



**TKD Architects**  
Tanner Kibble Denton

# Jerrabomberra High School

Stage 2

DA  
Architectural Design Report  
Prepared for:  
*Schools Infrastructure New South Wales*  
**July 2023**





# Acknowledgement of Country



We acknowledge that the proposed High School in Jerrabomberra is located on the land of the Ngunnawal and Ngarigo peoples who have a continuing connection to the land, water and sky. We pay our respects to the Elders and the knowledge holders - past, present and emerging and express our gratitude for sharing of knowledge and culture.



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Front Cover Image Source: Nearmaps



# Preface

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Accessibility	Group DLA
Acoustic	Acoustic Logic
BCA	Group DLA
Bushfire	Ecological
Civil	NDY
Flood	Martens Associates
Geotechnical Investigation	Douglas Partners
Landscape Architecture	Context
Planning	Mecone
Project Management	TSA
Surveyor	Land Team
Transport	TTW
Waste	EcCell

DOCUMENT / STATUS REGISTER				
Issue	Date	Purpose	Written	Approved
A	16/06/23	Issue for Development Application	PV/MB	RD
B	30/06/23	Issue for Development Application	PV/MB	RD
C	27/07/23	Issue for Development Application	PV/MB	RD

## PREFACE

This Architectural Design Report has been prepared by Tanner Kibble Denton Architects on behalf of the NSW Department of Education (DoE) to support a development application (DA) to Queanbeyan-Palerang Council (Council) for an addition to the approved Jerrabomberra High School located at 101 Environa Drive, Jerrabomberra (the site).

The proposal is for additions to the approved Jerrabomberra High School including:

- construction of a new school building containing general learning spaces, kitchen, workshops and ancillary facilities;
- extension to the existing carpark with provision for an additional 34 parking spaces;
- provision of 114 bicycle parking spaces;
- construction of a large outdoor play space for student use;
- associated civil and landscape works; and
- internal alterations to the ground floor of Block B (already approved and constructed under SSD- to replace the existing kitchen, food and textiles facilities with a new science lab, general learning spaces, and ancillary facilities.

The objective of the proposal is to accommodate project demand for high school spaces in the area.

The development is Crown development with a capital investment value of more than \$5 million, and therefore it is “regionally significant” under section 2.19 and Schedule 6 of State Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP). The Southern Regional Planning Panel is the relevant consent authority for the application.

The site is located at 101 Environa Drive, Jerrabomberra (Lot 2 DP1277158). The site is irregularly shaped and has an area of approximately 4.5ha. The site has two road frontages—one to the west (Environa Drive) and one to the north (Lexcen Avenue). Lexcen Avenue provides direct access to the school site.

The site is located in the Southern Tablelands region of NSW, approximately 10km southeast of Canberra.

Figure below provides an aerial image of the site. As seen, the school is currently under construction.



Aerial view of Jerrabomberra High School  
Source: Nearmaps with overlay by TKD Architects



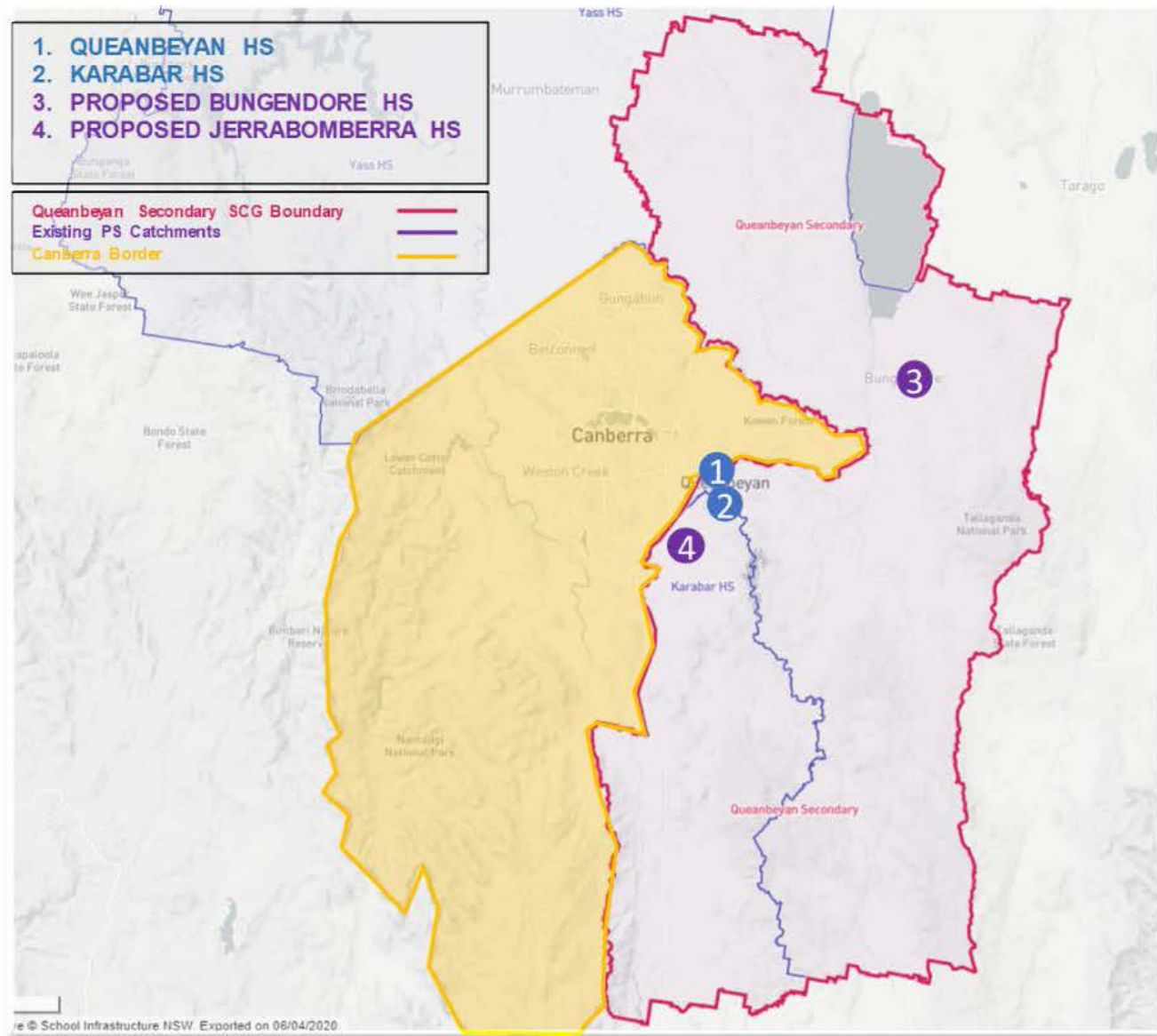
# Introduction

## INTRODUCTION

Jerrabomberra High School is a new public secondary school, located close to the border with the Australian Capital Territory (number 4 below). It is being developed by Schools Infrastructure New South Wales (SINSW) with Stage 1 currently under construction and due for completion in late 2023.

It is part of the Monaro Cluster of schools, comprising projects in Jerrabomberra, Bungendore, Googong Murrumbateman and Jindabyne. The purpose of the Monaro Cluster is to address the increased learning demand created by the rapid growth of new residential development in each of these existing towns and

neighbourhoods. The new schools within the Monaro Cluster of Schools program will address this increased demand by providing equitable access to contemporary learning spaces for NSW students.



Catchment boundaries for the Monaro Cluster of Schools  
Source: SINSW



## PROJECT BRIEF

The Stage 1 provisions are based on the Department of Education's Educational Facilities Standards and Guidelines (EFSG). That stage is categorised as a Stream 3 school, to accommodate up to 530 students. It has been designed to provide the core facilities for a Stream 5 school (accommodating up to 1000 students) including:

- Staff Areas
- Administration Areas
- Hall
- Canteen

The newly introduced 'NSW Pathway Zones' seven-year phasing plan, which

seeks to reallocate NSW-residing student enrolments back to the NSW live-in catchments from the ACT, will increase local demand for schools above that simply due to residential development. The Department of Education anticipates that the 530 student spaces in Stage 1 will be allocated soon after opening and seeks to bring forward the provision of facilities for an additional 470 students to create a Stream 5 school.

The EFSG also sets out requirements for particular spatial adjacencies, environmental performance, durability, safety and security. All these requirement form part of the project brief, and apply to architecture, interiors, landscape and engineering aspects of the design.



Aerial view of Jerrabomberra High School  
Source: Nearmaps with overlay by TKD Architects





# Introduction

## THE PROPOSAL

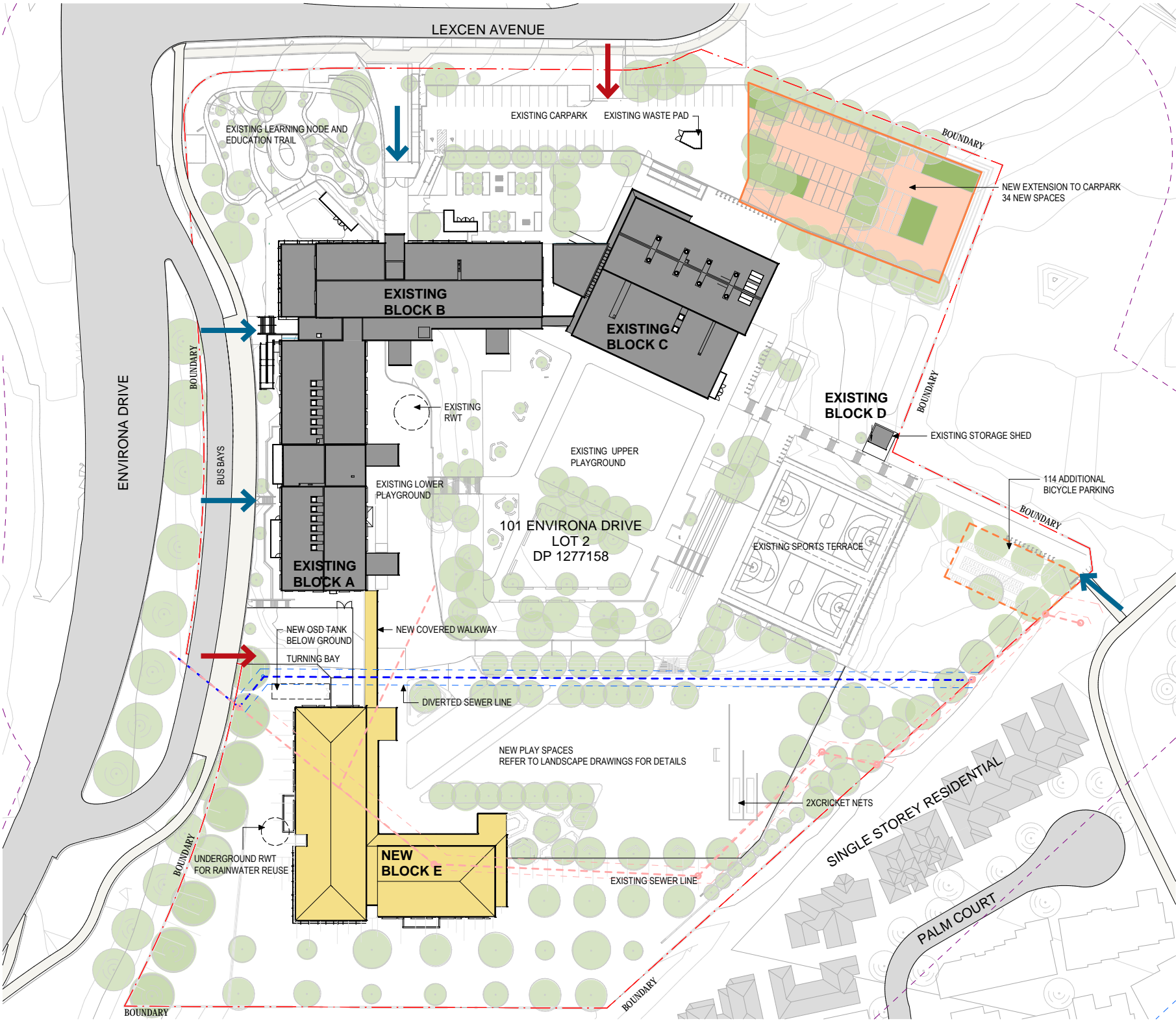
The proposed Stage 2 development is to provide the additional facilities required to increase the school's capacity from 530 students (Stream 3) to 1000 students (Stream 5). As some Stream 5 core facilities such as administration, staff amenities and community hall have been provided in stage 1 - they are not proposed for stage 2.

The proposal includes the following works:

- Site preparation;
- Construction of a single two storey building (Block E) to include general learning spaces, VET and Semi commercial Kitchen Facilities, Multimedia together with associated amenities
- Refurbishment of Existing Block B to include Science Lab and associated amenities
- Construction of new walkways, playgrounds, cricket nets and outdoor games courts;
- Extension of the on-grade car park off Lexcen Avenue to provide an additional 34 car spaces;
- Provision of an additional 114 bicycle spaces;
- Associated site landscaping and open space.

The site preparation works will include regrading and compaction of the large stockpile on site, to civil engineers advice, to provide an accessible base for the new building and associated outdoor facilities.

The proposal will utilise existing connections to the road network and surrounding suburbs. The additional car spaces will be accessed via the existing driveway off Lexcen Avenue. Pedestrians will use one of three existing gateways for access from the east ( opposite David Madew Oval); the north (Lexcen Avenue) and the west (busbays off Environa Drive).



LEGEND

Vehicular Entry

Pedestrian Entry

Proposed Site Plan  
Source: TKD Architects





# Introduction

## DESIGN REPORT

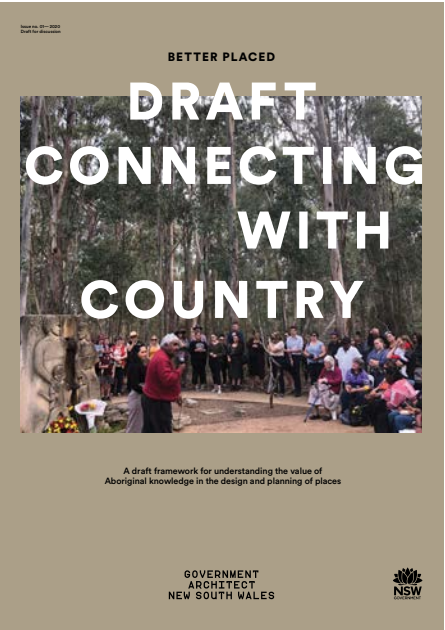
This Design Report provides an analysis of the site's current constraints and opportunities for extension of the existing school. The report will also demonstrate how design quality will be achieved in accordance with the Design Quality Principles as outlined in Schedule 8 of the Transport and Infrastructure SEPP 2021:

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

These principles are elaborated upon in some of the referenced design documents (below), particularly the Design Guide for Schools. The proposed design has been developed following these principles as described in the sections following the Site Analysis.

## REFERENCE DESIGN DOCUMENTS

- Educational Facilities Standards and Guidelines (EFSG)
- State Environmental Planning Policy (Transport and Infrastructure) 2021
- Better Placed - Design Guide for Schools - Government Architect New South Wales (GANSW) 2018
- Better Placed - An Integrated Design Policy for the Built Environment of NSW (GANSW) 2017
- Better Placed – Environmental Design in Schools - (GANSW) 2018
- Better Placed - Draft Connecting with Country - (GANSW) 2020
- High School in Jerrabomberra (SSD-24461956) Architectural Design Report - (TKD Architects) 2021





# Site Analysis

## SITE ANALYSIS

Jerrabomberra High School is located at 101 Environa Drive, Jerrabomberra, in the local government area of Queanbeyan-Palerang Regional Council (QPRC). The school site is on a single lot (Lot 2 DP 1277158), with an area of approximately 65.49ha.

The suitability of this site for a new high school has already been demonstrated in the original SSDA submission for Stage 1 (SSD-24461956). That examined the wider site context to successfully argue that the new school should be located here. This analysis won't repeat those arguments, focusing instead on the immediate context. It will demonstrate the merits of the proposed Stage 2 extension to the existing school within the local environment.

### Site Context

Jerrabomberra is in the Southern Tablelands region of NSW and is relatively elevated, with site RLs around 600m above the Australian Height Datum. National Parks, State Parks and mountains are nearby and Canberra airport is 12km away, to the north-north-west past Fyshwick ACT. Due to the proximity of Canberra (around 15 kilometres), many local residents commute there for work or education.

The high school is located on the western outskirts of Jerrabomberra, in a portion of land designated as the Poplars Learning Precinct. The learning precinct also includes Jerrabomberra Public School. This is within a larger Poplars development encompassing separate precincts for innovation, business, sport, Industrial, technology, retail and services, as well as conservation areas. The Poplars precincts are undergoing substantial redevelopment, including new roads and infrastructure, so the school's local environment is expected to change rapidly over the coming years.

The site is irregular in shape, with an approximate area of 4.5HA and is bounded on the north by Lexcen Avenue. Most of the Poplars development is likely to occur to the north of Lexcen Avenue. The western edge of the site is defined by the new through road, Environa Drive. Across Environa Drive from the site is undeveloped grasslands with Jerrabomberra Creek running through. There is a small dam situated on the site's eastern boundary which is part of larger wetlands bounding the eastern boundary. To the south-east, the site abutts residential lots and community recreational facilities including David Madew Oval, the Skate Park and Tennis Club.



Site analysis plan [Source: Nearmaps with TKD overlay]

Aerial image of regions around Jerrabomberra  
Source: Nearmap with overlay by TKD Architects





# Site Analysis

## Topography

The school site falls from the carpark at its northern end (RL 606) down to the southern boundary (RL 591.5 approx). Beyond this the land drains to Jerrabomberra Creek. The Upper Playground in Stage 1 forms a plateau on this axis at RL 603.925 with the remaining playground falling to the south, east and west from here.

The access ramp running east-west along the southern edge of stage 1 forms the northern edge of Stage 2. As can be seen from the photos opposite, a large proportion of the Stage 2 site is covered with stockpiled soil excavated from the Environa Drive and Stage 1 construction works. The photos also demonstrate that the site has extensive southern views through 180° from east to west due to its elevated position and lack of obstacles.

## Climate, Flooding, Bushfire

The site sits within the NCC Climate Zone 7 – Cool Temperate. With much of the site at an elevation of over 600m above AHD, the NCC also considers the site as (at least partially) in a sub-alpine zone.

Prevailing summer winds are from the south and east, with summer morning winds from the south and summer afternoon winds from the east. Prevailing winter winds are from the north-west and west of the site, with winter morning winds from the north-west and winter afternoon winds from the west.

A flood statement has been prepared by Martens Associates for this development application. The preliminary flood modelling indicates that the design floor level provide 0.9m freeboard above the probable maximum flood level which will allow students and teachers to safely shelter in place.

The school site is identified as a bushfire prone area under the LEP and classified as Vegetation Category 2. This category also applies to much of the development area around the site as well.

A Bushfire Protection Assessment has been prepared by Ecological for this development application. The land to the south-west and to the east has been assessed as a bushfire hazard and is classified as 'grassland' in accordance with PBP.

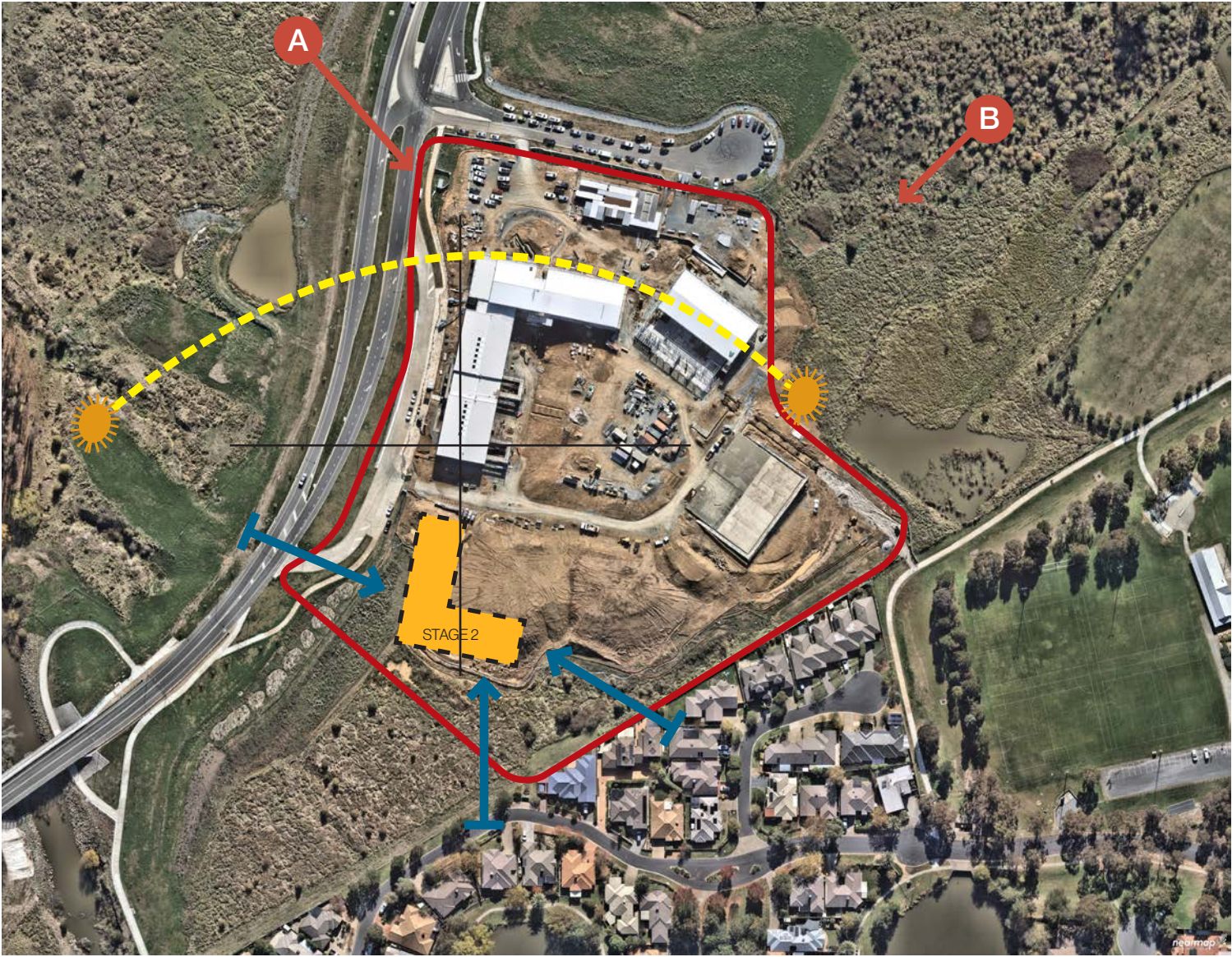
The high school is defined as a Special Fire Protection Purpose (SFPP) development and been assessed against 'Planning for Bush Fire Protection 2019' to incorporate Bushfire Protection Measures including an Asset Protection Zone (shown opposite); compliant landscaping, access and services and the the requirement to comply with construction standards defined in AS 3959-2018 or the NASH standard, including additional ember provisions detailed in section 7.5 of PBP as required. An easement with the southern property has been negotiated and access gate provided to ensure maintance.



Drone view of Jerrabomberra district  
Source: Hindmarsh with TKD Architects overlay



Drone view of Jerrabomberra district  
Source: Hindmarsh with TKD Architects overlay



Aerial view of Jerrabomberra High School  
Source: Nearmaps with TKD Architects overlay



# Site Analysis

## Environment

According to the Biodiversity Development Assessment Report submitted with the Stage 1 SSDA, approximately 97% of the original woody vegetation of the school site was cleared for use as grazing land for sheep and cattle (by Capital Ecology, p36). The riparian vegetation is generally dominated by exotic grasses. The impact of ongoing development on the remaining biodiversity was considered in the planning and consent of the larger Poplars development area and mitigated through the creation of reserves to maintain land of high biodiversity value. These 'biobanking' sites are shown in green opposite and reflected in the Queanbeyan Local Environmental Plan (West Jerrabomberra 2013) where they're zoned E2 - Environmental Conservation. These sites, well apart from the subject site, support local threatened communities and species including Box-Gum Woodland and the Golden Sun Moth habitat.

## Aboriginal Heritage

Studies undertaken on Aboriginal artefacts found in the Queanbeyan area indicate that humans have been present in the area for between 5,000 to 10,000 years. The delineation between the two known local language groups is unclear, so the area could have been Ngunawal, Ngarigo or a combination of both. The Yuin and Gundungurra groups were also nearby to the east. An Aboriginal Cultural Heritage Assessment (ACHA) report was prepared by Ecological for the Stage 1 SSDA. That study area included the stage 2 site so those findings are pertinent to this application.

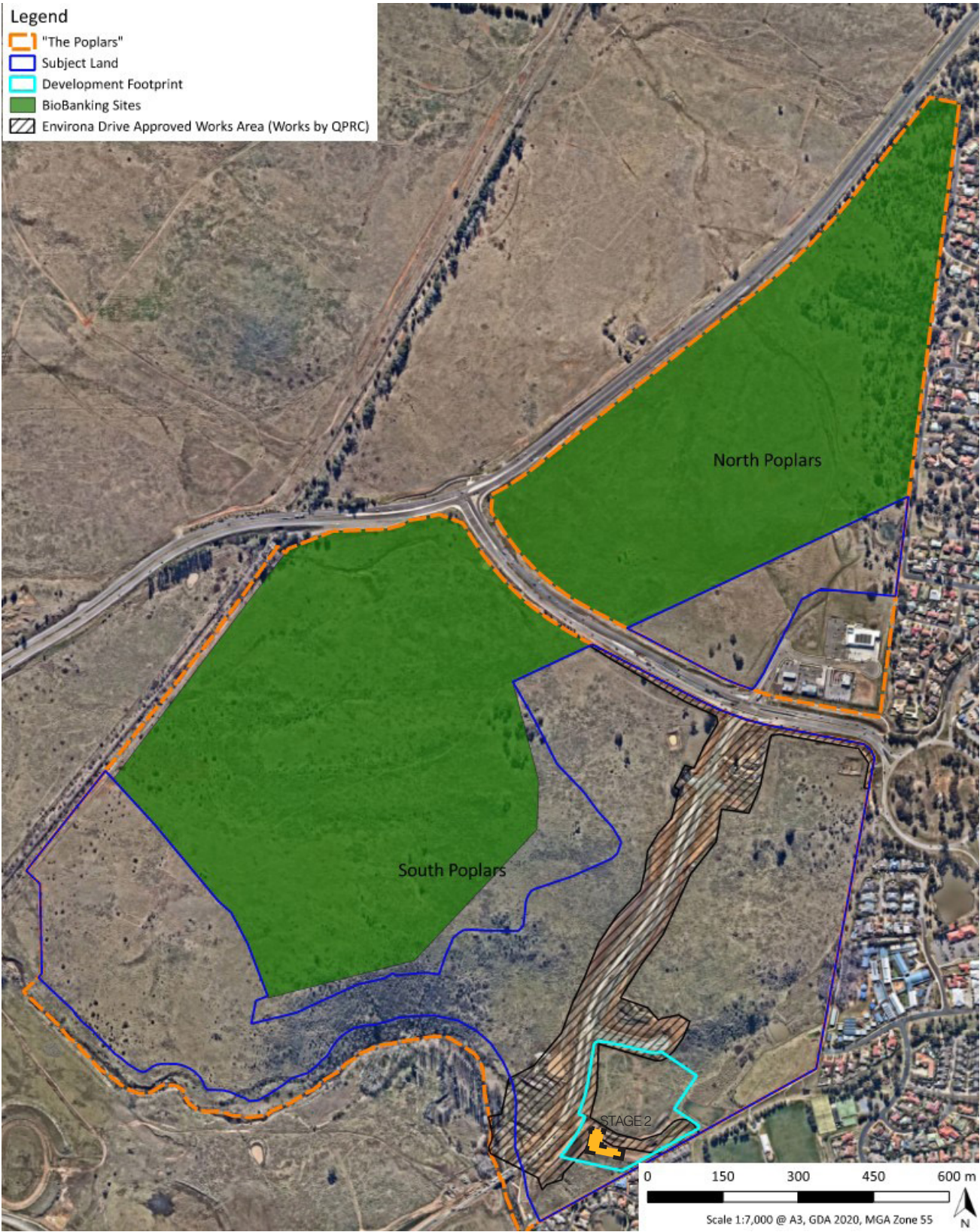
Aboriginal Heritage Information Management System (AHIMS) identified 2 sites within the school site. One site which consisted of two quartzite river pebbles and a quartz flake could not be located during the ACHA survey. A low density artefact scatter was identified following test excavations of the second site. The report makes recommendations for the proposed works, which include potential salvaging of any surface artefacts, and concludes that no further assessment is required for the site.

## Acoustics

The main noise constraint applicable to the site is aircraft noise, from nearby Canberra Airport. The site is between the 20 to 25 ANEF contour. This is conditionally acceptable according to AS 2021: 2015 Acoustics - Aircraft Noise Intrusion - Building Siting and Construction, providing that appropriate noise control is incorporated into the building construction.

An acoustic report has been prepared for this application by Acoustic Logic. This will address how external sources of aircraft and traffic noise can be controlled on site. It also describes control of break-out noise generated by school operations such as:

- Activities occurring in the gym, sports courts and outdoor play
- Equipment used as part of practical activities, such as in the Wood and Metal Workshops
- School bells and PA announcements
- Mechanical plant (such as external air conditioning condensers)
- Waste and recycling collection



Poplars Development - Biobanking Sites  
Source: Stage 1 Biodiversity Development Assessment Report by Capital Ecology



# Site Analysis

## Summary of Site Constraints

The following site constraints have been identified:

- Bushfire Asset Protection Zones and BAL12.5 construction requirements;
- Prevailing winds; Undesirable winter winds are identified from north-west and west of the Site.
- The sub-alpine zoning will require snow loading of the roof structure
- Sloping site;
- Constrained opportunity for parking;
- Constrained space on site for level play area;
- Potential archaeological deposits;
- Two LEP height limits – 8.5m in the north and east; no height limit to the south-west

## Summary of Site Opportunities

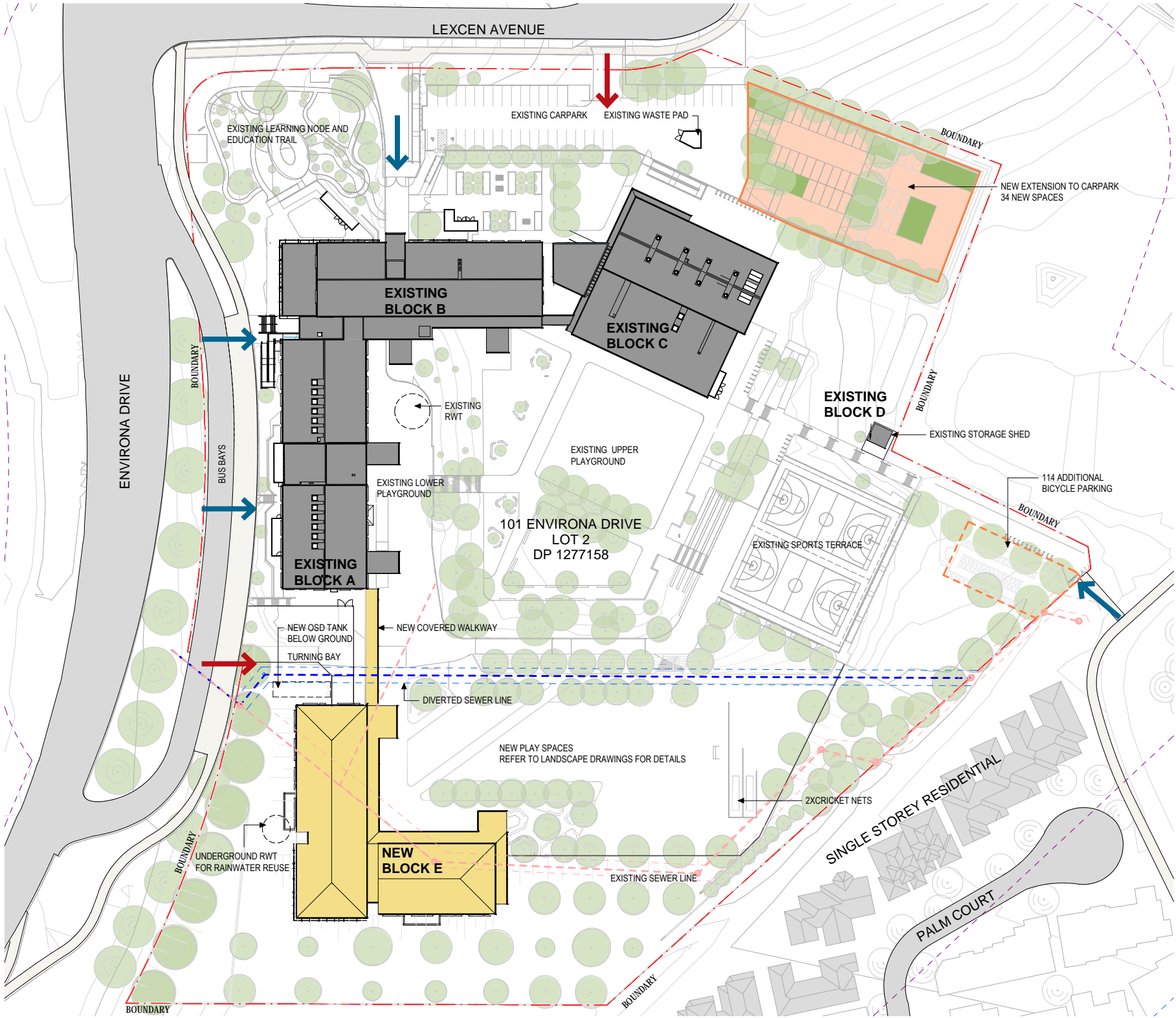
The following opportunities can be utilised:

- Connection to Country via consultation and investigation into the site, and looking for ways to express its stories through the architectural and landscape design;
- Desirable Summer winds are from the north-east, allowing the building to open in that direction.
- The alignment of the site allows for the built form to be a buffer to westerly winds;
- The stockpiled fill on site can be levelled to provide useable play-ground space which is contiguous with the Stage 2 campus ;
- Elevated, picturesque setting with natural features
- Existing vehicular and pedestrian access to the school;
- Potential for large turfed area to supplement facilities at David Madew Oval.
- Proximity to the Poplars Innovation Precinct, giving opportunities to connect with local businesses and initiatives.

### LEGEND

- ← Vehicular Entry
- ← Pedestrian Entry
- Carpark Extension
- Bicycle Parking

Proposed Site Plan  
Source: TKD Architects





# Architectural Design Concept

## ARCHITECTURAL DESIGN CONCEPT

### Guiding Principles

The design is guided by three key principles - Purpose, Place and People. These lenses have been used to inform decision-making around relationships with the existing campus and the broader setting, the building forms, functional layouts, facades and landscape.



Prioritising Place: Green Trellises



Celebrating Place: Picture Windows



Legibility and Ownership: Graphic Overlay



### Purpose

Stage 2 will reinforce Jerrabomberra's identity, founded on the idea of innovation. How can the completed campus inspire students to innovate, and expand their understood horizons? What can be done to create opportunities for looking out and beyond?

- Looking Out: The buildings narrow linear form encourages looking out, with large windows along the façades. The building elevation will provide views across the grasslands. The 'L' shaped plan completes a sheltered urban courtyard, established in Stage 1, with views outwards from the high point.
- Looking Beyond: The central upper playground is elevated relative to the surrounding Stage 1 and 2 buildings. This and the massing and alignment of the campus buildings encourages students to look beyond their immediate surroundings.
- Enhancing Existing Landscape Features: A fully integrated landscape design approach, with outdoor learning areas plays a key role in the site strategy



### Place

Jerrabomberra High School abutts an established suburban area to the east; a rapidly changing development area to the north and significant ecosystems to the south and west. Stage 2 completes a campus that takes advantage of its elevated location to create a protective learning centre whilst providing connection to these disparate environments

- Connecting to the Country: the campus is designed to connect with the immediate site whilst acknowledging hills, valleys and natural watercourses and grasslands
- Connecting to the Neighbourhood: existing pathways and roads through the landscape will connect the campus with nearby precincts;
- Celebrating Place: Picture windows that look over the landscape, and a courtyard that forms a legible heart and gathering place for the school;
- Prioritising Place: Green walls and trellises integrated in circulation nodes climb up the new building, blurring the distinction between the building and its environment.



### People

The school benefits from a diverse and engaged community. How can this community feel most supported by this completed campus? What opportunities are there for enhanced engagement, identity and ownership of it?

- Supporting Community: The building layout allows for equitable facilities, with all teaching spaces having access to equivalent amenity,
- Enhancing Engagement: From productive gardens to writeable surfaces, the design encourages engagement with the buildings, their contents and their surroundings,
- Access: New pathways and access roads will enable links to the neighbourhood, the primary school and nearby sports facilities;
- Legibility and Ownership: Each building, although part of a cohesive whole, has its own individuality and identity.
- Providing key node points of circulation associates with significant breaks in the building form helps users navigate their way around the school.



# Context, Built Form and Landscape

## PRINCIPLE 1 | CONTEXT, BUILT FORM AND LANDSCAPE

Schools should be designed to respond to and enhance the positive qualities of their setting, landscape and heritage, including Aboriginal cultural heritage. The design and spatial organisation of buildings and the spaces between them should be informed by site conditions such as topography, orientation and climate.

Landscape should be integrated into the design of school developments to enhance on-site amenity, contribute to the streetscape and mitigate negative impacts on neighbouring sites.

School buildings and their grounds on land that is identified in or under a local environmental plan as a scenic protection area should be designed to recognise and protect the special visual qualities and natural environment of the area, and located and designed to minimise the development's visual impact on those qualities and that natural environment.

Design Quality Principle 1, Schedule 8, Transport and Infrastructure SEPP 2021

### Setting

There are three contrasting characters to consider in the urban grain of the area surrounding the proposed site.

- Low Density Residential Character to the south and southeast of the site. Single and double storey detached dwellings line smaller local roads that wind around man-made water features and cul-de-sacs. David Madew Oval and its associated skate park and tennis courts comprise the main open space area in this zone.
- Character in Transition is represented by the future business park development areas to the north and north-west. This area will transition from grassland and grazing lands to large footprint commercial buildings; open carparking and local road networks for access. Image A, to the right, is taken from the developer's website showing likely grain of these developments.
- Conservation Area including grasslands to the west of the site and the Jer-rabomberra Creek riparian zone to the south. Although the wetlands to the east are degraded, they flow into the creek to form a continuous vegetated perimeter to the Stage 2 site.

The proposed development responds to this setting by completing the western enclosure of the central playground to the west. The larger grained school buildings along the western boundary provide an appropriate barrier to Environa Drive and the prevailing westerly winter winds. The grain of these builings is in keeping with the anticipated future character of the business park to the north. The new Stage 2 building will provide extensive views over the conservation areas to the west and south for students to appreciate.

The location of sports courts and play areas to the east of the site, diminishes the scale of the development where it meets the low density residential areas to mitigate the developments impact. Opening up the development to the east allows cooling easterly summer winds to remove built up heat.





# Context, Built Form and Landscape

## Massing and Topography

Stage 2 continues the logic of the existing building on site with retention of a central elevated node This is a natural “gathering place” for the school, with surrounding buildings defining this space.

The C-shaped building arrangement defines the gathering place, whilst retaining a sense of openness to the most expansive views from the site.

The Stage 2 extension of the building mass on Environa Drive provides a larger, articulated barrier to this high speed thoroughfare.

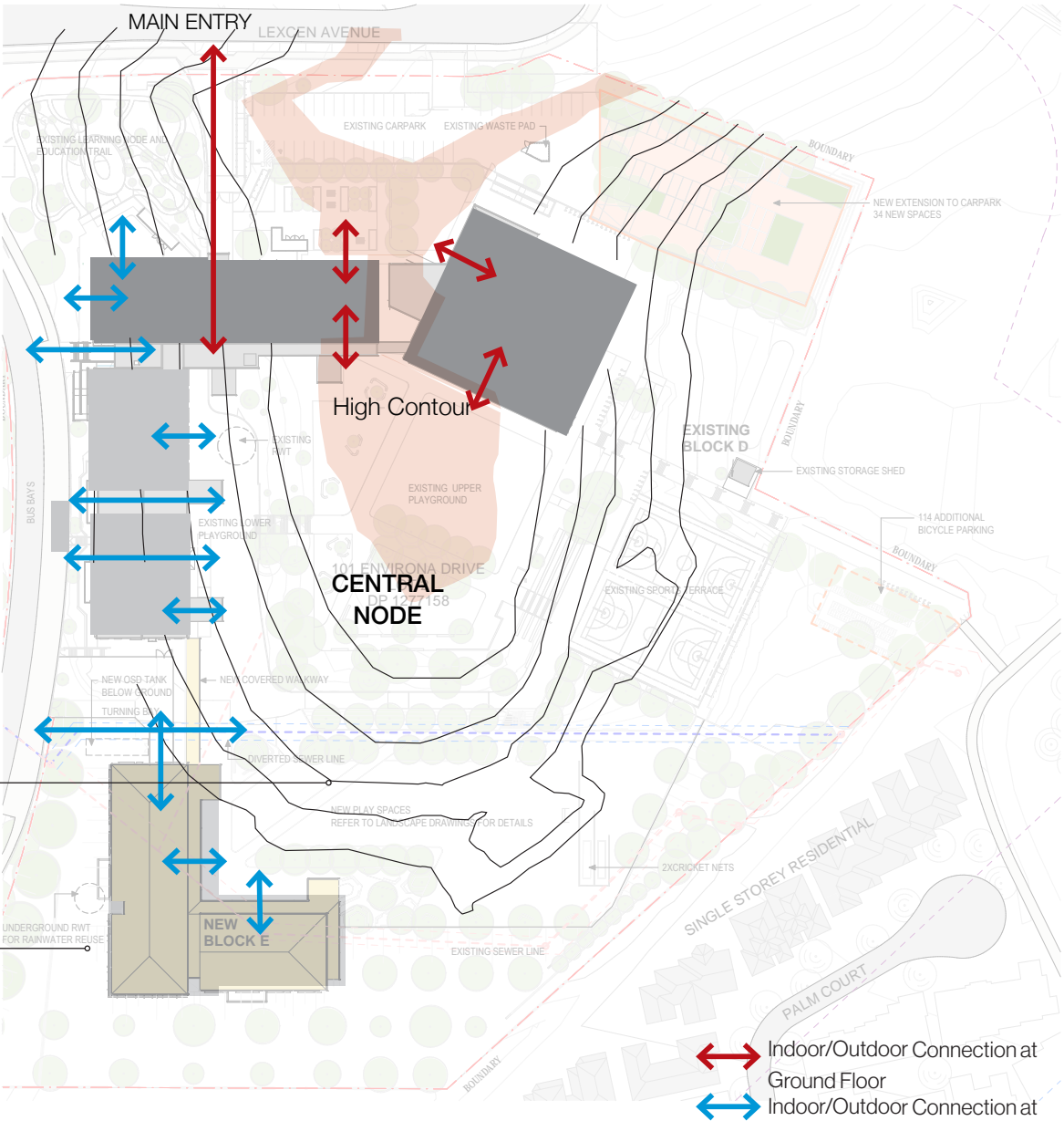
It is proposed to extend the protected central playground south utilising the stockpile of fill on site to provide the required useable play space for final anticipated student number

The section drawings on this page demonstrate how the existing ground level informed the proposed finished floor levels.

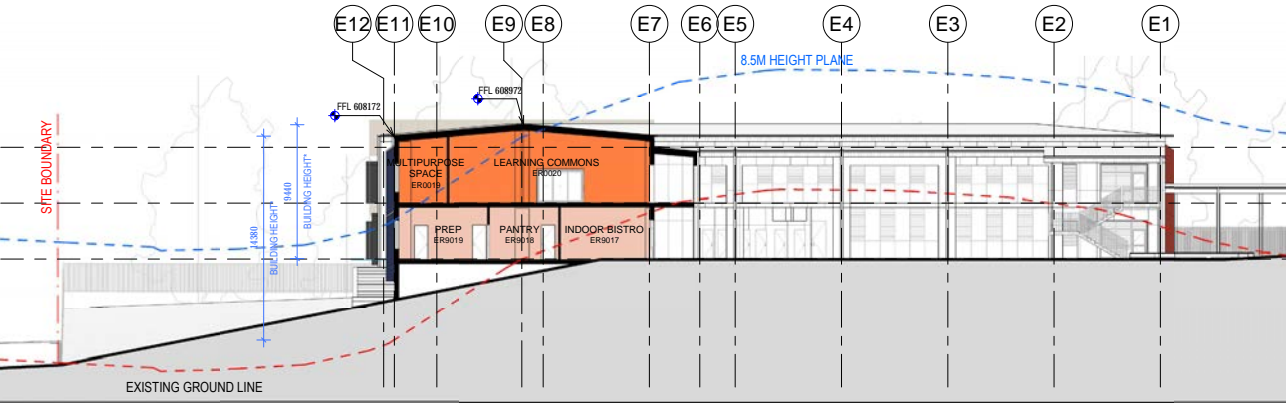
Locating the school buildings along the western edge of the site means they are well set-back from any boundaries with residential neighbours.

Site Plan Indicating Response to Topography and Urban Grain

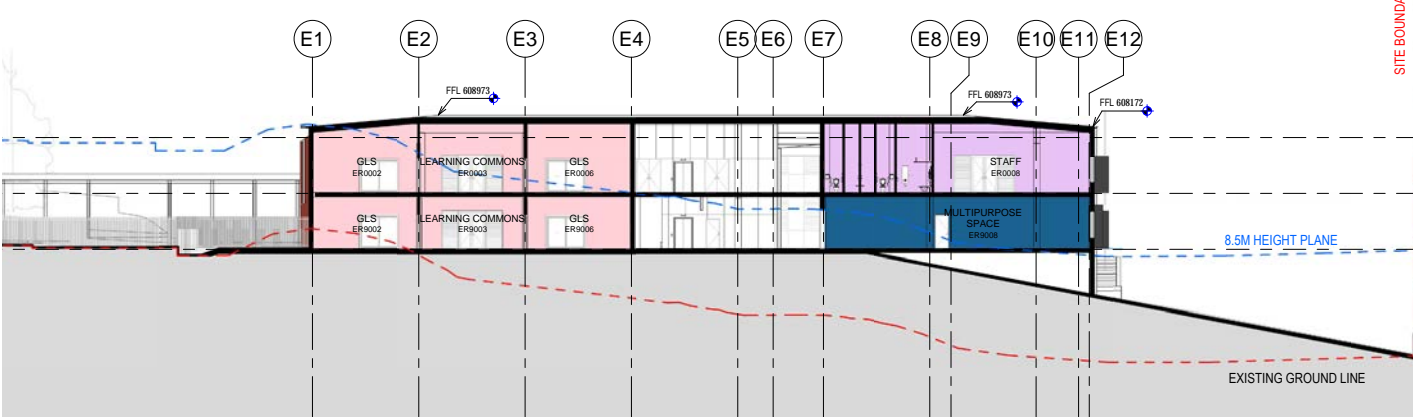
- EXTENSION OF LOWER PLAYGROUND AREA UTILISING FILL STOCKPILE ON SITE
- NEW BUILDING AT LOWER GROUND LEVEL TO MATCH EXISTING STAGE 1



Indoor/Outdoor Connection at Ground Floor  
Indoor/Outdoor Connection at



Building E - Cross Section



Building E - Section Through East-West Wing



# Context, Built Form and Landscape

## Visual Impact

The images to the right show the campus (Stages 1 and 2) in context, as viewed from each publicly-accessible site boundary. It can be seen that:

- When viewed from Environa Drive, the new stage creates an appropriately scaled and articulated street elevation.
- When viewed from the southern boundary, the bermed landscape up to the building provides a.
- Looking at the school from the existing residential neighbourhood, the green open space along the boundary is enhanced by the additional landscape planting proposed on site.



View from Environa Dr looking North-East



# Context, Built Form and Landscape

## Connection with Country

The new High School (Stage 1) was developed to respond to GANSW's Draft Connecting to Country Framework and through consultation with Aboriginal Educational Consultative Group (AECG) and traditional land owners, to create a strong, place driven identity that will help instill pride in the school and community.

The design team has met with local Indigenous representatives on site twice, to walk on Country and also to discuss design progress. This, and consultation related to the preparation of the ACHA, ensure that the design respects indigenous cultural heritage.

The Stage 2 echoes the Stage 1 architectural response to the AECG recommendations.



Photo from site meeting on 7.4.2021

A strong support for the development and its response to Connecting with Country were key outcomes from the consultations with Ngambri Elder Woman, Dr Matilda House and the AECG.

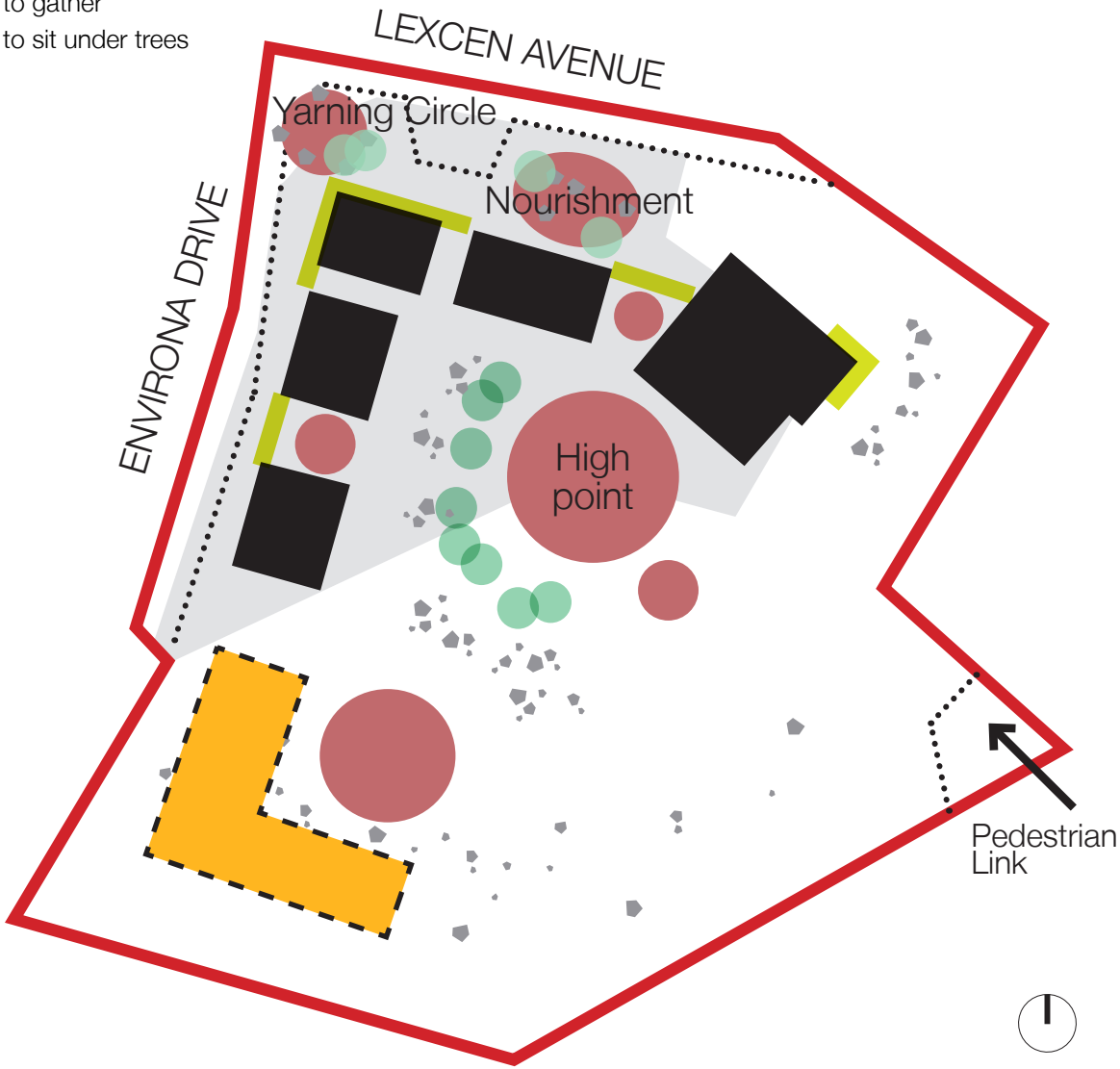
## Site Response

Having a number of places to gather, and a variety of places, was identified during the consultation as being very important. In the diagram below, important gathering spaces are indicated by red dots and include the main quadrangle, the productive garden and the yarning circle, the tiered seating adjacent to the sports courts, the covered outdoor learning area in between the two main general learning neighbourhoods, and the main COLA space outside the hall.

Trees, and places to sit under them are also important. The Landscape Design Report includes a canopy plan with more detail, however on this diagram the green circles indicate where canopy is associated with gathering spaces.

Site rocks were identified during the walk as being important and something that should not be taken from site, so these are integrated into the landscape design in several zones, with flexibility in their scope so that it can be adjacent according to what is actually found during construction.

- Site Boundary
- Location of moth motif
- Security fence with green buffer in front
- Rocks found on site
- Places to gather
- Places to sit under trees



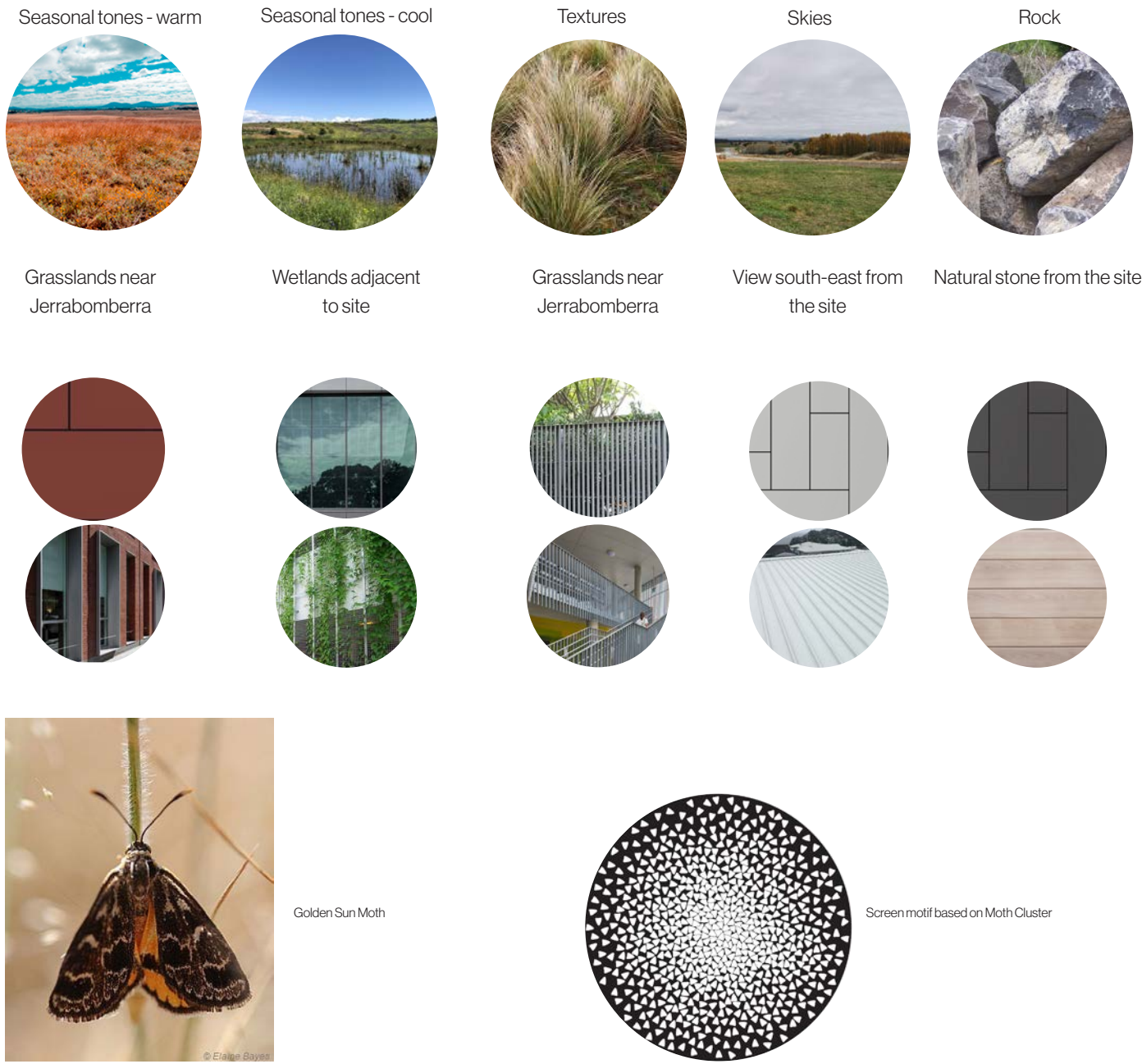
Site Plan - Opportunities for Connecting with Country



# Context, Built Form and Landscape

## Materiality

The materials palette is based on the local landscapes and how they change through the seasons. A schematic palette has been prepared based on preliminary research, and will be refined collaboratively during the detailed design stage.



## Further Opportunities for Engagement

Engagement with local Indigenous representatives will be ongoing. The project team will engage and collaborate on the following items, as a minimum:

- Design resolution of the moth motif to engage with local artists
- Opportunities for engagement with artists, such as coloured pavements, and design of decals on skylights and entrance doors
- Naming of buildings, spaces and places around the school
- Design of signage and wayfinding
- Resolution of the final planting palette



Precedent for wayfinding signage



Signage to be designed in collaboration with local artists [indicative precedent image only]



Precedent for using light as artwork: Bogong Cluster. Physically distant, socially connected  
2020 Jonathan Jones  
[indicative precedent image only]



Concrete in entry forecourts and main COLA to incorporate artworks  
[indicative precedent image only]



# Sustainable, Efficient and Durable

## PRINCIPLE 2 | SUSTAINABLE, EFFICIENT AND DURABLE

Good design combines positive environmental, social and economic outcomes. Schools and school buildings should be designed to minimise the consumption of energy, water and natural resources and reduce waste and encourage recycling.

Schools should be designed to be durable, resilient and adaptable, enabling them to evolve over time to meet future requirements.

Design Quality Principle 2, Schedule 8, Transport and Infrastructure SEPP 2021

### Passive Design

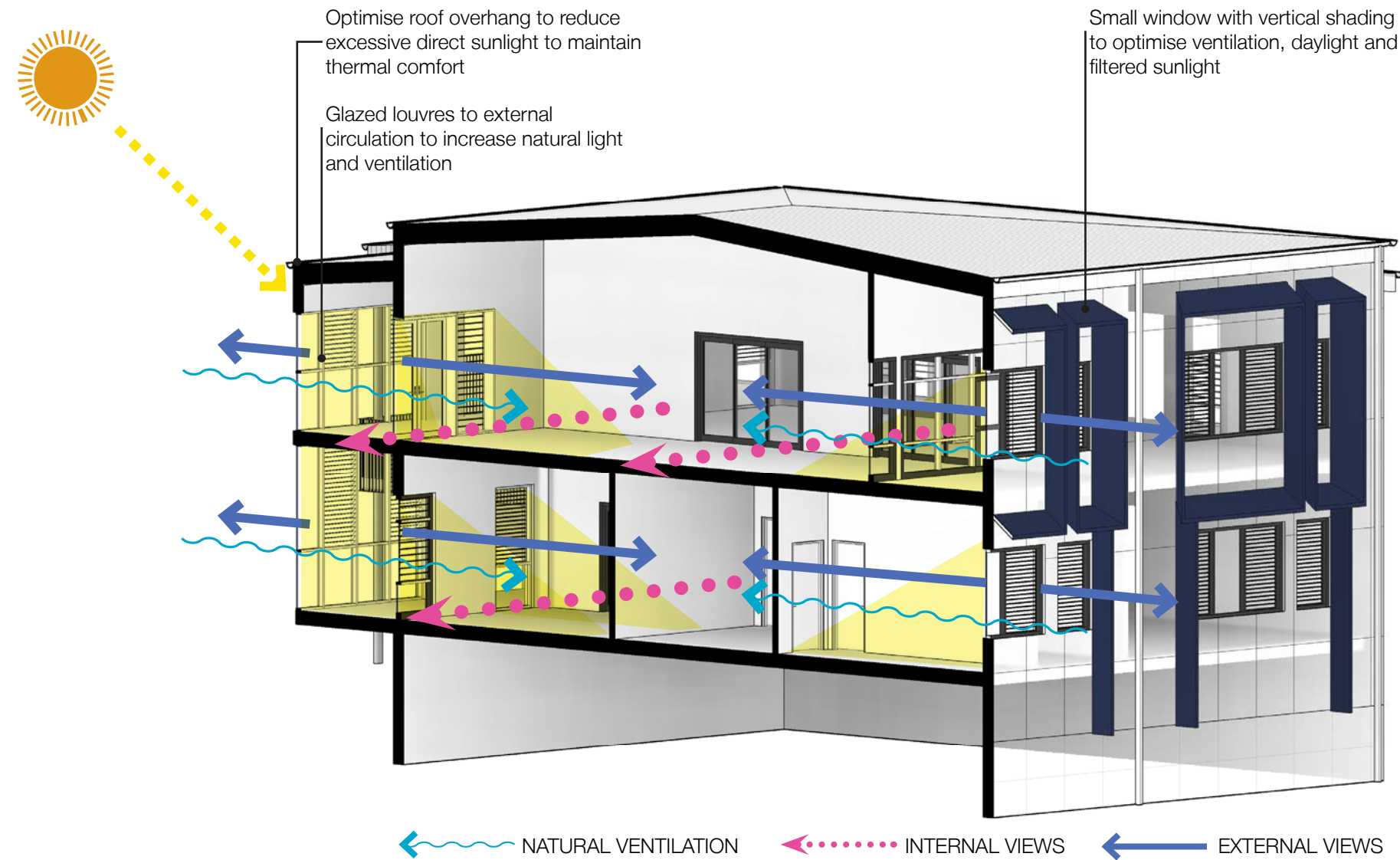
Passive design principles will reduce the energy demand of the building in operation and improve indoor environment quality and thermal comfort for students and staff. The following principles are proposed:

- Design of facades that respond to the local climate including sun, wind and aspect to minimise peak heat loads in summer and use passive heating in the winter.
- High levels of daylight through windows.
- Line of sight to high quality external views and visual amenity
- High performance glazing
- High levels of thermal insulation
- Vertical and horizontal sunshades
- External materials that are robust, light weight, durable and low maintenance
- All paints, sealants, adhesives, floor coverings and composite timbers used internally will be low VOC.
- Engineered wood products to meet formaldehyde limits
- Acoustic separation between different spaces

### Energy Efficiency

The following energy efficient initiatives are proposed for the project:

- Energy modelling demonstrating a reduction in energy consumption of the proposed building compared to a reference building.
- Use of natural ventilation and energy efficient mixed-mode air conditioning to provide high indoor air quality with reduced energy input. The mechanical system will incorporate heat recovery.
- Energy efficient lighting and smart control systems.
- Energy efficient hot water system.
- Metering and monitoring of all services so that they can be managed efficiently.
- Roof top PVs to reduce the peak electricity demand
- Elimination of the use of gas for heating and cooling (all-electric services)



### Water Efficiency

The following water efficient initiatives are proposed for the project:

- Water efficient fixtures and fittings (high WELS ratings),
- Rainwater collection from the roof and stored for use on-site (landscaping irrigation, toilet flushing) to reduce potable water consumption

### Waste and Recycling

The following waste and recycling initiatives are proposed for the project:

- Best practice waste management principles in operation, and construction and demolition waste diversion from landfill
- Opportunity to Engage a qualified waste auditor to undertake a waste audit of the site to determine waste and recycling streams and generation rates
- Incorporation of separate bins for waste and recycling for separation of waste streams.

A Construction Waste Management Plan (CWMP) and Operational Management Plan (OWMP) report have been prepared for this application.

### Active Transport

Active transport and sustainable transport strategies include provision of good end of trip facilities (e.g. secure bike parking, showers and lockers for staff and change facilities for students) to encourage active transport.

An additional 114 bike spaces will be provided in Stage 2. These will be located adjacent to the secondary entrance at the eastern site boundary from David Madew oval providing direct, legible connections to the adjacent neighbourhoods.

This stage will be able to take advantage of the the bus bay area provided in Stage 1. The bus bay provides a 6m wide pavement for students waiting to use the existing bus network serving the existing public school and Stage 1 high school.



# Accessible and Inclusive

## PRINCIPLE 3 | ACCESSIBLE AND INCLUSIVE

School buildings and their grounds should provide good wayfinding and be welcoming, accessible and inclusive to people with differing needs and capabilities.

(Note. Wayfinding refers to information systems that guide people through a physical environment and enhance their understanding and experience of the space.)

Design Quality Principle 3, Schedule 8, Transport and Infrastructure SEPP 2021

### Accessible Campus

The proposed levelling of the existing stockpile to provide an extended central playground will provide equitable access between the new Stage 2 building and the existing Stage 1 campus. This also allows the new building to have each floor plate at a single level with no stepping or ramping required to navigate each floor. The two floors are linked by a lift to supplement stair access.

The new high school campus will provide access for people with a disability and provide a continuous accessible path of travel, clear way finding guidance and the equitable provision of accessible facilities.

Hearing augmentation will be required in spaces provided with an inbuilt amplification system.

Access provisions that will be provided include:

- Walkways and ramps provided in accordance with AS 1428.1 and EFGS
- Stairs provided in accordance with AS 1428.1, including contrasting slip resistant nosings, tactile ground surface indicators and handrails both sides of stairs.
- Minimum clearances provided through doors of 850mm.
- Minimum circulation widths and clearances at doors provided in accordance with AS 1428.1.
- New doors must have a luminance contrast of 30% provided around doorways in accordance with AS 1428.1.
- All new door hardware is to be lever action.
- Visual indicators provided on full height glass windows and doors.
- Switches and controls located between 900mm and 1100mm and no closer than 500mm from internal corners.
- Accessible toilets and separate male and female ambulant facilities provided in accordance with AS 1428.1.
- Signage in accordance with AS 1428.1.

### Community Access

The Department of Education conducted community engagement and liaison with the Jerrabomberra community and Queanbeyan Palerang Regional Council during the design development of Stage 1 to understand and address issues raised including:

- Site selection
- Impact of the new school on community facilities such as the David Madew Oval
- Traffic Management

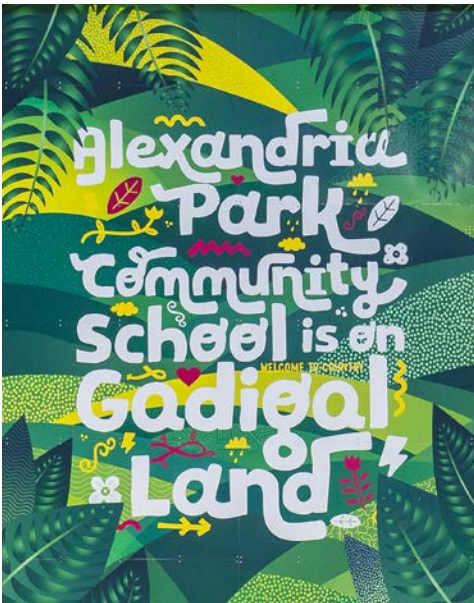
Potential community use facilities on the campus include the Gym and outdoor multi-sports courts (Stage 1) and turfed play area (Stage 2).

### Wayfinding

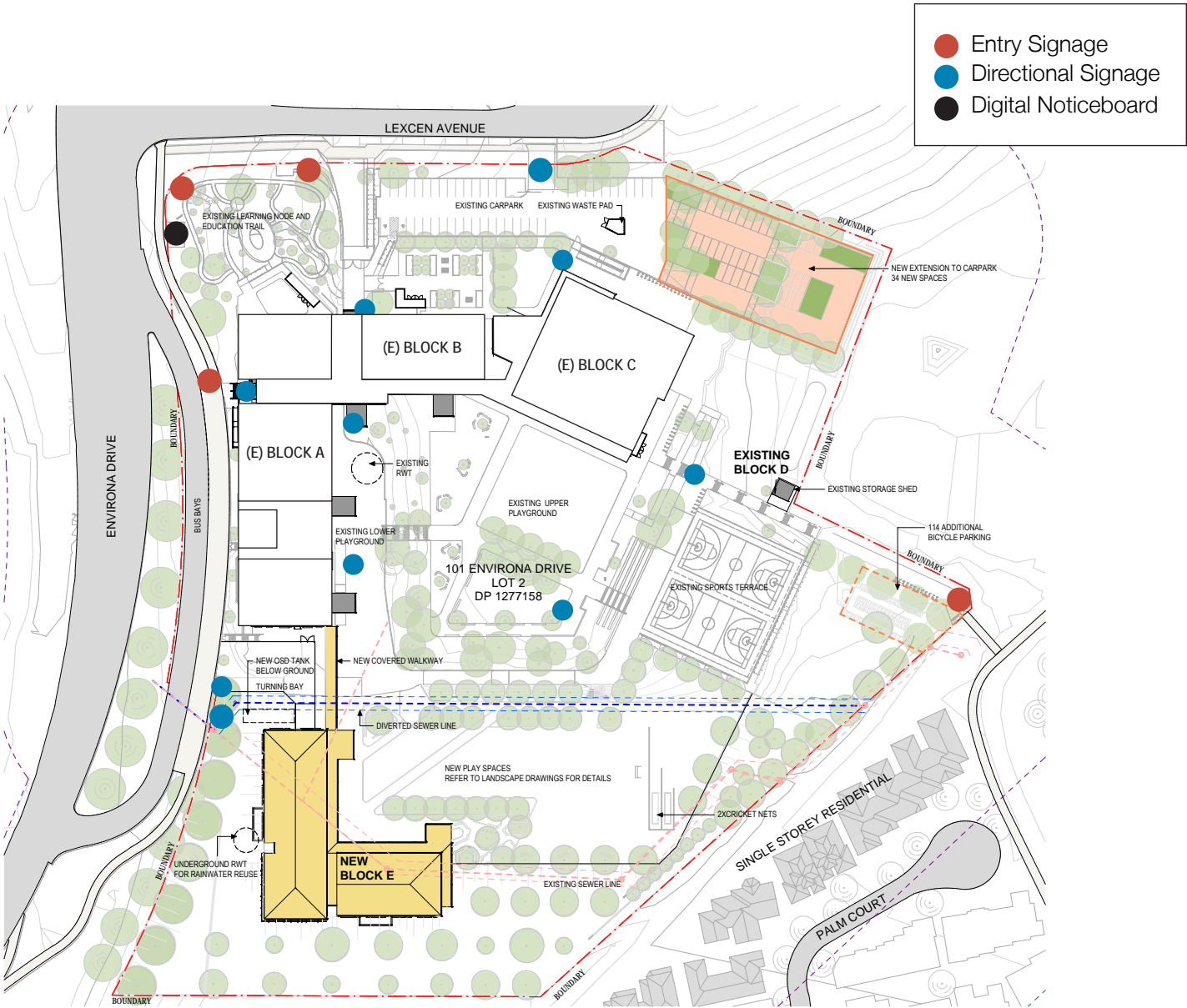
Wayfinding on Stage 2 will be based on the Stage 1 strategy for consistency. It will ensure the new school campus is legible and enhance the understanding and experience of the campus. The signage strategy will be developed to comply with the EFGS to produce a family of signage types (below):

- Directional signage will consist of maps and markers at key locations to direct people to key campus buildings. Inside buildings, these will direct people to key amenities within.
- A graphic overlay will be developed for Stage 2 tying into that for the existing campus. This will provide the template for interpretive signage of Country.
- The new building will be labelled (Building E) and then the key spaces within, such as Science, will have their own sign type.

Statutory signage is not shown here, but will be required in addition.



Precedent Image for Interpretative Signage  
Source: TKD Architects



Key Wayfinding Signage Locations  
Source: TKD Architects



Precedent Image for Directional Signage  
Source: TKD Architects



Precedent Image for Building Identification Signage  
Source: TKD Architects





# Health and Safety

## PRINCIPLE 4 | HEALTH AND SAFETY

Good school development optimises health, safety and security within its boundaries and the surrounding public domain, and balances this with the need to create a welcoming and accessible environment.

Design Quality Principle 4, Schedule 8, Transport and Infrastructure SEPP 2021

### Healthy Buildings

The new Stage 2 building will optimise natural ventilation and natural light while balancing thermal comfort and energy efficiency to benefit the health and well-being of its occupants.

Indoor products such as paints, sealants, adhesives, floor coverings, composite and engineered wood products will be specified to meet low VOC and formaldehyde limits.

Biophilic design principles have been considered from early on in the concept, with trellises for bring plants onto the buildings, and a materials palette based on the surrounding landscape colours.

### Pedestrian Amenity

The high school campus is a pedestrian friendly campus with priority given to pedestrians. A covered walkway connects Stage 2 to the rest of the campus with sheltered external circulation providing access to all parts of the new building.

The additional Stage 2 bicycle parking is supplemented by the bicycle spaces and end of trip facilities provided in Stage 1.

### Carparking and Servicing

The Stage 1 car park is located at the north of the site, which is readily accessible from Lexcen Avenue. The car park is securely fenced, with planting around the outside as a visual buffer. 34 additional staff car spaces are provided in stage 2 to supplement the 44 already in stage 1. The accessible car spaces are located at the north-west corner of the carpark, which is the closest point in the car park to the main pedestrian entrance of the school.

The waste collection area is also inside the car park, incorporating adjacent to main entry for ease of collection.

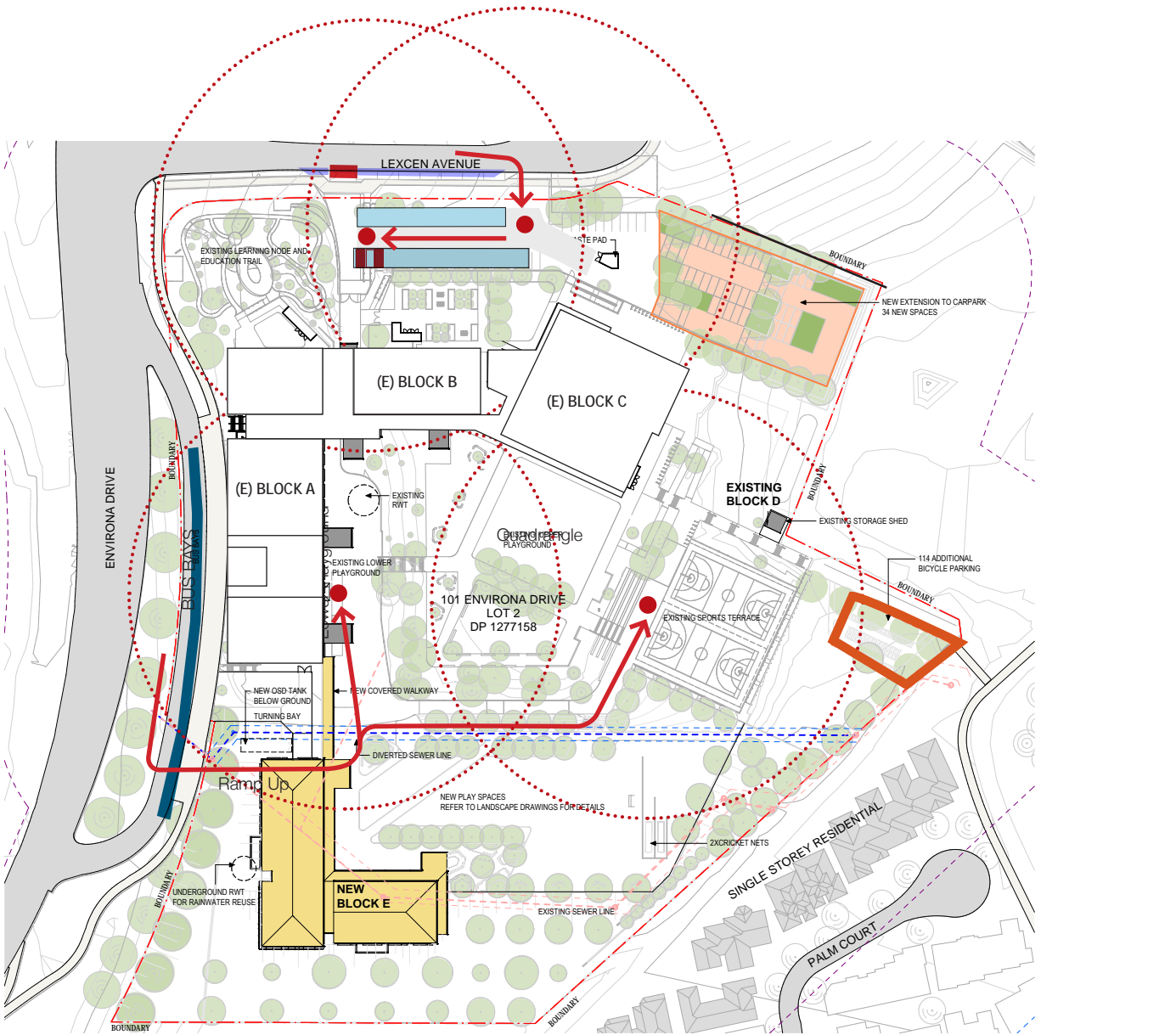
Deliveries to the canteen, gym, food technology and administration can all occur from the car park. Deliveries to the Wood and Metal Workshop are better served from the bus bay, via a temporary loading zone accessed when buses are not required.

Emergency vehicular access is also provided to the site. Two entrance points are provided as shown in the diagram to the right.

### Crime Prevention Through Environmental Design (CPTED)

The proposed High School in Jerrabomberra incorporates Crime Prevention Through Environmental Design (CPTED) to create a safe and secure environment that encourage activity, vitality and viability, enabling a greater level of security. The design incorporates the four main principles of natural surveillance, access control, territorial reinforcement and space management:

- The campus is typically located within secure private grounds and protected by a 2.1m high palisade fence and gates. Fencing lines have been set back from the boundary with low level planting in front, to reduce their visual impact.
- The campus is naturally surveilled from the central node by staff whilst the school is open.
- Blind corners have been avoided in the planning to facilitate supervision by the school staff during school hours.
- The staff administration area and public reception is located adjacent to the main entry to act as gatekeeper for the campus.
- There are views across the school play areas from the high school site and school buildings.
- External lighting will be provided to illuminate external spaces and avoid dark shadows.
- Clear sightlines of the building have been maximised and landscaping designed so as to not obstruct surveillance.
- The school will be well maintained and will be highly used.
- The school will be provided with an integrated system of security cameras and alarms in accordance with DOE requirements.



Vehicular Access  
Source: TKD Architects



# Amenity

## PRINCIPLE 5 | AMENITY

Schools should provide pleasant and engaging spaces that are accessible for a wide range of educational, informal and community activities, while also considering the amenity of adjacent development and the local neighbourhood.

Schools located near busy roads or near rail corridors should incorporate appropriate noise mitigation measures to ensure a high level of amenity for occupants.

Schools should include appropriate, efficient, stage and age appropriate indoor and outdoor learning and play spaces, access to sunlight, natural ventilation, outlook, visual and acoustic privacy, storage and service areas.

Design Quality Principle 5, Schedule 8, Transport and Infrastructure SEPP 2021

### Amenity for Neighbours

The school is designed to minimise visual impact on the neighbouring residences and communities. Its massing has been minimised by taking advantage of the natural topography, and its form articulated with breaks in the facade, materiality and sunshading. The materials palette ties into the natural landscape.

### Visual and Acoustic Amenity

The new building is located at the opposite side of the site from neighbouring residential properties to enhance their visual and acoustic privacy. Views out from the building focus on the grasslands to the west and south-west instead, providing amenity for staff and students.

An acoustic report by Acoustic Logic has been prepared for this application. It makes recommendations around school operations, external plant, external speakers, ground maintenance and waste collection to maintain acoustic amenity for the school and its neighbours. It also summarises how building construction can mitigate the acoustic impact of Canberra Airport nearby.

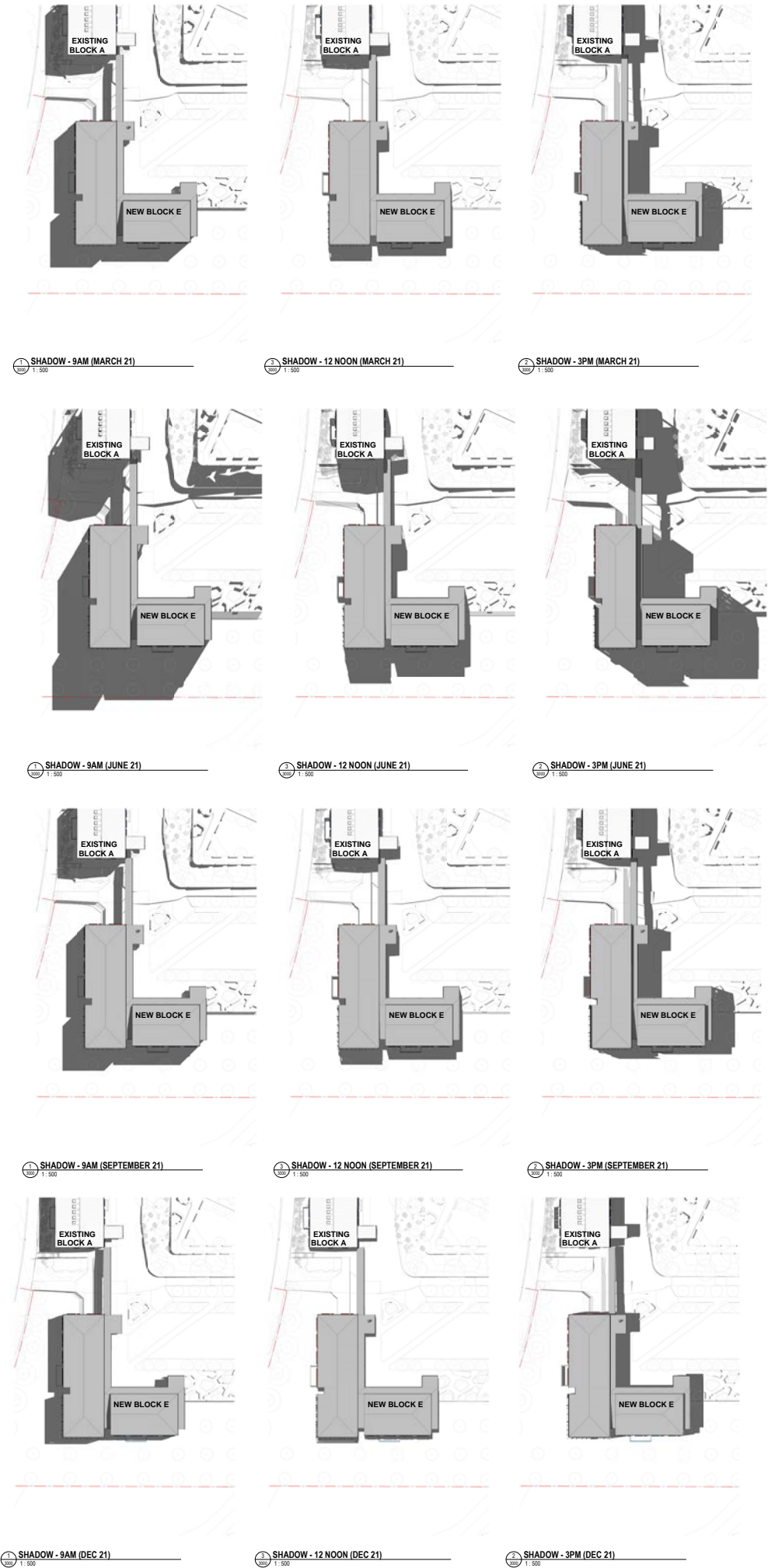
### Overshadowing

Shadow diagrams have been prepared for the proposed development (shown adjacent). They show no additional overshadowing of neighbouring residences due to the proposed development throughout the year.

### Lighting Impacts

External lighting will be provided to illuminate external spaces and avoid dark shadows. Lighting shall generally be low height, low intensity and discreetly positioned to avoid spill lighting and compliance with AS1158.1 and AS4282. Obtrusive lighting will be carefully considered during the external lighting design to ensure compliance with AS4282 in order to minimise any spill onto neighbours or to the night sky.

The Stage 2 site is located outside the 4.5 km distance from the end of the airport runways - outside the zone within which lighting restrictions apply.



Shadow Diagrams



# Whole of Life, Flexible and Adaptive

## PRINCIPLE 6 | WHOLE OF LIFE, FLEXIBLE AND ADAPTIVE

School design should consider future needs and take a whole-of-life-cycle approach underpinned by site wide strategic and spatial planning. Good design for schools should deliver high environmental performance, ease of adaptation and maximise multi-use facilities.

Design Quality Principle 6, Schedule 8, Transport and Infrastructure SEPP 2021

### Flexible and Adaptive

The new Stage 2 development, like the existing high school, is designed to be flexible and adaptive. Learning spaces and breakout spaces are designed with large glazed sliding doors to provide connections and opportunity for flexible learning environments that can accommodate individual classrooms or co-teaching models.

The project is to be delivered via Modern Methods of Construction in line with SINSW DfMA (Design for Manufacture and Assembly) Guidelines. The DfMA Guidelines have been developed to facilitate and contribute to the DoE's sustainability objectives and 'Sustainability Pillars of the Department of Education'. Through use of a standardised planning grid, efficient structural grid and standardisation of room areas, flexibility is provided for a range of spaces that can be utilised for high school, primary school and specialist spaces, future proofing the ability to steer education and pedagogy towards cross disciplinary learning methods.

### Whole of Life Cycle

The project has been designed to consider a whole-of-life-cycle approach in consideration of a wider public and environmental benefit over time. The ESD principles adopted for the project will contribute to the conservation of resources and future resilience across the whole life cycle of the project; from construction, through to the operational phase.

Whole-of-lifecycle initiatives include:

- External materials that are robust, durable and low maintenance
- Incorporation of PV panels on the roof to supplement energy consumption
- Rainwater harvesting and reuse, reducing overall water demand
- Flexible internal planning defined by a regular planning grid

### Future Development

The site provides room for further expansion, subject to planning controls, should this be required in future. The new building construction consists of a robust concrete structure supporting cladding and roofing on lightweight steel framing. This arrangement allows relatively straightforward reconfiguration of the building plan to meet future needs.



# Aesthetics

## PRINCIPLE 7 | AESTHETICS

School buildings and their landscape setting should be aesthetically pleasing by achieving a built form that has good proportions and a balanced composition of elements. Schools should respond to positive elements from the site and surrounding neighbourhood and have a positive impact on the quality and character of a neighbourhood.

The built form should respond to the existing or desired future context, particularly, positive elements from the site and surrounding neighbourhood, and have a positive impact on the quality and sense of identity of the neighbourhood.

Design Quality Principle 7, Schedule 8, Transport and Infrastructure SEPP 2021

### Context, Built Form and Landscape

As previously discussed the built form and materials are derived from the setting and cultural heritage of the site. The building provides an urban edge to the street frontage on Environa Drive on the west and a landscape edge to the existing residential neighbourhoods southeast of the site.

The street-facing components of Stage 2 continues the alignment of the Stage 1 elevation here to provide a formal facade . Future developments along this road are expected to have a consistent urban grain.

The grasslands and neighbourhood-facing components of the school are occupied by outdoor play space, outdoor learning, sports courts and other landscape facilities. The building opens up to this landscape, and protects it from

the traffic noise from Environa Drive and westerly winter winds.

### Articulation

The facade composition for this building has been developed in accordance with the Architectural Design Concept established for the project.

The elevational treatment addresses the bulk and scale with a series of breaks in the building, external stairs and shade structures to bring a finer-grain appearance to the buildings. Vertical breaks, such as the stairwells and shade structures effectively articulate the long, low building.

Materials and finishes have already been discussed in relation to the building's context. This discussion included the decorative "moth" screen which is incorporated on prominent parts of the Stage 1 facade. A matching screen is proposed for the south west corner of the stage 2 building , to communicate the story of the place when viewed from the motorway.

The eastern and northern facades of Building A use a similar kit of parts as those facing outward from the site. Being inward-facing, the decorative gestures are more subtle. Screening to the external stairs utilises the same powdercoated aluminium, used more discretely. Together with the finer proportions of these facade elements the addition of planter trellises brings diminishes the scale of these playground elevation.





# Aesthetics

## Services Integration

Services have been designed to have minimal visual impact on the building aesthetic. This has been achieved via careful location of services, screening and planting. It should be noted that some services, for example, the hydrant booster, are required to be visible.

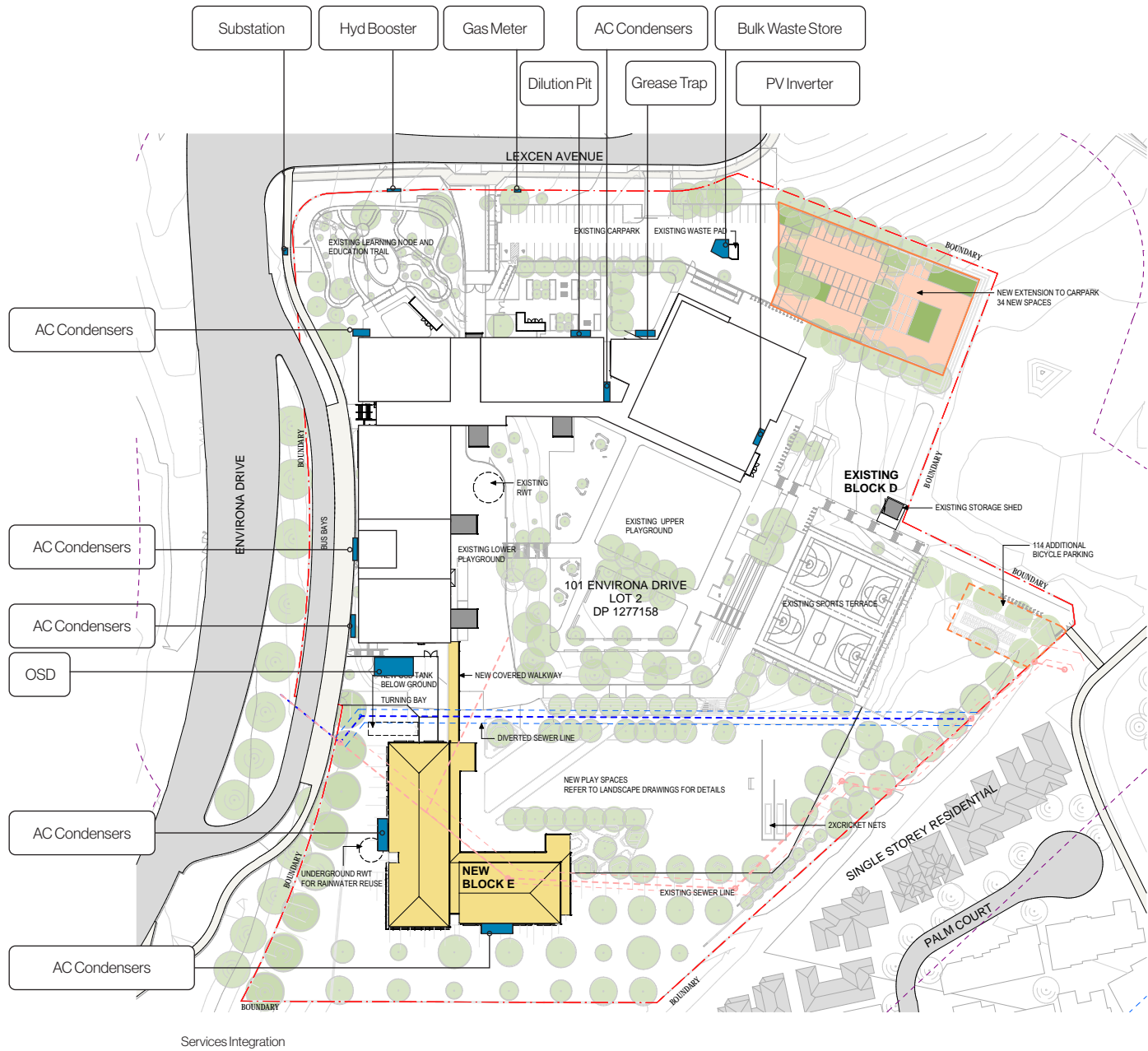
A bulk waste pad is located in the car park, away from the street façades, but adjacent to the car park access to enable ease of collection. The waste pad is screened by angled, powdercoated aluminium screening.

Mechanical plant has been located at ground level and lower ground level for safe access and housed within screened enclosures integrated into building and landscape response throughout the site to minimise visual and acoustic impact.

A substation is located towards the north-west corner of the site. It has been set back from the street corner as far as possible to allow for school signage and planting.

There is an on site detention tank below-ground, with pits and edges coordinated with the landscape design in this zone.

The hydrant booster is required to be visible from the main school entrance. The visual impact has been mitigated by slightly setting it in from the boundary and co-locating it with school wayfinding and low planting. The same strategy has been employed for the gas meter, which has a specific distance requirement away from the booster.





# Conclusion

## SUMMARY

This Design Report outlines the design intent of the proposal and demonstrates how design quality has been achieved in accordance with the Design Guide for Schools and the Design Quality Principles outlined in Schedule 8 of the Transport and Infrastructure SEPP 2021

This extension of the suburb's first high school, will have minimal environmental impacts whilst future-proofing the campus to cater for the projected expansion of student enrolments.

The proposal has undergone a rigorous design process, including regular reviews by internal and external stakeholders to make a positive contribution to the local area with a site-integrated design.



South West 3D View