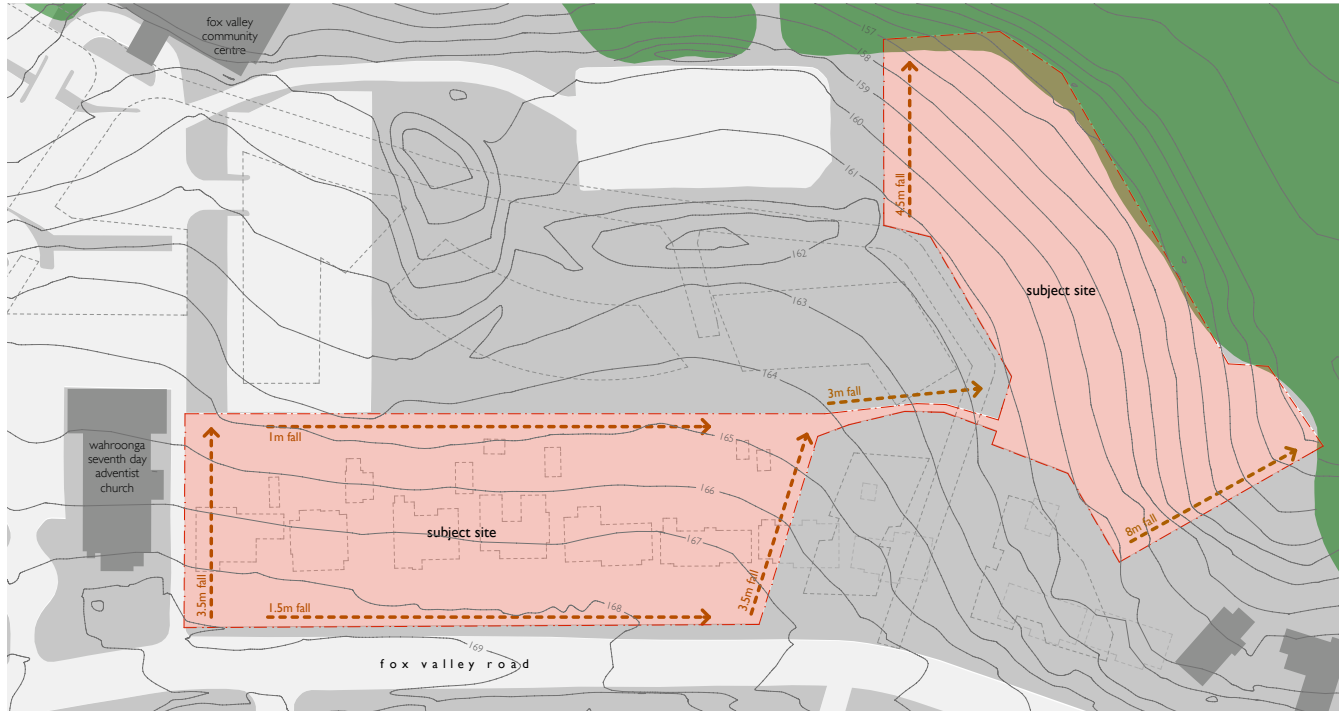
3.2 Surrounding Development

The new School site is bounded by; the existing church building and laneway to the south-west; the existing Sydney Adventist Hospital further to the south-west; the existing temporary carpark to the north-west; existing native habitat further to the north-west; Fox Valley Road to the east; and existing two storey administrative use development on the opposite side of Fox Valley Road.

3.3 Topography

The site terrain of School Lot 1 falls towards the north-west and includes a fall away from Fox Valley Road of approximately 3.5m, and a fall along the Fox Valley Road edge of the site of approximately 1.5m. The north-west boundary of the site adjoining future residential development sites has a fall of approximately 1m.

The topography of School Lot 2 includes a fall in slope towards the existing area of native vegetation varying between 4.5 and 8m overall.



Indicative site topography diagram

3.4 Existing Vegetation



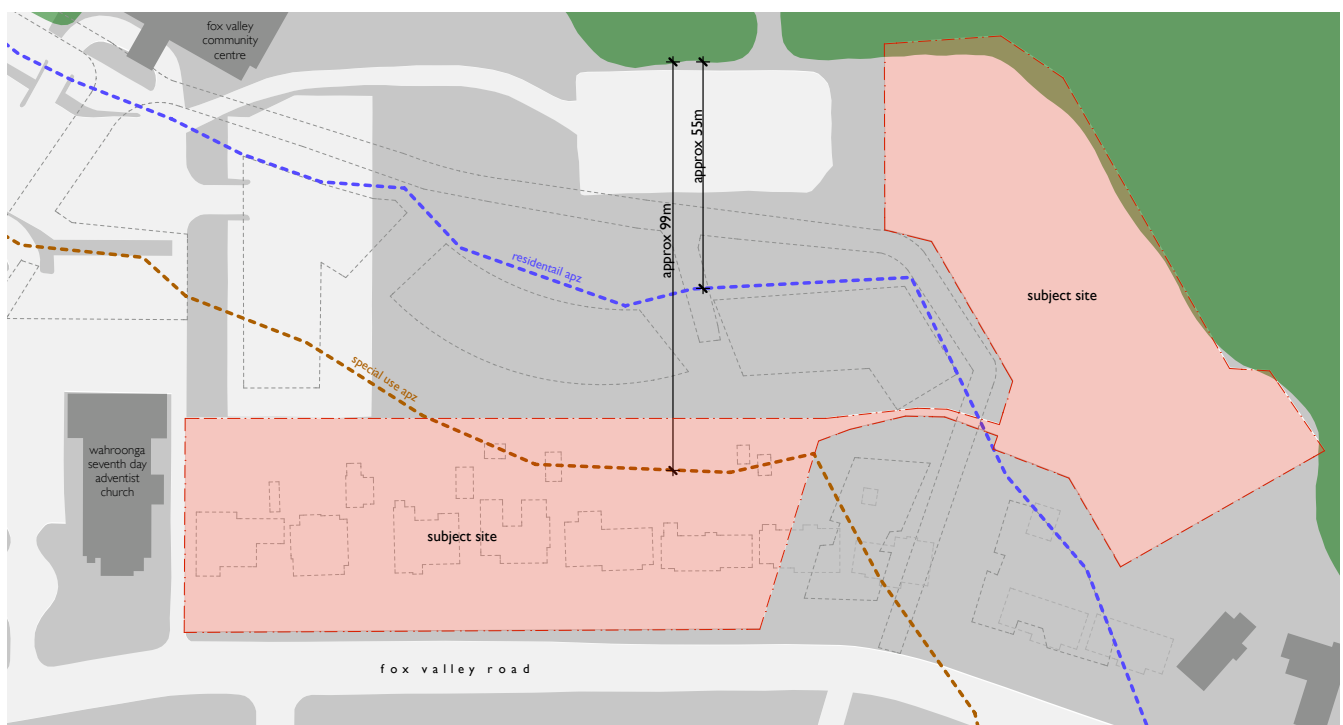
Indicative tree coverage diagram

The Concept Plan requires existing street trees along Fox Valley Road to be retained as part of an 'avenue' along the streetscape. School Lot 1 contains scattered trees across the site which have been largely removed to accommodate the temporary parking works partially encroaching the site.

School Lot 2 does not include any existing tree coverage, however adjoins an area of existing native vegetation to the north which is a protected ecological habitat.

3.5 Bushfire Protection

The location for the new school campus is not shown to be impacted by the Ku-ring-gai Bushfire Prone Land Map. However, the unmanaged vegetation north of School Lot 2 is recorded on the Bushfire Prone Land Map as Category 1 Bushfire Prone Vegetation. The parcel of land designated for the campus buildings (School Lot 1) was originally affected by a 100m asset protection zone (APZ). However, the boundary setout of School Lot 1 was amended in the early phase of the design process in response to the APZ to ensure the new school site would not be affected.



Asset Protection Zone diagram (former lot setout)

3.6 Access

The site for the new School campus is currently served by Fox Valley Road. The development will also incorporate a new internal access road link to the hospital grounds, connecting from Fox Valley Road. Vehicular access to the site will be from the new internal link road, with other service or emergency vehicle access available from the existing laneway between School Lot 1 and the existing church, or Fox Valley Road when appropriate.

Existing pedestrian network links will feed in to the new campus. Pedestrian access between the campus buildings and the playing fields area will be along the internal access road reserve. The location of the new School will also be in similar proximity to the existing hospital facilities as the current school site.

3.7 Views

Views to the site for the new School will primarily be from along Fox Valley Road. On approach to the site from the south, the existing church building marks the southern end of the campus, with the avenue of existing street trees affording filtered views to the site.

The approach from the north on Fox Valley Road similarly reveals filtered views to the site through street tree planting, with the existing hospital building visible in the distance along the road. The northern end of School Lot 1 is located close to a slight bend in the road and it is anticipated that the northern end of the new campus facilities will open towards the road due to a break in street trees (once the new internal access road intersection has been constructed) yielding opportunity for an architectural focal point in the proposal.

The location of School Lot 2, down-slope to the north-west and away from Fox Valley Road, will render it not readily visible from the street. Views to the new playing fields area are anticipated to be primarily from within the Estate site.



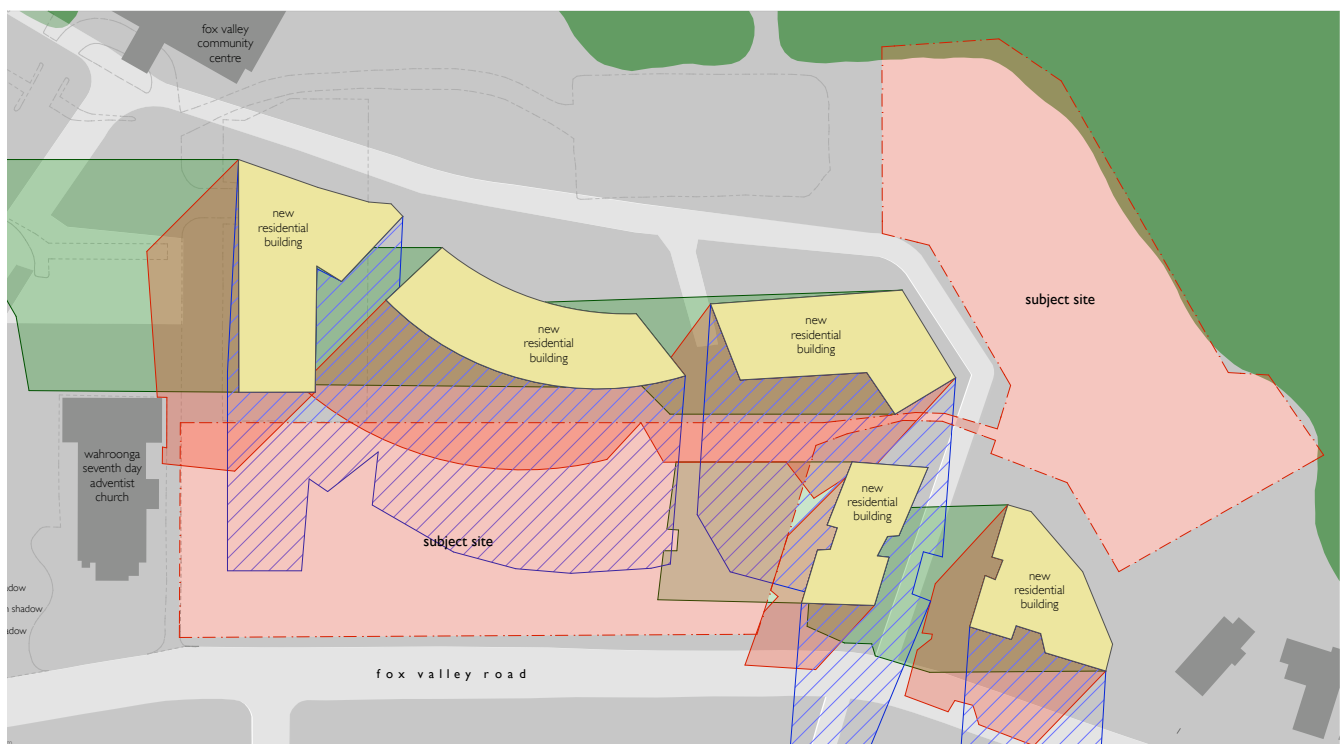
View from south along Fox Valley Road



View from north along Fox Valley Road to hospital

3.8 Solar Access

The location of the main campus facilities on School Lot 1 will be adjoining future residential development to the north and north-west. With the permissible height limit of these residential sites being 20.5m, the new school will potentially be impacted by overshadowing from future buildings along the north-western edge of the site.



Indicative solar access diagram

3.9 Heights and Setbacks

The height and setback envelope controls for the site have been nominated in the approved Concept Plan.

Setbacks for School Lot 1 comprise;

- 10m from the Fox Valley Road frontage;
- 16.1m from the existing church building south of the site;
- No numerical setback nominated to the north-west boundary (Building Code of Australia compliance applies);
- No numerical setback nominated to the north-east boundary (Building Code of Australia compliance applies);

The height controls for School Lot 1 are 14.5m generally and also maximum RL heights for each of the Senior, Middle and Junior school buildings, under the approved MOD 5 to the Concept Plan. The height limit to the adjoining proposed residential development sites to the north and west of School Lot 1 is 20.5m.

3.10 Constraints and Opportunities

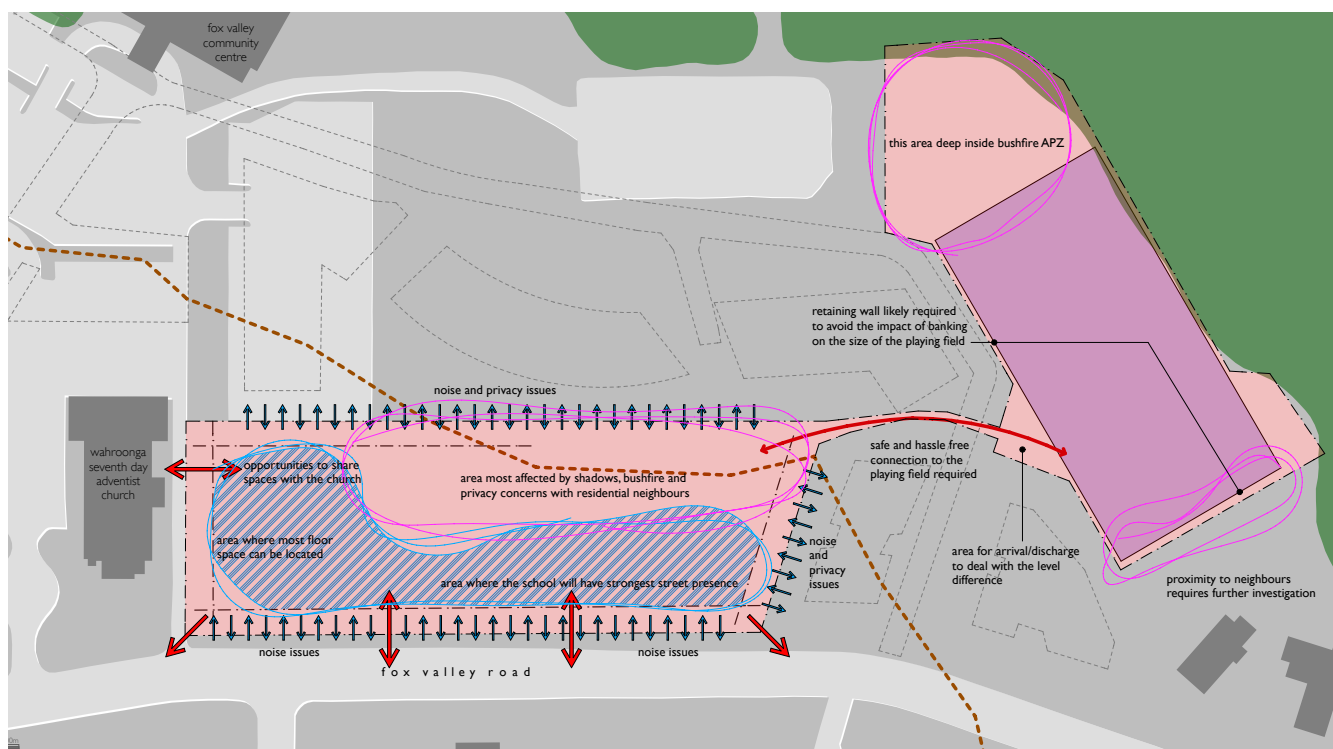
The diagram below illustrates constraints and opportunities yielded by the site(s). The modified School Lot 1 is now located outside the 100m APZ line, on Fox Valley Road for good access, close to the existing church and hospital facilities, and is suited to the siting of the proposed School campus buildings. School Lot 2 is on land within the APZ and can be utilised for recreational purposes.

From a review of constraints and siting opportunities on School Lot 1 for the campus buildings, the following characteristics can be observed (note: the boundary setout of this lot has since been adjusted in response to the APZ to that shown on the diagram below in response to the site conditions);

School Lot 1:

Constraints:

- The 100m APZ line at the north-western corner of the Lot has influenced a modification to the boundary setout.
- The north-western edge of the Lot will potentially be impacted by shadows from future residential developments.
- Potential for noise and privacy issues from Fox Valley Road, the northern end of the Lot, and from the adjoining future residential development sites.



Constraints and opportunities diagram (former lot setout)

Opportunities:

- The southern end of the Lot provides the opportunity for the most amount of floor space due to the tapering of the Lot from the impacts of the APZ line.
- The southern end of the Lot has best connectivity to the existing church building (desirable).
- The south-eastern edge of the Lot yields greatest opportunity for the School to have a strong street presence and streetscape expression to Fox Valley Road.
- The northern end of the Lot affords the most direct opportunity for access by staff and students to the remote School Lot 2 Playing Fields area.
- The fall of the site terrain away from Fox Valley Road allows potential for basement parking to be accommodated partially below ground and out of view along the streetscape.

School Lot 2:

Constraints:

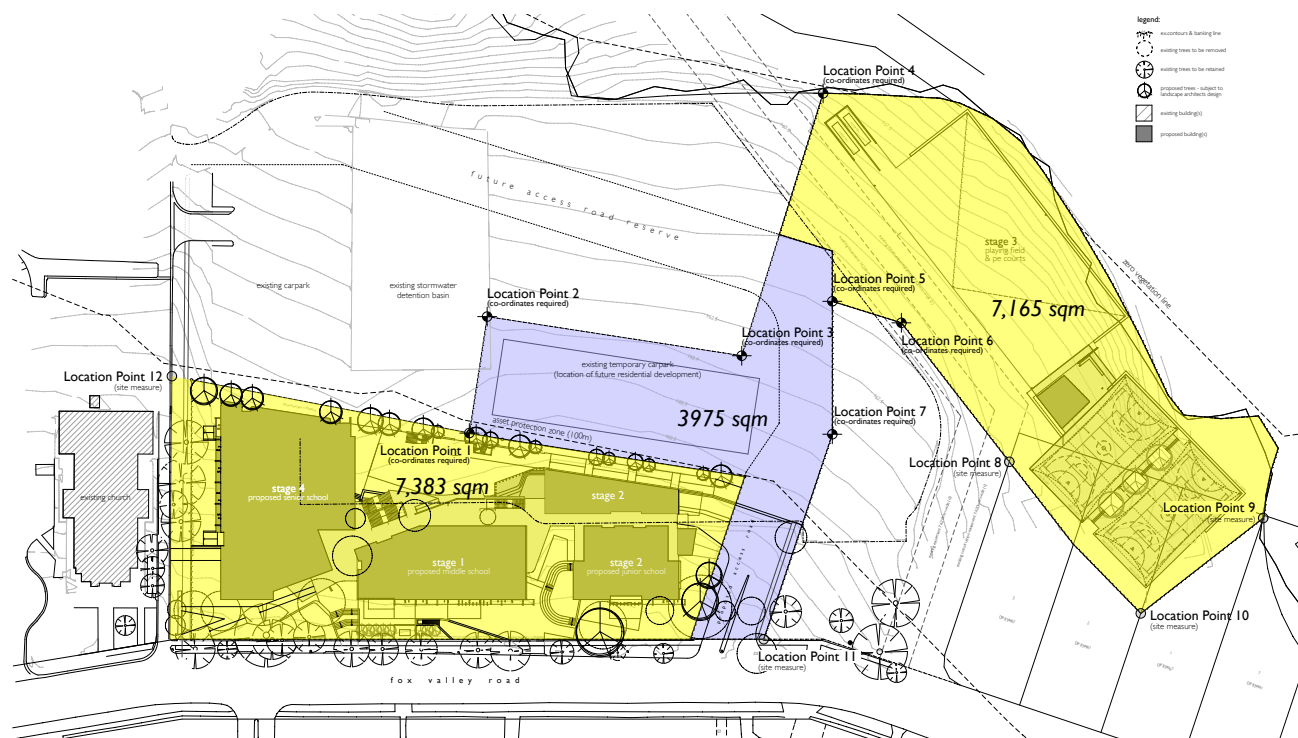
- The Lot is within the 100m APZ line.
- The Lot is restricted in width between the existing protected native vegetation to the north and the existing easement to the south.
- Access to the Lot from School Lot 1 is separated.
- Proximity to adjoining neighbours at the eastern end of the Lot.
- Site terrain falling to the north towards the native vegetation will require levels to be addressed.

Opportunities:

- The Lot is removed from the noise issues of Fox Valley Road.
- Proximity to natural surrounds enhances the recreational environment of this area used by students.
- Location within the context of future residential development sites has potential for the Playing Fields to become a 'community space'.
- Access between School Lot 1 and School Lot 2 via a future internal access road safer than Fox Valley Road.

3.11 Soils

A detailed site investigation has been carried out on site for School Lot 1, School Lot 2, and the link area between the two lots to be utilised for pedestrian access, and the siting of proposed temporary PE courts (which had been included in the previous staging sequence for the new School and was to originally be used prior to the construction of the Stage 2 Playing Area), now removed from Stage 1.



Extent of detailed site investigation undertaken

The investigation did not uncover evidence of widespread or substantial contamination and concludes that the site is generally compatible with the proposed development.

Refer to the detailed site investigation report by Douglas Partners.

3.12 Services

An upgrade of services infrastructure for the Estate site is being undertaken as part of the works proposed under the Concept Plan. The existing temporary carpark area to the west of the site incorporates a stormwater detention basin. Relocation of the School to the new site will require a site specific electrical substation to meet the anticipated demand for the new campus.

4.0 Development Proposal

4.1 Project Overview

The SSDA seeks approval for the construction of a new Prep/K-12 school campus and playing fields area, to be procured in stages linked with the growth of the School over time. The new school is proposed on two separate parcels of land known as; School Lot 1 (the main campus) on Fox Valley Road, and School Lot 2 (the playing fields area) to the north.

The proposed new Wahroonga Adventist School will provide modern, well-equipped buildings and grounds in a co-educational campus to accommodate expansion of school enrolments from the current 200 student Primary school to an 800 student Prep/Kindergarten to Year 12 (K-12) facility.

It is proposed that the new School be procured in the following stages;

STAGE 1 (Middle School):

Construction of a Middle School facility for the accommodation of Prep to Year 8 students, including;

- New Middle School building;
- Associated outdoor play space;
- Basement car parking and 'kiss & drop' facilities;
- Landscaping works.

STAGE 2 (Playing Area):

Construction of a new playing area (west portion of School Lot 2) including;

- Open turfed playing area (unmarked);
- Associated retaining wall works;
- Landscaping works.

STAGE 3 (Junior School - East):

Construction of a Junior School facility for the accommodation of Prep to Year 12 students, including;

- New Junior School building;
- Associated outdoor play space;
- Basement car parking and 'Kiss & Drop' facilities;
- New access road adjoining Fox Valley Road;
- Landscaping works.

STAGE 4 (Stores, Amenities & PE Courts):

Construction of a new pavilion and playing courts area (east portion of School Lot 2) including;

- PE courts;
- Stores and amenities building;
- Associated retaining wall works;
- Landscaping works.

STAGE 5 (Junior School - West):

Construction of a Junior School wing to the Stage 3 facility for the accommodation of Prep to Year 12 students, including;

- New Junior School building wing;
- Associated outdoor play space;
- Landscaping works.

STAGE 6 (Senior School):

Construction of a School facility for the accommodation of Prep to Year 12 students, including;

- Removal of existing demountable classroom buildings;
- Construction of new Senior School building;
- Associated outdoor space;
- Basement car parking and 'Kiss & Drop' facilities;
- Landscaping works.

The proposed works comprise a total gross floor area of 8,158 sqm. The combined works have a capital investment value of \$39,327,000. The project is expected to generate a significant number of employment opportunities, including an additional 37 staff at the School.

4.2 Project Objectives

It is envisaged that the new Wahroonga Adventist School campus will provide a modern co-educational facility to accommodate the growth of the School from its current population to an 800 student Prep/Kindergarten to Year 12 (K-12) community. The new School seeks to retain existing links with Estate facilities and the church building adjoining the site, and to foster community/public interaction with, and 'ownership' of, the facility.

The new campus will comprise well-equipped buildings and grounds, in an overall integrated campus facility designed to express 'three schools in one' (Junior, Middle and Senior) while being linked via an 'internal street'. The campus will be procured in stages aligned with school growth over time, with the siting of each 'School' designed to achieve; open outdoor space; good solar and daylight access; appropriate presentation to surrounding streetscape and public domain; good connectivity to and within the campus.

The three 'Schools' will be served by a basement level linking the three buildings providing for parking and 'kiss and drop' facilities. The Playing Fields site is a separate parcel of land a short distance from the campus buildings, with outdoor recreational and sporting facilities against a backdrop of native vegetation, with potential to become a community space within the future residential community on adjoining sites.

It is proposed that the School will express design excellence as a 21st century educational environment and contemporary 'urban campus' within the Wahroonga Estate precinct, and in the context of the future development in the surrounding locality.



Proposed Fox Valley Road façade

4.3 Design Development

The process of developing the design for the new campus masterplan involved an appraisal of the contextual and surrounding site constraints and opportunities (refer 3.0 *Site Analysis* above) against the functional requirements of the design brief. Consideration of site characteristics, proximity to existing Wahroonga Estate facilities, existing and future surrounding development and envelope control parameters informed the siting and planning arrangement of the School design.

For School Lot 1, the brief requirement for 'three schools in one' linked as one integrated campus - along with each of their functional relationship/accommodation requirements and building footprint opportunities over the site - gave rise to the planning framework and massing arrangement of the development proposal. Desirable links for connectivity with adjoining facilities influenced the location of the Junior, Middle and Senior school components, in addition to requirements for outdoor play spaces. Other considerations in the design were pedestrian and vehicular access.

The design development for the Playing Fields area on School Lot 2 eventuated from the requirement to locate suitably sized areas for an open turfed space, PE courts, cricket nets and store/facilities building, within the constraints of the site. These constraints include an existing easement to the south, the existing native vegetation to the north and west, and existing residential development to the east. Whilst the PE courts have been designed to the sizes required for school grade games, the open turfed area is too small to accommodate school grade marked playing field sizes, due to the site constraints.

4.4 Site Planning

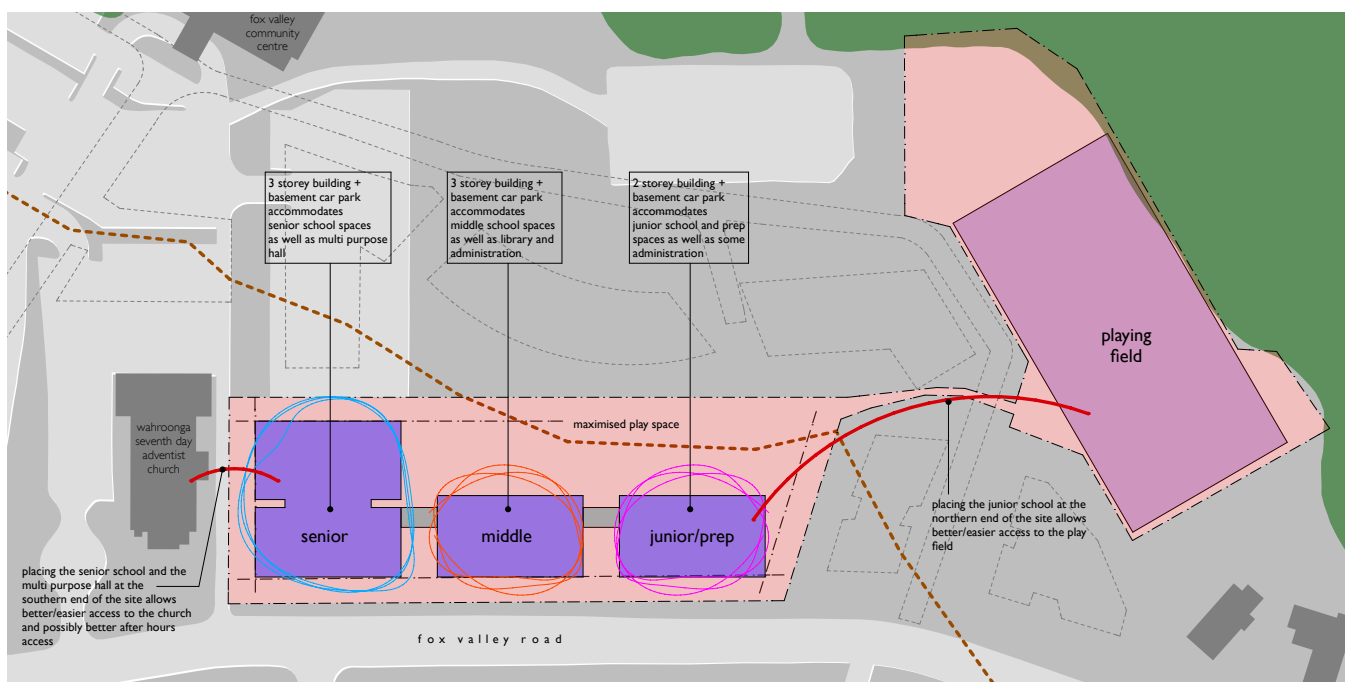
The planning arrangement of the new campus has been designed to accommodate the brief requirements of the School and respond to the site conditions and surrounding context. The siting for each of the three 'Schools' has been considered in order to meet particular functional and relational requirements to adjoining facilities, and to achieve good connectivity to and within the campus. The Junior, Middle and Senior components of the campus are planned to be integrated while also having access to open outdoor space and good solar and daylight orientation, along with appropriate presentation to surrounding streetscape and the public domain.

Functional Relationships:

The location of each of the three 'schools' on School Lot 1 responds to the requirements of functional relationships for the School.

At the southern end of the site, the presence of the existing church building has influenced the location of the Senior School being sited at that end of the campus. With the Senior School building accommodating the school hall, close access will be possible between the church and the hall which will be utilised by the church for various uses during the course of the week.

The northern end of the site accommodates the Junior School building, allowing the most direct access to the Playing Fields area on School Lot 2.



Site planning diagram

The Middle School component is logically located between the Senior and Junior School stages of the campus, with the three 'schools' being linked by an 'internal street' to integrate the whole of the campus and facilitate access and movement through the School.

The three 'schools' are all served by an underground basement level linking the three buildings and providing parking and 'kiss and drop' facilities. Vehicular access to the basement is designed to be from the northern end of the site off the proposed internal access road linking Fox Valley Road.

Setbacks:

The setback envelope controls for the site have been nominated in the approved Concept Plan (refer *03 Site Analysis* above). The planning arrangement for the new school campus buildings responds to these parameters as follows;

- 10m setback from the Fox Valley Road frontage to the main building line (required);
- 16.1m separation to the existing church building at the south end of the site (required);
- Nominal 6m (plus) setback from the proposed internal access road at the northern end of the site (Building Code of Australia compliance applies);
- The edge of the basement level along the north-western boundary of the site varies from less than three metres to more than 6m, with the three 'school' buildings being setback by various distances from the boundary (Building Code of Australia compliance applies);

In considering the location of each of the three 'school' building footprints, the following were contributing factors;

Senior School:

- The Senior School, containing the school hall, is the largest of the three buildings on the campus;
- The southern end of the site has the largest available footprint area due to the tapered shape of School Lot 1 (which was amended in response to the 100m APZ line) for accommodation of the Senior School;
- The southern end of the site has the most direct relationship to the existing church for the school hall facility within the Senior School building;

Middle School:

- The Middle School is positioned between the Senior School and the Junior School as the logical transition between stages within the School;
- The Middle School building footprint has been located along the Fox Valley Road edge of the site to reinforce a strong street presence on the edge to the campus, and to avail the four storey potential over the basement level on this part of the site (refer *4.5 Rise in Storeys* below).
- Location of the building footprint along the Fox Valley Road edge also provides for the outdoor play space on the north west edge of the site to become the 'heart' of the campus, with strong internal visual and functional links to each of the three 'schools'. The outdoor space is also away from the road and traffic, and allows adequate separation and amenity between the future residential development sites and the school buildings, and provides for good solar access to the new buildings.

Junior School:

- The northern end of the site has the most direct access to the Playing Fields area on School Lot 2, for access by Junior School.
- The Junior School building footprint has been located along the Fox Valley Road edge of the site to reinforce a strong street presence on the edge to the campus, and to avail the four storey potential over the basement level on this part of the site (refer *4.5 Rise in Storeys* below).
- Location of the building footprint along the Fox Valley Road edge in relation to outdoor play space as for the Middle School above.

4.5 Rise in Storeys

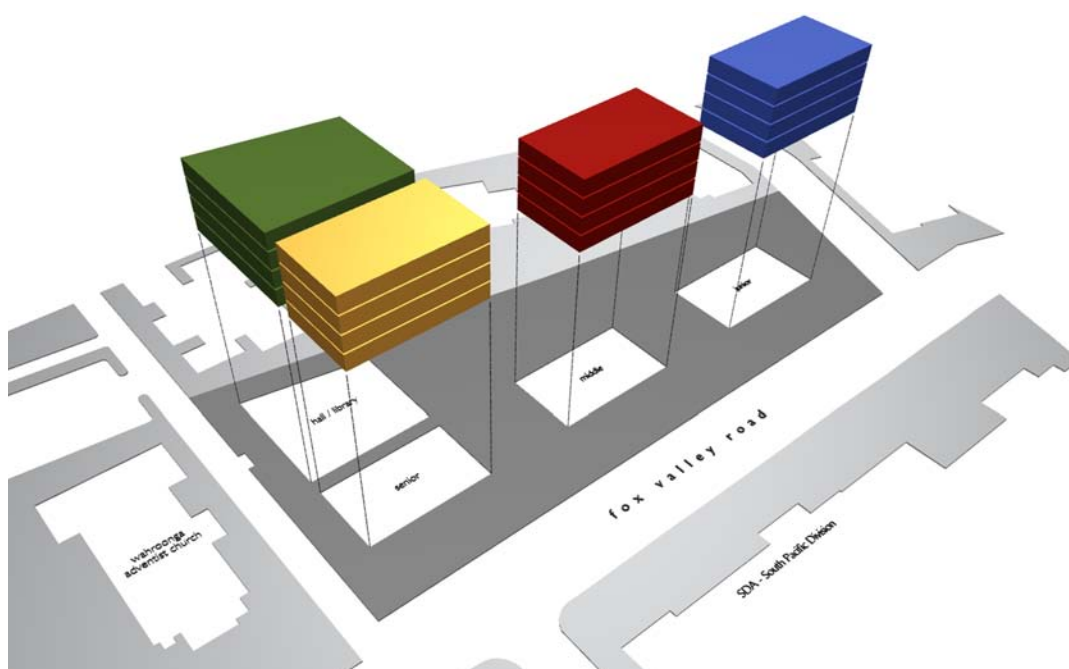
The height envelope controls for the site have been nominated in the approved Concept Plan. The height limits nominated for School Lot 1 are 14.5m generally, and also maximum RL heights for each of the Senior, Middle and Junior school buildings (under the approved MOD 5 to the Concept Plan). The height limit to the adjacent proposed residential development sites to the north and west of School Lot 1 is 20.5m.

To accommodate the functional design brief requirements for the School, along with provision for off-street parking, the design for the campus buildings on School Lot 1 would feasibly incorporate up to four levels above ground, along

with an in-ground basement level (ie; the number of storeys generally achievable within the overall 14.5m height limit above ground level is four).

Due to the falls in the topography across the site terrain, it was anticipated that an in-ground basement level would be completely below ground on the Fox Valley Road edge of the site, but be partially out of ground on the north-west edge of the site.

In meeting the accommodation requirements of the brief, it was considered that siting the buildings towards the Fox Valley Road edge over an in-ground basement level (arising from the above Site Planning appraisal) would best maximise the potential of utilising the four storeys above natural ground. This would have the added advantage of achieving compact building footprints and maximum required outdoor space, and to facilitate good natural ventilation through narrower floor plates.



Rise in storeys diagram

4.6 Massing

The building massing for the campus facilities on School Lot 1 has been informed by site planning considerations as outlined above, including rise in storeys and height envelope parameters, and reconciliation of the design brief requirements. Where required by the accommodation brief, the permissible number of storeys has been utilised so that building footprints are minimised for greatest site efficiency.

The resulting arrangement of the building footprints on School Lot 1 has resulted from an analysis of the inter-relationship between the three 'schools' on the site (and their functional design brief requirements), the desired connectivity internally on the campus, and responses to site conditions such as solar access, daylighting and opportunities for natural ventilation.

Spaces between the building footprints have been 'carved out' in response to these considerations, such as outdoor play spaces, entry points and desired solar orientation. These informing elements include;

- Main pedestrian entry to the School at the southern end of the site;
- Central outdoor play space (the 'heart');
- Junior School outdoor play space at the northern end of the site;
- 'Internal street' link across all three 'schools' on the campus.

A pivotal component of the massing arrangement is also the 'internal street' which links the three 'schools' across the campus.

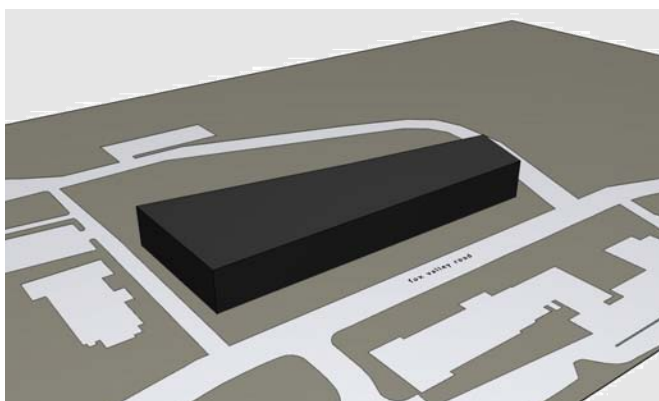
The massing of the footprints on the campus has simultaneously been informed by the internal planning configuration of the briefed accommodation requirements, and the reconciliation of required functional relationships within the design.

The accommodation requirements for each of the three 'schools' on the campus have resulted in the number of levels in each of the 'school' building footprints, as follows;

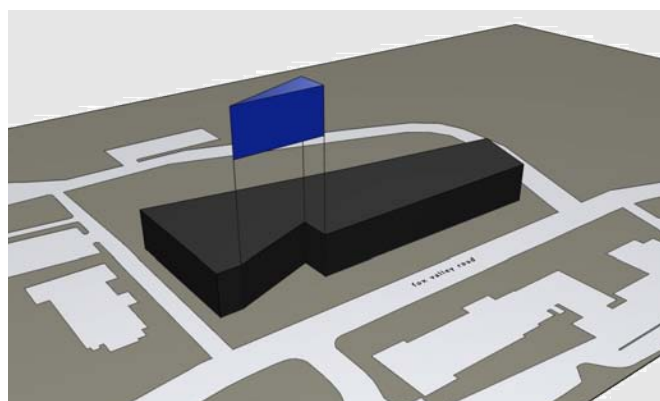
Stage 1 (Middle School) - 4 levels with basement;

Stage 3 & 5 (Junior School) - 3 levels with basement

Stage 6 (Senior School) - 4 levels with basement



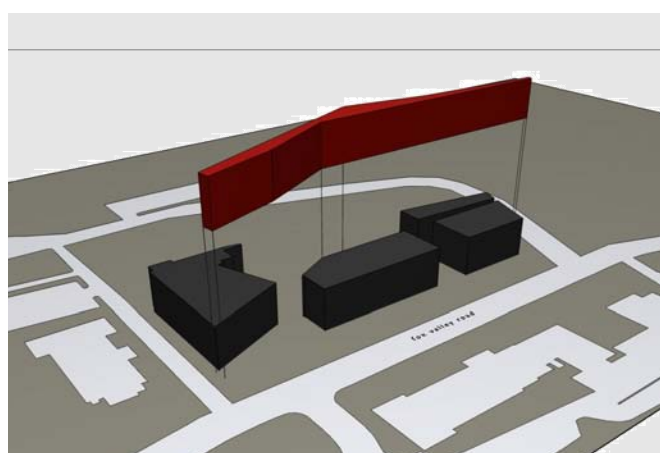
Base building mass within setback parameters



Main pedestrian entry to southern end of site



Central and northern outdoor play spaces



'Internal street' linking the campus

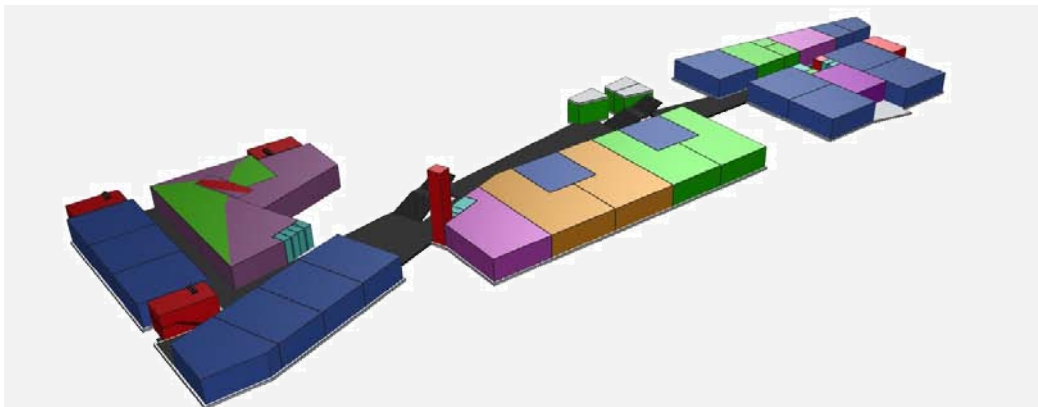
In response to the site terrain across the site, falling away from Fox Valley Road, the underground basement is designed to be concealed from view along the streetscape on the south-eastern edge of the site, however, rises partly above natural ground level on the north western side of the site (due to the required levels to achieve vehicular access from the new internal road and movement within the basement).

A significant component of the School's accommodation requirements is the school hall facility located within the Senior School building footprint. The size of the hall is driven by the requirement to incorporate a full-size basketball court (with required overruns) and to have the capacity to accommodate whole-of-school events with all students and staff in attendance. The hall will also be well utilised by the church for various activities during the week, and has been located at the southern end of the site in close proximity for good access.

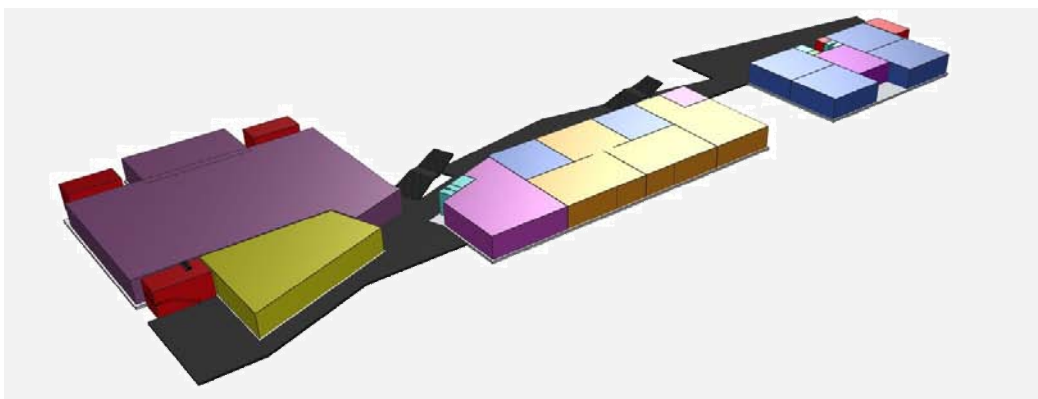
The southern end of the site is also the widest part of the site, due to the tapered setout responding to the 100m APZ line, and is the most suitable location for accommodating the larger Senior School building footprint incorporating the hall.



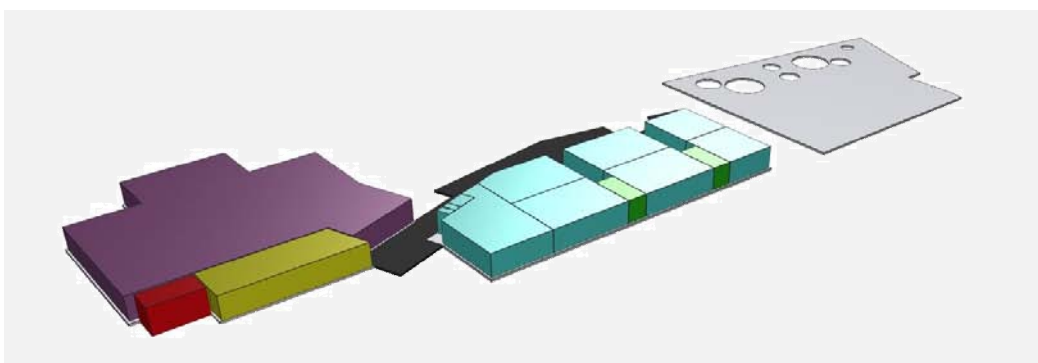
Ground Floor planning/massing diagram



First Floor planning/massing diagram



Second Floor planning/massing diagram



Third Floor planning/massing diagram

While the hall constitutes a single level space, the overhead height requirements for the basketball court necessitate the hall to be 7m in height internally. In considering the internal planning of the Senior School building, the volume of the hall has been located to the north-western side of the footprint and accessed from the second floor level (one level down from the uppermost level). Although the number of storeys (above the basement) in the school hall zone is three, the scale of the massing is increased due to the required height. However, the hall volume is considered to be appropriate in scale when considered in relation to the permissible height of future residential buildings (20.5m) on the adjoining development sites. Refer to the discussion under *Height and Scale* below.

4.7 Height and Scale

The height envelope controls for the site have been nominated in the approved Concept Plan. The height limits nominated for School Lot 1 are 14.5m generally, and also maximum RL heights for each of the Senior, Middle and Junior school buildings (under the approved MOD 5 to the Concept Plan). The height limit to the adjacent proposed residential development sites to the north and west of School Lot 1 is 20.5m.

The number of storeys generally achievable within the overall 14.5m height limit above ground level is four. To accommodate the functional design brief requirements for the School, along with provision for off-street parking, the design for the campus buildings on School Lot 1 generally incorporates four levels above ground for the Senior and Middle Schools, and three levels above ground for the Junior School. Where required by the accommodation brief, the permissible number of storeys has been utilised so that building footprints are minimised for greatest site efficiency.

The in-ground basement level forms part of the four and three level scale on the north-western side of the site in response to the site terrain falling away from Fox Valley Road. The basement is fully underground on the south-eastern side of the site (Fox Valley Road) and concealed from view along the street elevation of the campus. The establishment of the basement at the proposed levels allows good vehicular access from the new internal access road connecting from Fox Valley Road.

The accommodation requirements for the three 'schools' within the campus have resulted in the following number of levels in each building footprint;

Stage 1 (Middle School) - 4 levels of accommodation with in-ground basement;

Stage 3 & 5 (Junior School) - 3 levels of accommodation with in-ground basement;

Stage 6 (Senior School) - 4 levels of accommodation with in-ground basement;

The design process for the campus and 'three schools in one' on the site has involved a rigorous assessment of site constraints and opportunities, reconciled with the requirements of the functional design brief. The resultant building layout and massing of the new campus buildings is a response to this process, and incorporates a variation in scale across the site which contributes to the separate expression of each the 'schools' within the integrated campus design.

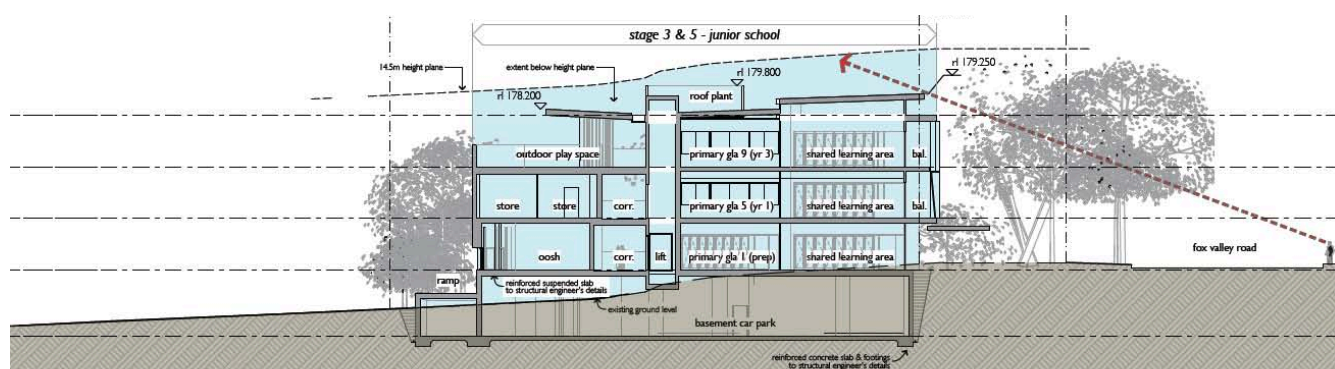
The Middle and Senior School building forms are close in height to the general 14.5m control envelope on the site, which has influenced the design of the building roofscape to be low in profile and scale. Within this limitation, the roof forms employ cantilevers (roof and building elements) to articulate the design expression.

Junior School:

The Junior School accommodation requirements have yielded a mix of three and two storey building scale over the common basement level. The three storey high scale portion of the building is located on the south-eastern side of the site and presents to both Fox Valley Road and the new internal access road to the north. The two storey scale portion of the building footprint is located on the north-western side of the site.

The roofscape of the building comprises low-pitched roof forms and a roof-mounted plant and equipment enclosure. The roof plant enclosure incorporates the lift overrun along with required mechanical equipment, and has been positioned centrally within the footprint away from potential sight lines to the building.

The building is completely below the general 14.5m height plane above natural ground level, with the majority of the footprint being equivalent to one storey below the permissible height. When viewed from Fox Valley Road, the front edge of the Junior School roof on the south-east elevation is significantly below the 14.5m height line. It is therefore considered to be consistent with the objectives of the Concept Plan.



Height diagram – Junior School

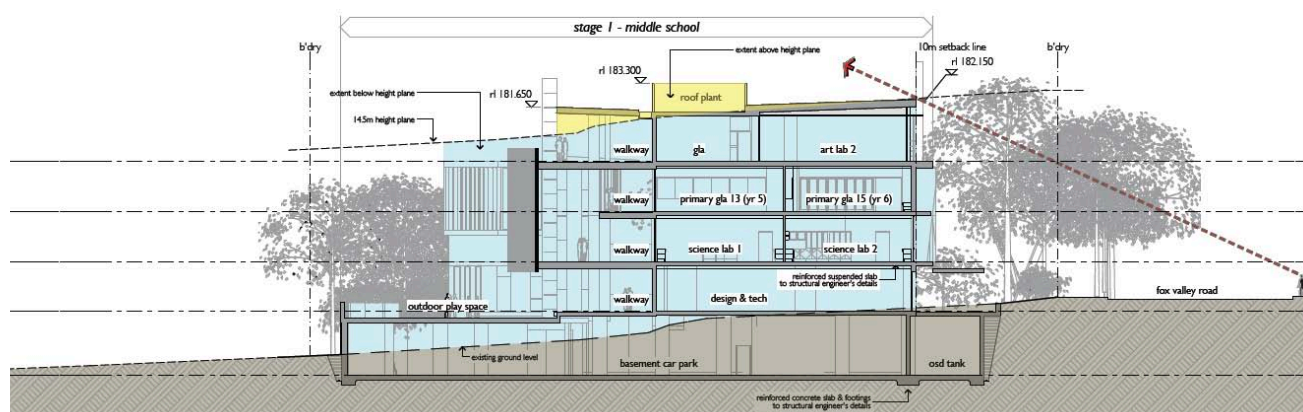
Middle School:

The Middle School accommodation requirements have yielded a four storey building scale over the common basement level. The four storey high scale portion of the building is located on the south-eastern side of the site and presents to Fox Valley Road.

The roofscape of the building comprises low-pitched roof forms, a roof-mounted plant and equipment enclosure, and a lift overrun enclosure. The roof plant enclosure incorporates required mechanical equipment, and has been positioned centrally within the footprint away from potential sight lines to the building. The lift overrun enclosure is located at the south western end of the building and is likewise inboard in the footprint (away from Fox Valley Road) to avoid sight lines to the building.

The building generally conforms to the 14.5m height plane above natural ground level. The exceptions include; the roof plant enclosure; the lift-overrun enclosure; and the low-pitched roof of the external walkway on the north western side of the footprint (required for sun protection in outdoor play); which encroach into the height plane. These encroachments have been designed within the RL height limits nominated for the Middle School under the approved MOD 5.

When viewed from Fox Valley Road, the front edge of the Middle School roof on the south-east elevation is within the 14.5m height line. It is therefore considered to be consistent with the objectives of the Concept Plan.



Height diagram – Middle School

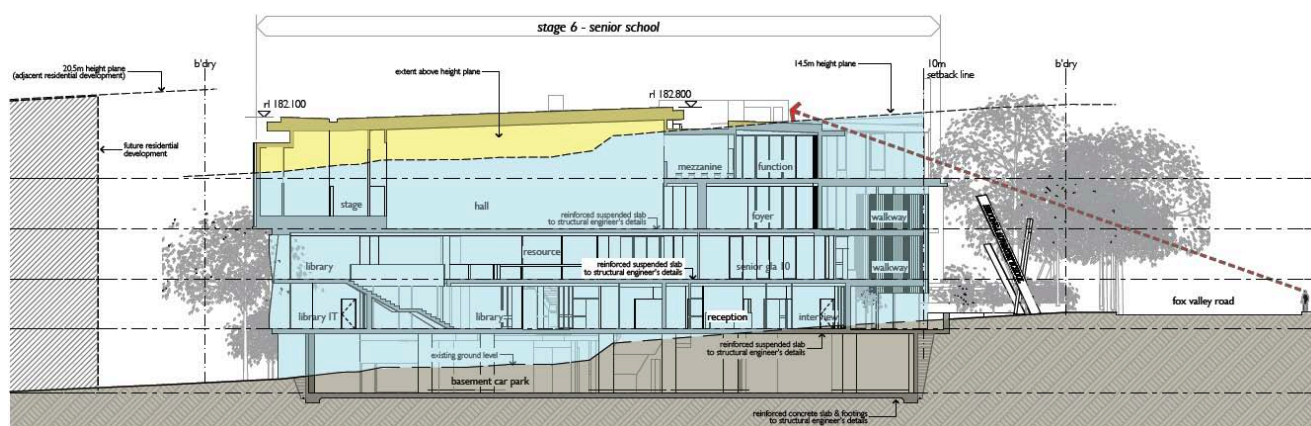
Senior School:

The Senior School accommodation requirements have yielded a mix of four and three storeys over the common basement level. The four storey high scale portion of the building is located on the south-eastern side of the site and presents to Fox Valley Road. The three storey portion of the building footprint is located on the north-western side of the site, however, includes increased height over the school hall zone of the footprint due to the internal height requirement of the basketball court within the hall.

The roofscape of the building comprises low-pitched roof forms. The required mechanical services plant and equipment for the hall has been accommodated on the north-western side of the school hall zone, and fully integrated within the building form.

Due to the internal height requirements over the basketball court within the school hall, the scale of the hall volume increases and encroaches into the general 14.5m height plane above natural ground level (although rising three storeys above the basement). These encroachments have been designed within the RL height limits nominated for the Senior School under the approved MOD 5. The school hall volume has been located to the north-western part of the site due to the available buildable area for the required size of the hall, the internal planning and relationships driven by the brief, and desired proximity to the existing church building.

When viewed from Fox Valley Road, the front edge of the Senior School building form on the south-east elevation is within the 14.5m height line, and can be considered as consistent with the objectives of the Concept Plan.



Height diagram – Senior School

During the design process, it was considered that the encroachment (resulting from the required height of the hall volume) would be most appropriately located on the south-western corner of the site, as part of an urban design consideration. A study of potential residential footprints on the adjoining sites was carried out, taking into account preferred yield and SEPP 65 requirements within the permissible height envelope. These indicative footprints were included in 3D modelling as part of the context and site analysis early in the design process.



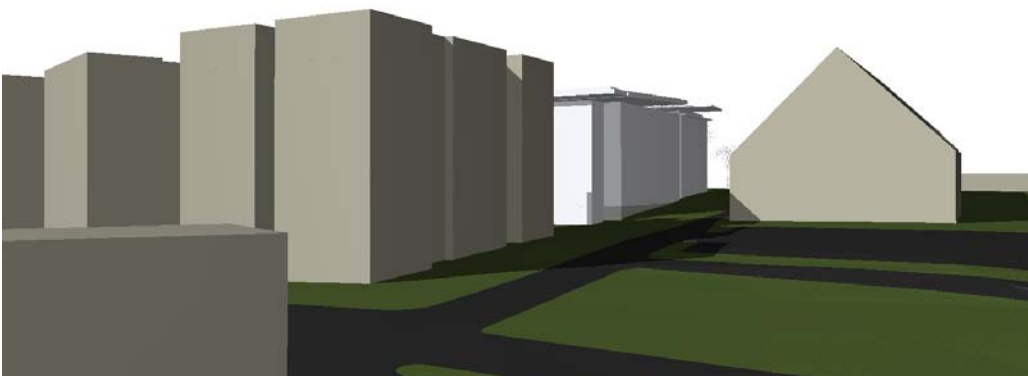
3D modeling study showing possible future development in the precinct

From this appraisal, it was determined that locating the school campus buildings along the Fox Valley Road frontage would not only establish a strong streetscape presence, but also open up the centre of the school site to allow adequate separation and amenity to the adjoining prospective future residential buildings. This further provided the potential for a central community space between the developments as part of the future character of the precinct.

Siting the Senior School building (with its larger footprint and volume driven by the hall requirement) at the southern end of the campus was deemed the preferred location, providing the opportunity to reinforce the urban edge of the precinct and mediate the change in height between the School site and the higher scale of the adjoining future residential development sites.



3D modeling study - precinct view showing urban edge with central space



3D modeling study - view from west to the Senior School showing future residential development and existing church

The variation in the mass and scale of the three buildings across the campus site contributes to the separate expression of the three 'schools' within an integrated campus streetscape along Fox Valley Road and meeting the design objective of 'three schools in one'.

The Fox Valley Road streetscape will be an important urban edge to the identity of the precinct. The height of the campus buildings along this edge comply with, or are significantly below, the overall 14.5m height plane, with encroachments for required building services and other elements as designed within the RL height limits nominated under the approved MOD 5. Similarly, the location of the Senior School on the south-west end of the campus assists in providing a strong urban edge and enables creation of the central space on the site, both of which contribute positively to the structure and character of the future precinct.

In context, the massing of the design proposal over the site can be considered to meet the overall height and scale objectives of the Concept Plan.

4.8 Built Form

The form of the three 'school' buildings on the campus has been derived from the above design process, with the planning layout reflecting the programme and functional relationships requirements of the design brief. The buildings overall comprise between two and four levels, arranged across the site over a common basement linking the three 'schools'.

Primary elements in the architectural expression of the siting and design of the new campus include; the southern end as an anchor point and primary pedestrian entry, and focal point from the southern Fox Valley Road approach; the north eastern corner as a focal point on the northern Fox Valley Road approach; and the articulated integrated streetscape elevation between the two ends, presenting to the public domain on Fox Valley Road (and incorporating the landscaped 10m setback with street trees).



View from south to main entry 'anchor point'

Secondary elements include; the Senior School volume at the south-western corner of the site; and the Junior School OOSH 'wedge' to northern end of the site. Both of these elements form architecturally expressed corners to the site, viewed from the south-west/north-west areas of the Estate.

The three 'schools' are linked by an 'internal street' element across the length of the site which provides for outdoor covered access and pedestrian movement through the campus.

Floor to floor heights for the buildings have been designed at 3.5m to enable the rise in stories required within the overall height plane to achieve the accommodation brief requirements. Ceiling heights are proposed as 2.7m typically (or higher where possible) throughout, apart from amenity or service areas.

Vertical circulation cores for primary pedestrian movement are typically designed as open stairs to allow adequate surveillance within the School, or where isolation is required under the BCA, are expressed as vertical elements in the building form.

The building forms seek to maximise solar ingress, natural daylight and natural ventilation as far as possible. The 'internal street' circulation link provides for views into outdoor spaces on the campus, and to the public domain.

The roofscape of the campus buildings has been designed as low in profile and scale, in response to the height constraints over the site. Within this limitation, roof forms and building elements employ cantilevers as part of the building articulation and design expression of the School.

4.9 Building Articulation

The main campus on School Lot 1 has been designed to allow for both a unified and separate expression of the 'three schools in one' design objective. The new School is expressed as an 'urban campus' and the building façades designed with a contemporary architectural expression.

The siting, massing, layout and design expression of the new campus buildings responds to the site conditions and surrounding context. This is manifested as a series of primary elements and is articulated as a composition from a 'kit of parts'.

Primary elements include; the southern 'anchor point' end as the main entry; the northern Junior School end; the streetscape elevation to the public domain on Fox Valley Road; and the 'internal street' linking the three 'schools' across the campus with a strong circulation axis.

Secondary elements include; the Senior School volume at the western corner of the site; and the Junior School OOSH 'wedge' to northern corner of the site. Both of these elements form architecturally expressed corners to the campus, viewed from the south-west/north-west areas of the Estate.

The southern end of the site (church building end) expresses the main pedestrian entry point to the school via a solid 'book end' with cantilevered entry canopy. The Fox Valley Road streetscape facades lead off this corner towards the north. The composition of the building facades comprises a 'kit of parts' in their articulation, which includes; dark ground floor plinth; expressed pre-cast concrete screens; cladding panels; translucent skin; and coloured metal screening. These components are composed and articulated to achieve an appropriate scale for the campus within the surrounding context.



Detail view of Fox Valley Road façade

Plinth:

The dark-toned ground floor plinth anchors the buildings to the ground plane, and comprises face brick masonry units with full height vertical slot window apertures of varying width. The 'slots' contribute a sense of rhythm to the plinth elevation and the dark tone assists in the plinth to recede as subservient to the projecting pre-cast concrete screen elements on the levels above, which provide shading to the plinth walls.

Expressed Concrete Screens:

The expressed concrete screens are designed typically as a two level high component 'clipped on' to the base building form. The screens comprise the floor slabs of the building cantilevered out to provide the required fire protection under the BCA for this class of building, with vertical tapered edge divisions at regular intervals spanning through the two floors.

The resulting screens allow scope for full height openings with generous controlled natural light into teaching spaces on both levels. Each screen module has the potential to be sub-divided as required by the internal planning layout with a composition of glass and opaque lightweight panels, employing the use of colour. Additional finer screening modules are inserted within the concrete screen module where the façade expresses the primary age shared learning spaces behind.

The concrete screen modules are 'clipped on' to all three 'school' buildings on the campus in various configurations, and project forward of the building walls by approximately 1200mm to achieve compliance with the BCA.

On the Fox Valley Road streetscape elevation, the screens provide a strong horizontal expression across the Middle and Junior School buildings, linking them along the façade and 'hovering' above the plinth. The two storey high scale of the screens contributes to an appropriate scale for the three and four level high building forms along this façade.

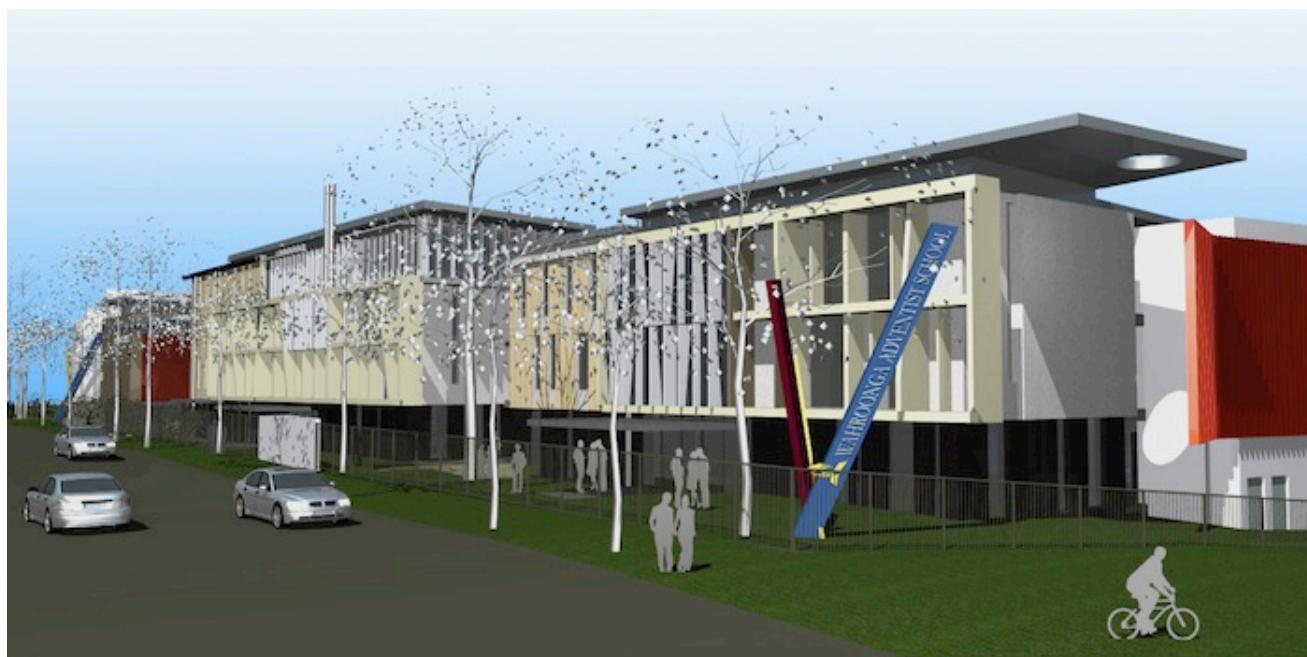
Cladding Panels - Lightweight:

Pre-finished lightweight cladding panels are utilised for the skin of the buildings to areas where the concrete screens are not expressed on the facades. The application of panels to the external walls is a composition of vertically proportioned modules of varying width, with integrated vertical windows. The panel arrangement is offset between levels to assist in expressing the massing of the buildings with a horizontality, contributing to an appropriate scale. The cladding panels are typically applied to two and three level high sections of the buildings.

Cladding Panels - Concrete:

It is proposed that pre-cast concrete cladding panels also be incorporated in the façades as part of the external fabric of the campus buildings in key areas. These are proposed as cladding to base building walls at the Senior School end of the campus (pedestrian entry 'anchor point' of the site) and the Junior School north west edge (containing the OOSH 'wedge' to northern corner of the site). Both of these elements form architecturally expressed corners to the campus, viewed from the south-west/north-west areas of the Estate.

Pre-cast concrete has been considered for its robustness in the intended (school) environment and it is proposed that the panels will include integrated colour, rather than applied finishes, for low maintenance.



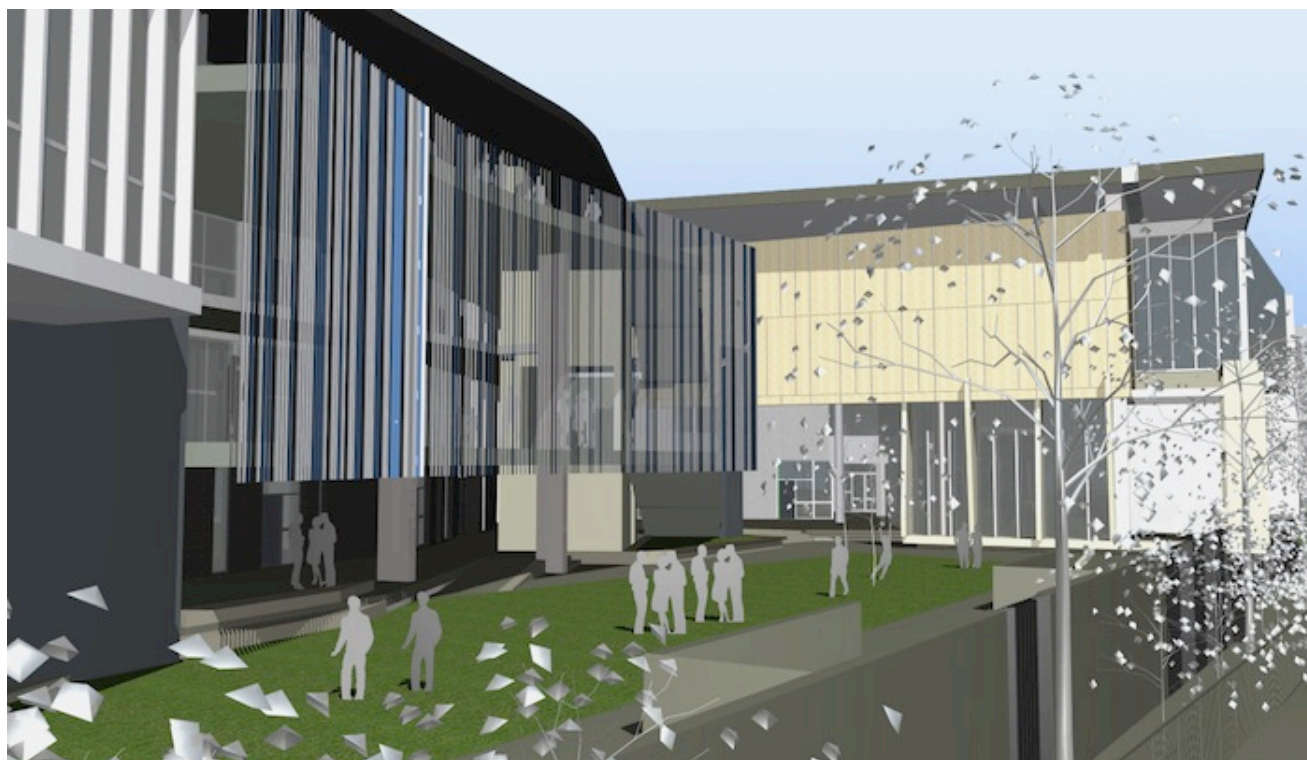
View from north-east to Fox Valley Road façade

Translucent 'Skin':

The external façade of parts for the Middle and Senior School buildings incorporates a translucent 'skin' of glazed panels which are applied in a repeating module. It is proposed that the components of the skin would comprise varying opacities reflecting the use of the spaces behind the façade. This is primarily expressed on the upper level of the Middle School building on the Fox Valley Road elevation, where the accommodation includes arts curricula such as music, ceramics and visual arts. The translucent-like skin lends a 'lightness' and 'lantern' aesthetic to the upper level, and further diminishes the height and scale of the building. The translucent skin is also employed to the cladding around the rear of the stage area of the school hall in the Senior School building.

Metal Screening:

The metal screening utilised in the design of the campus is an important component integral to the 'internal street' circulation spine linking the buildings across the site. The screening is designed as pre-finished metal components with vertically expressed aesthetic, applied to the walkway structures. It is intended that the screening will also act as 'balustrade' to the walkway edges, while providing a vehicle for the use of colour and visual movement across the campus. The applied screens 'hover' above the ground plane allowing free pedestrian access across the ground plane to external outdoor areas.



View to the central outdoor play space with screening

In addition to the 'kit of parts' components, the following have also been considered;

With several of the building forms close to the height control envelope over the site, the roofscape of the buildings has been designed as a series of low-profile roof planes. Within this limitation, the roof forms employ cantilevers to express important parts of the campus, and assist in articulating the building facades with 'light and shade'.

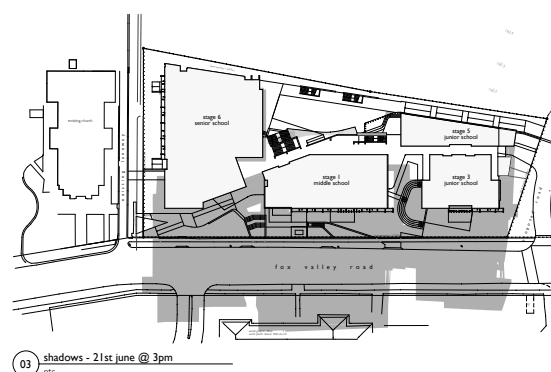
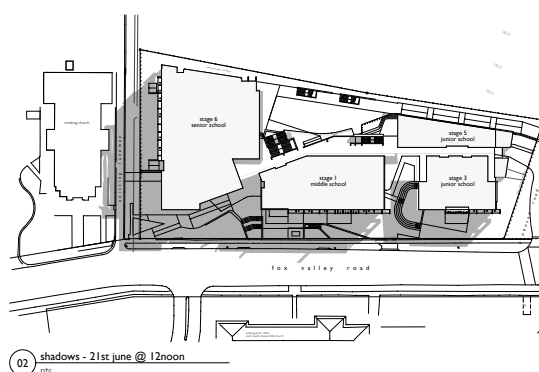
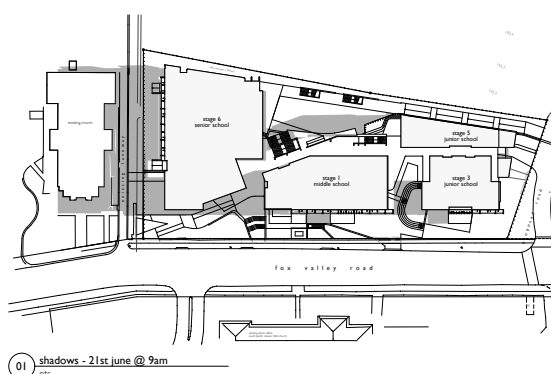
Consideration has been given in the design process for the accommodation of appropriate mechanical plant and equipment. The nature and type of the mechanical system necessitates that equipment be located at the roof zone for efficiency. Due to height constraints, plant areas have been integrated within the building form (Senior School), or located in screened rooftop plant areas (Middle and Junior School) positioned to have the least impact on bulk, scale and site lines to the building.

4.10 Solar Access

The site planning of the new campus building arrangement on School Lot 1 responds to the future context of the adjoining residential development sites, and seeks to maximise the extent of solar access, daylighting and natural ventilation into the new buildings.

The layout of the three 'schools' on the site has been generated through the design process described above with the buildings being located towards the Fox Valley Road edge of the site. This provides a separation to the adjoining future residential development, and maximises solar ingress and daylighting from the central outdoor play space as the 'heart' of the campus.

Shadows cast by the proposed new campus fall across the existing Fox Valley Road reserve with negligible impact, as well as towards the existing church building at the south west end of the site around 9am. The overshadowing on the church falls only on part of the existing north east wall and, being a non-residential use, is considered to be negligible.



Shadow diagrams – winter solstice

4.11 Views

Views to the site of the new School have been considered as part of the design process. Primary vistas to the School will primarily be along Fox Valley Road from both the south and north approaches. It is anticipated that secondary views into the site will be experienced from within the future residential community on the adjoining development sites to the north and west.

On approach from the south (hospital end), the Senior School of the new campus would be legible as an 'entry corner' of the facility, adjacent to the existing church building. This marks the southern end of the campus and is expressed as an 'anchor point' to the Fox Valley Road façade.

The approach from the north of Fox Valley Road will yield views to the Junior School end of the campus, with the existing hospital visible in the distance. The northern end of new campus facilities is designed to be expressed as a visible corner and architectural focal point (following the removal of some street trees required for the new internal access road).

Views to the Fox Valley Road streetscape façade, between the southern and northern ends of the new facility, would be 'filtered' through the existing street trees.

The location of School Lot 2, down-slope to the north-west and away from Fox Valley Road, will render it not readily visible from the street. Views to the new playing fields area and store/facilities building will primarily be experienced from within the future residential community and the Estate.



View to the School from south along Fox Valley Road



View to the School from north along Fox Valley Road

4.12 Visual Privacy

The site planning of the new campus buildings seeks to maximise the extent of visual privacy to the future residential development sites on the north west. The layout of the three 'schools' on the site has been generated through the design process with the buildings being located towards the Fox Valley Road edge of the site. This provides a separation to the adjoining sites with an appropriate level of amenity.

The centrally located outdoor open space at the campus 'heart' is shielded on three sides through the siting of the Junior, Middle and Senior School buildings. The north western side of the outdoor play space is proposed to be edged with screen tree planting between the basement 'podium' and the lot boundary. These contribute to a good level of visual protection and privacy for the students from external vantage points.

The perimeter of the outdoor play spaces located within the 10m setback from Fox Valley Road will be provided with a mix of 2.1m high vertical baluster metal fencing and some solid elements, which will provide a varying degree of visual privacy (eg; less open when seen obliquely) and be enhanced by tree planting and landscaping in this area.

4.13 Acoustic Privacy

To be read in conjunction with the Acoustic Report.

A noise impact assessment was carried out for the design proposal, based upon offensive noise activities with the potential to occur outside standard operating hours of the school. Extra-curricular use of the classrooms and hall were determined to comply with the project specific criteria into the night period, with minimal noise impacts on the surrounding community.

Consideration has been given in the design process for the accommodation of appropriate mechanical plant and equipment. The nature and type of the mechanical system necessitates that equipment be located at the roof zone for efficiency. Due to height constraints, plant areas have been integrated within the building form where possible (Senior School), or located in screened rooftop plant areas (Middle and Junior School) - with appropriate acoustic treatment as required and best practice engineering measures utilised to attenuate any noise from mechanical plant.

Based upon current traffic information, predicted changes in traffic noise and projected vehicle movements on Fox Valley Road are predicted to be largely negligible. The projected use of the basement car park was predicted to exceed the criteria if used at night, and it has been recommended that noise control measures (such as absorptive treatments to the car park entry ramp) be incorporated to reduce noise emissions.

The acoustic assessment found that the operation of the sports fields will have noise impact on future surrounding residential development, and will require mitigation measures to reduce sporting field noise on the local community. It is also recommended that a noise management plan for the operation of the sports fields be considered, as a part of an overall management plan for the site.

4.14 Wind Impacts

Development of the design for the buildings on the new campus has been in consultation with a structural engineer, and will conform with the requirements of the relevant structural wind action codes.

The siting, layout and built form of the new buildings on the site is not expected to generate any adverse wind conditions in the surrounding context.

4.15 External Materials and Finishes

External material selection for the School has been influenced by the need for low-maintenance, robust materials appropriate to a school environment. Selected materials are typically pre-finished, or integrally coloured or finished to ensure that the school's maintenance regime is minimised over time. Materials have also been selected for their appropriateness to a contemporary building expression.

Colours for the nominated external materials have been considered in the articulation of the building facades and architectural expression. Colours are integral to the materials or pre-finished for maintenance reasons. The palette includes dark tones (ground floor plinth), more neutral tones (upper level cladding), and accent colours in elements such as metal screening and façade panels.

The palette of materials selected for the new facilities includes; face brickwork; pre-cast concrete panels; off-form concrete; pre-finished cladding panels; translucent glazing panels; pre-finished metal screening; glazing; and aluminium framed windows and doors.

4.16 Sustainability

In the new buildings on the campus, a range of sustainable design measures have been considered and integrated into the design.

The buildings are designed to maximise the provision of natural ventilation and controlled solar ingress to the teaching and staff spaces throughout the campus. Good cross ventilation opportunities are particularly available in the Middle and Junior School building footprints through multi-use/flexi spaces, due to their narrower depth. The design provides for generous daylighting into the buildings to reduce reliance on artificial lighting during the day.

The new school campus facilities have been designed to comply with the sustainability requirements of Section J of the Building Code of Australia. Consideration has been made in the design process for energy requirements which include; building fabric; glazing; building sealing; air-conditioning and ventilation systems; lighting and power; hot water supply; and access for maintenance and facilities for monitoring.

Measures to be integrated from conforming with the above requirements include; appropriate thermal insulation incorporated into the external building envelope; utilising VRV mechanical air-conditioning systems for energy efficiency; maximised use of energy efficient light fittings; and maximised use of water efficient fixtures.

A large rainwater collection tank has been designed in to the basement level for water re-use, including the flushing of toilets and irrigation to landscaped areas. Water Sensitive Urban Design (WSUD) considerations have also been made to achieve reductions in gross pollutants/suspended solids etc, prior to entering the stormwater system. Rainwater runoff on the northern edge of the Playing Fields area has been designed for minimal impact on the adjoining natural vegetation and habitat, in consultation with the environmental consultant (*refer to the Stormwater and Water Quality Report*).

Finishes and materials in the building are proposed to incorporate low VOC paint products, and low environmental impact products suitable for educational environments, as far as possible.

4.17 Open Spaces and Edges

The planning arrangement of the main campus site achieves open recreational and landscaped spaces, and landscaped edges across the site. The buildings of the new campus are designed to maximise outdoor space opportunities within the site. Each of the Junior, Middle and Senior Schools will have access to student recreational areas on the campus (with an additional separate area for the Junior School), and the Playing Fields area located a short distance to the north. Access to the Playing Fields area will be managed under staff supervision.

Central to the site is the open outdoor space, forming a 'heart' to the site - pivotal to the Junior, Middle and Senior School components of the campus, along with the 'internal street'. This area is edged by the three Schools with strong visual and circulatory connection, and is oriented to the north/north-west for good solar and daylighting access.

The Junior School has been designed with direct access to additional open outdoor space to the north and north-east edges of the school site. This area avails the generous (10m) setback area from Fox Valley Road, and a nominal 6m setback to the proposed internal access road to the north, and has been designed with integrated landscaping.

A 'breakout' external space for staff has also been designed within part of the Fox valley Road setback, with direct access from the Middle School ground floor staff area. Where not used for student outdoor space, soft landscaping to the surrounding edges to the site has been maximised.

The remote Playing Fields area to the north of the site includes an open turfed Playing Area and sealed PE courts. This area provides for more formal school recreational and sporting activities. Access to this area by students is to be managed under staff supervision. This open space adjoins an area of existing native vegetation, providing a natural backdrop and enhancing the environment for school recreational activities.

4.18 Public Domain

The planning arrangement of the main campus site integrates open and landscaped spaces, and landscaped edges across the site. The southern end of the site provides the primary point of connectivity with the public domain, forming the main pedestrian entry to the School, and being the access link to the school hall facility within the Senior School building to be used for activities associated with the church.



Main pedestrian entry to the campus

The new school site is visible on approach along Fox Valley Road from both the south and the north. From the south (hospital end), the Senior School of the new campus would be legible as the 'entry corner' of the facility, adjacent to the existing church building. This main pedestrian entry is intended as the primary 'signifier' to the community and interface with the public domain.

On approach from the north of Fox Valley Road, the Junior School end of the School site will present a visible corner to the public domain once the existing street trees are removed for construction of the new internal access road. With the above lines of approach to the School site, the southern and northern ends of the campus have been considered as expressed corners in the design, and focal points along these axes.

Views to the Fox Valley Road façade, between the southern and northern ends of the new facility, would be 'filtered' due to the presence of the existing street trees.

The main school campus is also designed to have pedestrian connectivity to the Playing Fields area to the north, and to Fox Valley Road at the southern end, as well as good internal connectivity between each of the Schools.

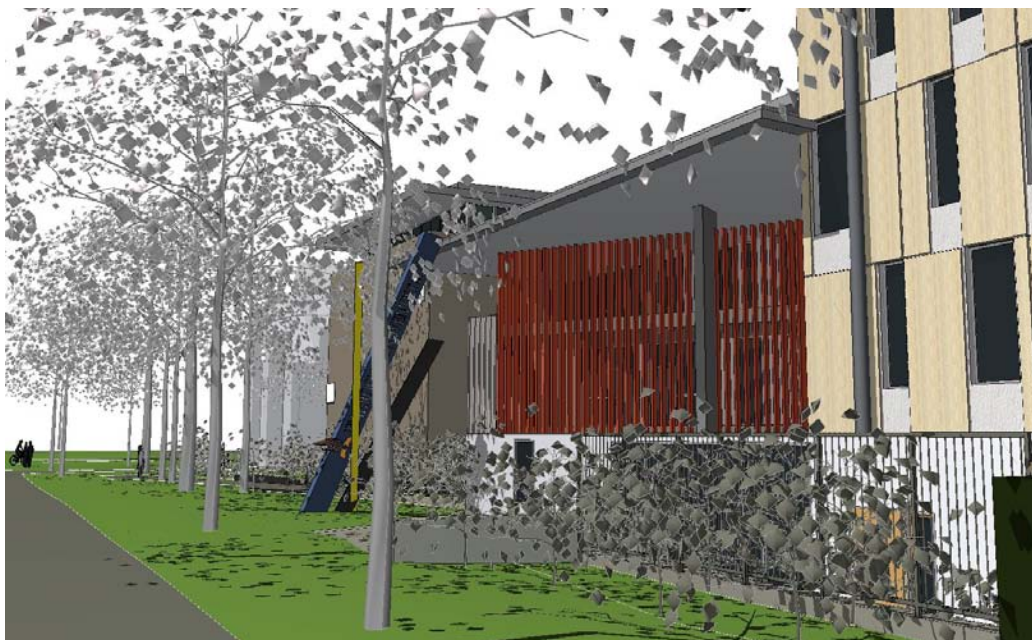
The proposed new internal access road off Fox Valley Road to the north of the site will be a new 'gateway' to the precinct of which the School and future residential development forms a part. The main vehicular entry point into the basement is accessed from the proposed new access road.

4.19 Landscape Design

The layout of the campus buildings on the site has been designed with good access to open landscaped recreational spaces within the School. Additional planting and soft landscaping has also been designed to other areas and edges around the site. The southern end of the site provides the primary point of connectivity with the public domain, with a landscaped corner forming the main pedestrian entry to the School.

The outdoor play space located centrally within the campus is directly over the roof slab of the basement parking level below. This area has limited scope for the depth of soil requirements for natural planting. The space has therefore been designed at a setdown from the main ground floor level to accentuate the space and to provide appropriately scaled changes in level at the building edges providing seating opportunities etc. The central part of the play space incorporates an area of turf. The north western edge of the space will be planted with screen trees to provide a measure of protection to the western sun, and privacy to the adjoining future residential development sites. This outdoor area is intended as the 'heart' of the campus.

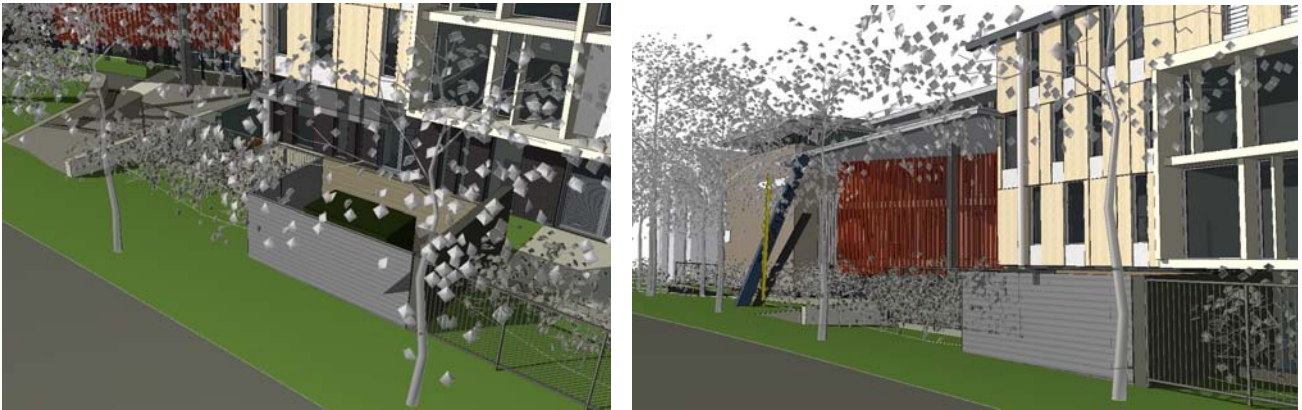
The Junior School has been designed with direct access to additional open outdoor space to the north and north-east edges of the school site. This area avails the generous (10m) setback area from Fox Valley Road, and a nominal 6m setback to the proposed internal access road to the north, and has been designed with integrated landscaping comprising turfed surfaces, paving, trees and low-level planting. A sunken amphitheatre with soft landscaping is located at the southern corner of the Junior School building (partially within the 10m setback) and provides an outdoor teaching facility to activate the space between the two buildings.



Landscaping to the Fox Valley Road setback

The area south west of the Middle School building includes both outdoor play space and an outdoor flexi area relating the design and technology space. This area will be predominantly turf, with provision for small vehicle access from Fox Valley Road when required for D&T use.

A 'breakout' space for staff has also been designed within part of the Fox valley Road setback, with direct access from the Middle School ground floor staff area. This area includes a landscaped buffer zone to soften the presence of the new substation, which will itself be screened from view from the Fox Valley Road public domain. The substation will be design with provision for access by the supply authority when required. Existing street tree planting will be retained along the Fox Valley Road verge.



Screening to the required substation near Staff breakout space on Fox Valley Road

The south-western edge of the site is not utilised as an outdoor area and is planted out to form a landscaped buffer between the proposed School and the existing lane and church building. The balance of the north-western edge of the site includes screen trees and low level planting.

The remote Playing Fields area to the north of the site includes an open turfed Playing Area and sealed PE courts. This open space adjoins an area of existing native vegetation, providing a natural backdrop and enhancing the environment for school recreational activities. Perimeter planting is proposed along the southern and eastern edges to screen and soften the area from existing residential sites.

4.20 Access and Transport

To be read in conjunction with the Traffic Report.

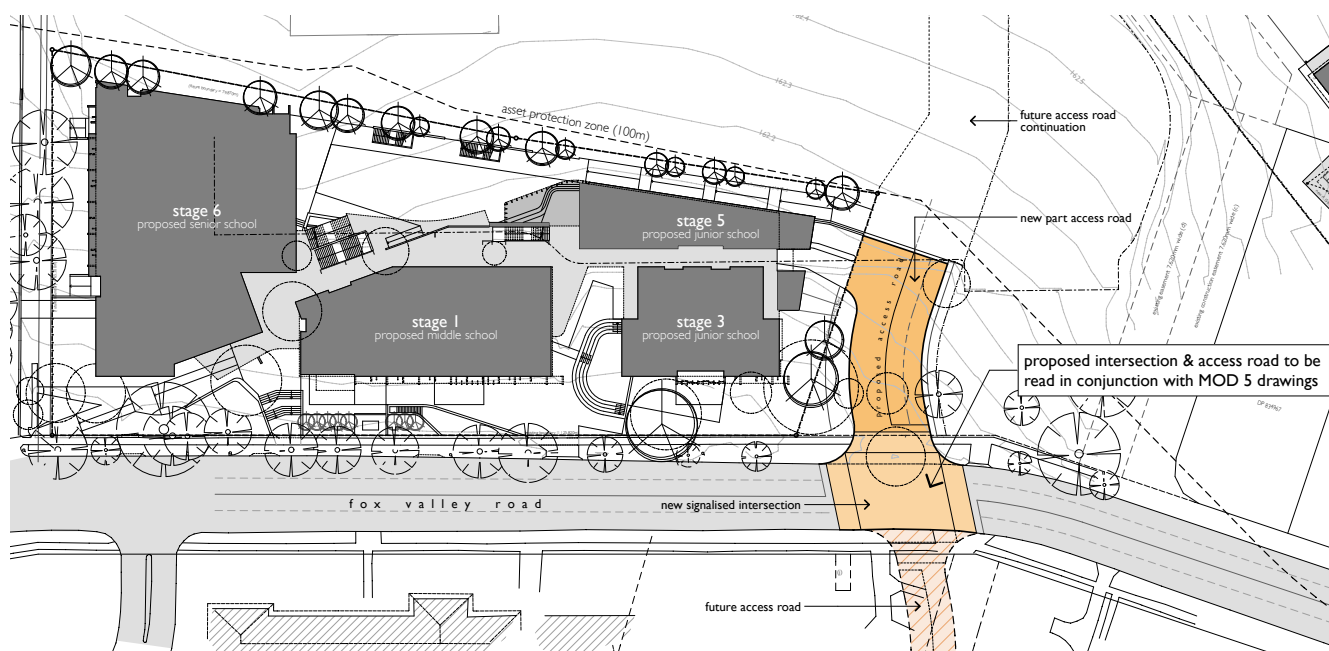
The new campus includes two main points of access; the main pedestrian entry adjacent/opposite to the existing church building; and the main vehicular entry point into the basement off the proposed new internal access road.

The main pedestrian entry at the Senior School end of the new campus has been designed as a legible 'entry corner' to the facility, adjacent to the existing church building. This marks the southern end of the campus and is expressed as an 'anchor point' to the Fox Valley Road façade. This entry is intended as the primary 'signifier' to the community and interface with the public domain.

The main school campus is designed to have good internal connectivity between each of the 'schools', particularly along the 'internal street' circulation spine. Pedestrian connectivity to the Playing Area to the north has been also been designed from the northern corner of the campus.

The proposed new internal access road off Fox Valley Road to the north of the site will be a new 'gateway' to the precinct of which the School and future residential development forms a part. There will be a new signalised intersection where the access road meets Fox valley Road, with provision for a future access road on the south east side of the road (opposite).

Vehicular entry to the campus basement will be via this new access road. Vehicular movement within the basement level has been designed to incorporate 'kiss & drop' facilities and adequate queuing room for cars. Provision has also been made within the basement design for limited access by a 'mini' bus and small/light delivery vehicles. The school site will also be serviced by existing bus transport networks operating in the locality.



New access road signalised intersection on Fox Valley Road

4.21 Service Access

To be read in conjunction with the Traffic Report.

In addition to vehicular access to the basement level from the proposed new access road, provision has also been made for service vehicle access to other parts of the site;

Ground Floor - maintenance and light delivery access off the lane at south-west end of the site.

Ground Floor - maintenance and light delivery access from Fox Valley Road to hardstand area in front of Design & Technology. Access to be via controlled gate entry.

4.22 Waste Management

Refer to the Waste Management Plan.

4.23 CPTED Principles

Crime Prevention Through Environmental Design (CPTED) principles have been incorporated into the design of the new school campus. The following principles have been considered as part of the design response to the project brief, site conditions and context;

Surveillance:

The site layout of the new buildings on the campus allows provision for good surveillance both to and within the site. The generous 10m setback from the Fox Valley Road frontage includes open landscaped areas of low planting or turf, providing good site lines from the public domain. Perimeter 'palisade' type fencing around the site also allows provision for good visual access into the site.

The configuration of the separate Junior, Middle and Senior School buildings around the central open outdoor play space also provides for good surveillance access into the campus on the north-west edge of the site, from the future residential developments proposed within the precinct.

It is also proposed that adequate security barriers, augmented by lighting to the internal open areas of the campus, will provide illumination to assist with surveillance from the surrounding community.

Access Control:

The new campus will include appropriate physical security barriers to the perimeter of the site in the form of open 'palisade' type fencing. There will also be points of security at the front entry to the School, the main basement entry point, and other maintenance access points on the site.

Landscape treatment to the 'public' setback areas of the campus is also designed to mitigate unwelcome access to the grounds. The main pedestrian entry is the main interface with the public domain and has limited security fencing to encourage interactivity within this corner of the site.

Territorial Reinforcement:

The main pedestrian entry at the southern corner of the site has been designed as the primary point of interface with the community. Reduced perimeter fencing to this area will encourage 'ownership' of this area as an extension of the existing church and surrounding public domain.

Delineation between the 'public' space of the entry corner and the secure outdoor play areas along the Fox Valley Road setback and northern part of the site is legible through the use of 'palisade' fencing and landscape treatment.

Space Management:

Both the 'public' and private spaces across the campus will be managed by the School, including landscape care and general maintenance. It is anticipated that the well kept grounds surrounding the campus will assist in fostering cleanliness in the public domain and reinforce territorial ownership within the community.

Stanton Dahl Architects

Appendix A

DA Drawings

refer A3 set of SSD drawings under separate cover