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New High School in Bungendore

State Significant
Development Application
(SSD-14394209)

Architectural Design Report

Prepared for

NSW GOVERNMENT Education
School Infrastructure

School Infrastructure NSW

Rev A
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Project No. 200096

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We acknowledge that the proposed New High School in Bungendore 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.

A Introduction

A Introduction

1 Introduction

This Architectural Design Report accompanies an Environmental Impact Statement (EIS) pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act) in support of an application for a State Significant Development (SSD No 14394209). The SSDA is for a new high school located at Bungendore.

This report addresses the below Secretary's Environmental Assessment Requirements (SEARs), notably:

Item	Response
GENERAL REQUIREMENTS	
> likely interactions between the development and existing, approved and proposed operations in the vicinity of the site	A detailed site analysis and response to context has been provided within this report to demonstrate how the proposed development will interact with its immediate surroundings, which include the adjacent public school, Mick Sherd Oval, the scout facility, residential neighbours and adjacent streetscape. The proposed development is to provide facilities which will have a positive contribution to the town and to existing operations within the site's vicinity. These include the provision of new shared accommodation with the adjacent public school; new community facilitites and the opportunity for shared use of high school facilities outside of school hours; a new storage facility for the scout group; and new pedestrian crossings and shared paths. Refer to Sections A, D, F, J within this report.
> a description of any proposed building work	The proposed development is for the construction of a new high school in Bungendore. The proposal will include the demolition of the Bungendore Swimming Pool and the Bungendore Community Centre; repurposing of existing council buildings; the construction of new school buildings for learning spaces; a gymnasium; library; canteen; outdoor learning and play areas that include two games courts; a new agricultural plot with new agricultural building and scout storage shed; shared administration and staff facilities between the high school and existing primary school and construction of a warm shell for community facilities including a community library, council shopfront and community health hub. Additional off-site miscellaneous works include upgrades to nearby road intersections and infrastructure, crossings, footpaths and the like will be provided to encourage active transport opportunities and respond to changing traffic conditions. Refer to Section A within this report.

Item	Response
> a description of proposed operations, including staff and student numbers, hours of operation, and details of any proposed before/after school care services and/or community use of school facilities.	The new high school will initially cater for approximately 450 students and 41 full time staff A table of operational times is provided within Section B of this report which considers the various school functions.
> a detailed constraints map identifying the key environmental and other land use constraints that have informed the final design of the development.	A detailed site analysis has been included within this report. The analysis has been used to inform the final design so that it positively contributes to the site's context. Refer to Section C within this report.
> plans, elevations and sections of the proposed development.	Plans, elevations and sections of the proposed development have been provided within this report and within the Architectural drawing documentation. Refer to Sections F, K, and M within this report.
> cladding, window and floor details, including external materials.	The architectural approach has been developed to respond to the unique context of the site, which include the heritage character of the town and a Connection with Country. The architectural character and proposed external finishes and materials have been described within this report. Refer to Sections F and M within this report.
> plans and details of any advertising/business identification signs to be installed, including size, location and finishes.	A wayfinding signage stategy has been prepared for the developemnt to ensure the new school campus and community facilities are legible, and to enhance the understanding and experience of the new development. Refer to Section H within this report.
KEY ISSUES	
The EIS must address the following specific matters: **1. Statutory Context, Strategic Context and Policies** Address the statutory provisions contained in all relevant legislated and draft environmental planning instruments, including but not limited to: > State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017, Schedule 4 - Schools - Design Quality Principles	Sections F-M of this report have been structured to address the design quality principles within Schedule 4 of the Education SEPP. Refer to Sections F-M within this report.

Item	Response
Address the relevant planning provisions, goals and strategic planning objectives in all relevant planning policies including but not limited to the following: > Crime Prevention through Environmental Design (CPTED) Principles. > Better Placed: An integrated design policy for the built environment of New South Wales (Government Architect NSW (GANSW), 2017). > Draft Greener Places Design Guide (GANSW).	The new high school has been developed with consideration of these documents and to respond to the unique context of the site. The development will be environmentally responsive and provide facilities which are inclusive and connected; diverse and safe; functional and attractive; and that will benefit students, staff and the wider community. Refer to Sections F-M within this report. A seperate CPTED report has been prepared by Mecone for this EIS. A seperate Landscape Design Report has been prepared by Context Landscape Architecture for this EIS which addresses the Draft Greener Places Design Guide.
2. Built Form and Urban Design *Address:* > the height, density, bulk and scale, setbacks and interface of the development in relation to the surrounding development, topography, streetscape and any public open spaces. > design quality and built form, with specific consideration of the overall site layout, streetscape, open spaces, façade, rooftop, massing, setbacks, building articulation, materials and colour palette. > how Crime Prevention through Environmental Design (CPTED) principles are to be integrated into development. > how good environmental amenity would be provided, including access to natural daylight and ventilation, provision of shade, acoustic separation, access to landscape and outdoor spaces, and future flexibility. > how design quality will be achieved in accordance with Schedule 4 Schools – design quality principles of State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017 and the GANSW Design Guide for Schools (GANSW, 2018). > how services, including but not limited to waste management, loading zones, and mechanical plant are integrated into the design of the development. *Provide:* > a detailed site and context analysis to justify the proposed site planning and design approach including massing options and preferred strategy for future development. > a visual impact assessment that identifies any potential impacts on the surrounding built environment and landscape including views to and from the site and any adjoining heritage items.	A detailed site analysis has been included within this report. The analysis has been used to inform the final design and response to the site's context. The built form and urban design have been developed to provide a positive contribution to the existing character of the township; and provide a safe, high quality amenity for both school users and the wider community. Services and vechicle servicing have been designed to have minimal visual impact on the development's context and building aesthetic. This has been achieved through careful location of services, carparking and servicing routes, and the provision of appropriate screening and planting. Sections F-M of this report have been structured to respond the design quality principles within Schedule 4 of the Education SEPP. A visual impact assessment is provided which demonstrates there are no adverse impacts to the surrounding built environment and landscape. A seperate CPTED report has been prepared by Mecone for this EIS. A seperate Landscape Design Report has been prepared by Context Landscape Architecture for this EIS which addresses the Draft Greener Places Design Guide.

Item	Response
3. Trees and Landscaping *Provide:* > a detailed site-wide landscape strategy, that: > details the proposed site planting, including location, number and species of plantings, heights of trees at maturity and proposed canopy coverage. > provides evidence that opportunities to retain significant trees have been explored and/or informs the plan. > considers equity and amenity of outdoor play spaces, and integration with built form, security, shade, topography and existing vegetation. > demonstrates how the proposed development would: > contribute to long term landscape setting in respect of the site and the streetscape. > mitigate the urban heat island effect and ensure appropriate comfort levels on-site. > contribute to objectives to increase urban tree canopy cover. > a detailed landscape plan prepared by a suitably qualified person.	The landscape response to the project has been developed with 4 key design principles and provides an overall, site wide vision for the campus, unifying the various characteristics of the campus and providing an integrated landscape and built form response, while responding to the site's context. An overview of the landscape response is provided within this report. Refer to Section F within this report. A seperate Landscape Design Report has been prepared by Context Landscape Architecture for this EIS.
4. Environmental Amenity - Assess amenity impacts on the surrounding locality, including solar access, visual privacy, visual amenity, overshadowing, wind impacts and acoustic impacts. A high level of environmental amenity for any surrounding residential land uses must be demonstrated. *Provide:* > shadow diagrams. > a view analysis, where relevant, of the site from key vantage points and streetscape locations and public domain including photomontages or perspectives showing the proposed and likely future development. > an analysis of proposed lighting that identifies lighting on-site that will impact surrounding sensitive receivers and includes mitigation management measures to manage any impacts.	The environmental impact of the proposed development on adjacent residential neighbours has been carefully considered. An environmental impact analysis has been provided within this report, which include shadow diagrams and a view analysis. New buildings are set away from the existing residential lots, maintaining visual privacy and solar access, with no overshadowing. The proposed lighting as part of the new High School works consists of security lighting to provide low illumination levels and will be designed in accordance with Australian Standards to control of the obtrusive effects of outdoor lighting. The proposed development is not envisaged to adversely impact the surrounding residential neighbours. A Lighting Services Report has been prepared by NDY for this EIS. Refer to Sections F and K within this report.

Item	Response
5. Transport and Accessibility > details of the proposed development, including: > a map of the proposed access which identifies public roads, bus routes, footpaths and cycleways. > pedestrian site access and vehicular access arrangements, including for service and emergency vehicles and loading/unloading, including swept path analysis demonstrating the largest design vehicle entering and leaving the site and moving in each direction through intersections along the proposed transport routes. > car and motorcycle parking, bicycle parking and end-of-trip facilities. > drop-off / pick-zone(s) and arrival/departure bus bay(s). > pedestrian, public transport or road infrastructure improvements or safety measures.	The siting of the new high school campus within the town utilises a shared transport strategy with the existing adjacent publc school and encourages active transport. New pick-up and drop-off bays, bus bays, a pedestrian crossing, shared paths, bicycle parking and end of trip facilities are proposed to support the development. The high school campus is proposed to be a pedestrian friendly campus where priority is given to pedestrians. The existing Council Chambers car parking to the eastern edge of the site is proposed to be retained for staff use and provide access for service vehicles including support bus dropoff, materials delivery and refuse collection. Additional community parking is proposed to the southern edge of Turallo Terrace, adjacent to Mick Sherd Oval, to offset the existing parking along the northern portion of Majara Street which forms part of the proposed school site. A seperate Transport Assessment and Transport Plan report has been prepared by GHD for this EIS. Refer to Sections G, H and J within this report.
6. Ecologically Sustainable Development (ESD) *Identify:* > how ESD principles (as defined in clause 7(4) of Schedule 2 of the Regulation) would be incorporated in the design and ongoing operation phases of the development. > proposed measures to minimise consumption of resources, water (including water sensitive urban design) and energy. > how the future development would be designed to consider and reflect national best practice sustainable building principles to improve environmental performance and reduce ecological impact. This should be based on a materiality assessment and include waste reduction design measures, future proofing, use of sustainable and low-carbon materials, energy and water efficient design (including water sensitive urban design) and technology and use of renewable energy. > how environmental design will be achieved in accordance with the GANSW Environmental Design in Schools Manual (GANSW, 2018).	The project has been developed using the principles of ESD to create a site wide strategy, and has been assessed against a suitable accredited rating framework - Greenstar. The project is expected to achieve a high level of environmental sustainability and is targeting a 4 Star rating, which is deemed to represent an Australian Best Practice development. These 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 and provide opportunities for inherent pedagogy. A seperate ESD Report has been prepared by NDY for this EIS. Refer to Section G within this report.
18. Waste > Identify appropriate servicing arrangements (including but not limited to, waste management, loading zones, mechanical plant) for the site.	Services and vechicle servicing have been designed to have minimal visual impact on the development's context and building aesthetic. This has been achieved via careful location of services, carparking and vehicle servicing routes and the provision of appropriate screening . Refer to Section G within this report.

Item	Response
PLANS AND DOCUMENTS	
The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the Regulation. Provide these as part of the EIS rather than as separate documents. Any plans and diagrams included in the EIS must include key dimensions, RLs, scale bar and north point.	Architectural drawings and diagrams have been provided throughout the report. Where relevant to the diagram or drawing, dimensions and RLs have been provided.
In addition to the plans and documents required in the General Requirements and Key Issues sections above, the EIS must include the following: > Design report to demonstrate how design quality would be achieved in accordance with the above Key Issues including: > architectural design statement. > diagrams, structure plan, illustrations and drawings to clarify the design intent of the proposal. > detailed site and context analysis. > analysis of options considered to justify the proposed site planning and design approach. > summary of feedback provided by GANSW and NSW State Design Review Panel (SDRP) and responses to this advice. > summary report of consultation with the community and response to any feedback provided.	The Architectural Design Report has been prepared to address the adjacent SEARs requirements and are presented throughout this report. 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 4 of the Education SEPP. A summary of comments and recommendation from the SDRP process, and responses to advice received have been provided within Section N of this report. A seperate Social Impact Assessment (SIA) report has been prepared by Urbis for this EIS.
CONSULTATION	
The EIS must describe and include evidence of the consultation process and the issues raised and identify where the design of the development has been amended in response to these issues. Where amendments have not been made to address an issue, a short explanation should be provided. - Government Architect NSW (through the NSW SDRP process).	School Infrastructure NSW have conducted significant community engagement and liaison with the Bungendore community and Queanbeyan Palerang Regional Council throughout the project's development to understand and address issues raised. The new high school has been developed to respond to GANSW's Draft Connecting to Country Framework and through consultation with Ngambri Elder Woman Dr Matilda House and representatives of the Aboriginal Educational Consultative Group (AECG), to create a strong, place driven identity that will help instill pride in the school and community. The final design has also been prepared through consultation with the Government Architect via the SDRP process. The design report has been prepared to address comments raised within the SDRP process. A summary of comments and recommendations, and responses to the advice received have been provided within Section N of this report. A seperate Social Impact Assessment (SIA) report has been prepared by Urbis for this EIS. Refer to Section F and N of this report.

2 Proposal

The proposed development is for the construction of a new high school in Bungendore. The proposal has been designed as a stream 3 high school to initially provide for approximately 450 students with core 4 facilities aimed to future proof demand forecasted to 2036.

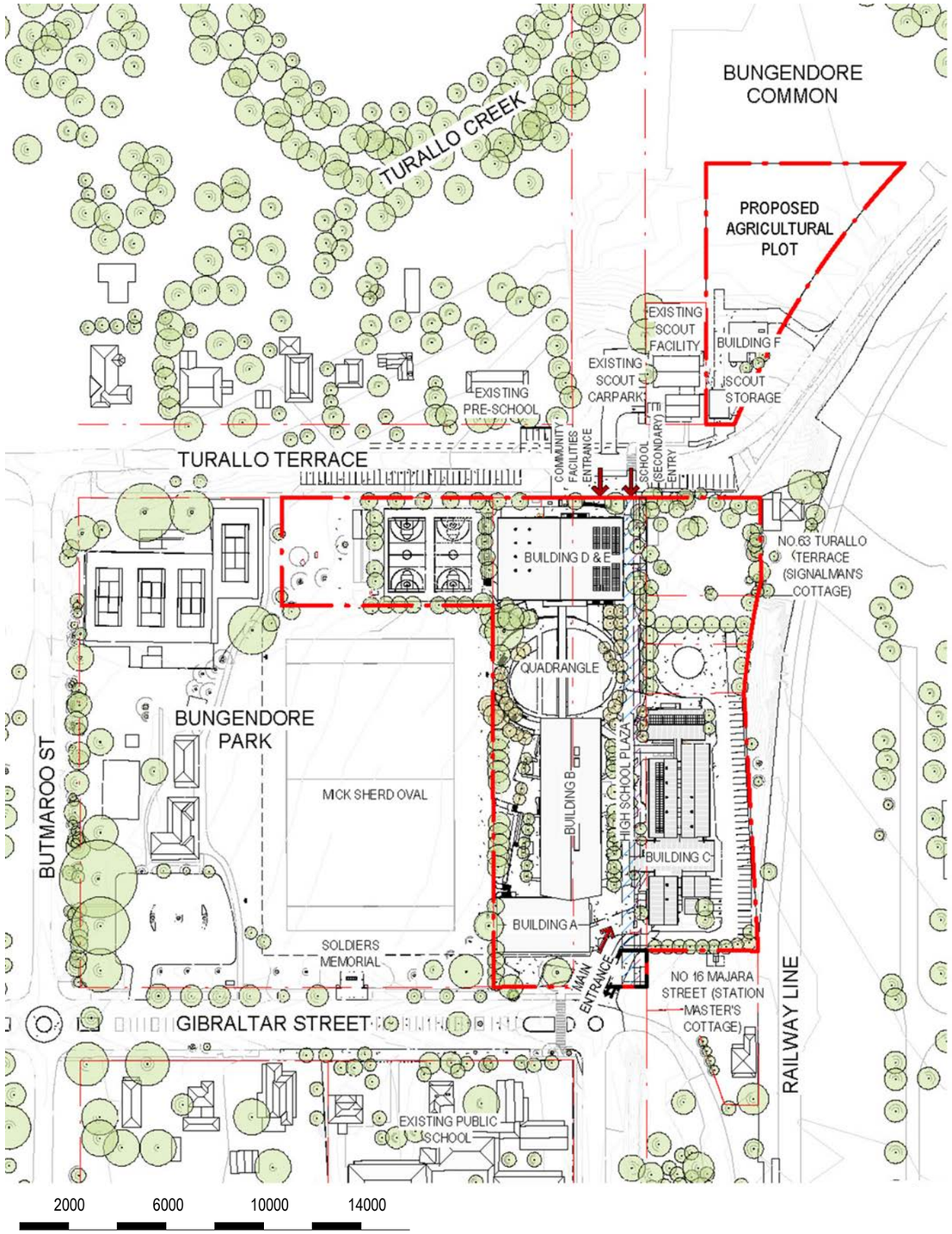
The site is located adjacent to the existing Bungendore Public School to the south enabling the creation of an education style precinct that will enable a cohesive connection between the two schools as well as the wider Bungendore community.

The proposal will include the demolition of the Bungendore Swimming Pool (to be relocated to Queanbeyan-Palerang Regional Council's proposed new Bungendore Sports Hub) and the Bungendore Community Centre; repurposing of existing council buildings; and the construction of new school buildings. New facilities for the high school will comprise of 24 general learning spaces; dedicated science and technology spaces; a gymnasium; library; canteen; outdoor learning and play areas that include two games courts.

A new agricultural plot is also proposed to the north of the main school site including a new agricultural building and scout storage shed, adjacent to the existing scout hall.

The proposal will also provide for shared administration and staff facilities between the high school and existing primary school and construction of a warm shell for community facilities including a community library, council shopfront and community health hub.

Additionally, miscellaneous off-site works, including upgrades to nearby road intersections and infrastructure, crossings, footpaths and the like will be provided to encourage active transport opportunities and respond to changing traffic conditions.



Proposed Site Plan
Source: TKD Architects

3 Site Description

The proposed development is located within the Bungendore Town Centre within the local government area of Queanbeyan-Palerang Regional Council. The proposal involves the use of land which includes Bungendore Park bounded by Gibraltar Street, Majara Street, Turallo Terrace and Butmaroo Street, the existing former Palerang Council site at 10 Majara Street, the Majara Street road reserve bounded by Turallo Terrace and Gibraltar Streets and Nos. 2, 4 and 6 Majara Street (Refer to Table 1 below).

The site is approximately 29,205m2 in area and consists of a relatively flat topography. It contains part of Bungendore Park, existing Council buildings and maintained public open space areas. The land is mostly cleared of vegetation with some mature trees intersperse throughout subject lots.

The surrounding area generally includes low density residential developments to the north and west, an existing rail line to the east and Bungendore Public School and the Bungendore train station to the south and south west respectively.

Item 1 - New High School in Bungendore legal descriptions	
Property Address	**Lot Numbers**
6-14 Butmaroo Street	Part Lot 701 DP1027107
2 Majara Street	Lot 12 DP1139067
4-6 Majara Street	Lot 13 DP1139067 Lot 14 DP1139067
10 Majara Street	Lot 3 DP830878
Butmaroo Street	Part Lot 701 DP96240
Portion of Majara Street (between Turallo Terrace and Gibraltar Street)	N/A

Site Aerial depicting the land subject to the proposed High School
Source: TKD Architects

4 Design Report

This Design Report provides an analysis of the site's current constraints and opportunities for the school's development. The report has also been developed to establish design guidelines and development parameters to clarify the design intent of the proposal and demonstrate how design quality will be achieved in accordance with the Design Guide for Schools and the Design Quality Principles outlined in Schedule 4 of the Education SEPP 2017:

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

Each of the Design Quality Principles are discussed in detail in Sections F to M.

1 Context, built form and landscape

New school development should:

- Respect and respond to its physical context, neighbourhood character, streetscape quality and heritage
- Consider interpretation of Aboriginal cultural heritage within the design of buildings and open spaces in consultation with local Aboriginal community
- Respond to its natural environment including scenic value, local landscape setting and orientation
- Retain existing built form and vegetation where significant
- Include tree planting and other planting that enhances opportunities for play and learning
- Ensure landscaping improves the amenity within school grounds and for uses adjacent to the school
- Be informed by a current Conservation Management Plan (CMP) and consider local heritage items both on the school site and in the local neighbourhood
- Take advantage of its context by optimising access to nearby transport, public facilities and local centres
- Consider height and scale of school development in relationship to neighbouring properties.

2 Sustainable, efficient and durable

New school development should:

- Be responsive to local climate including sun, wind and aspect
- Select materials and approaches to detailing that are robust and durable
- Integrate landscape, planting and Water Sensitive Urban Design (WSUD) principles to enhance amenity and building performance
- Include deep soil zones for ground water recharge and planting
- Minimise reliance on mechanical systems
- Include initiatives to reduce waste, embodied energy and emissions, through passive design principles and the use of advanced energy production systems where possible
- Maximise opportunities for safe walking, cycling and public transport access to and from the school.

3 Accessible and inclusive

New school development should:

- Establish security requirements early to ensure any required secure lines can be designed and integrated with built form
- Balance security with accessibility and inclusiveness by minimising the use of fencing particularly along street frontages
- Engage students, educators and the community in development of the vision and design brief for the school
- Allow for passive and dynamic play of different age groups
- Provide school frontages and entrances that are visible, engaging and welcoming
- Encourage access for members of the community to shared facilities after hours
- Ensure clear and logical wayfinding across the school site and between buildings for all users including after hours community users
- Ensure accessibility for all users of the site
- High rise schools should consider the impact of circulation times on timetables and pedagogical models, particularly when accessing core learning spaces. This may have design implications for spatial planning, lift and circulation requirements.

4 Health and safety

New school development should:

- Locate buildings and design facades that optimise fresh air intake and access to daylight
- Prioritise pedestrians and avoid conflicts between vehicles and people
- Provide covered areas for protection from sun and rain
- Support safe walking and cycling to and from school through connections to local bike and foot paths and the provision of bike parking and end of journey facilities
- Support passive surveillance, including through the location of toilets and areas for communal use outside of school hours
- Incorporate Crime Prevention Through Environmental Design (CPTED) principles
- Clearly define access arrangements for after school hours
- Consider location and number of toilet facilities to allow safe use by different age groups and genders.

5 Amenity

New school development should:

- Be integrated into, and maximise the use of the natural environment for learning and play
- Ensure access to sunlight, natural ventilation and visual outlook wherever possible
- Facilitate flexible learning by providing access to technology
- Seek opportunities for buildings and outdoor spaces to be learning tools in themselves
- Provide a diversity of indoor and outdoor spaces to facilitate informal and formal uses
- Provide buffer planting in setbacks where appropriate to reduce the impact of new development
- High rise schools should consider and seek to minimise the negative impacts of overshadowing and wind on surrounding built form and open space, and on school grounds.
- Ensure outdoor play ground space is sufficient to accommodate the student population including future growth.
- Locate buildings away from noisy roads and other noise sources to ensure acoustic levels within teaching and learning spaces are acceptable
- Where teaching and learning spaces must be located alongside noise sources, arrange built form to ensure dual aspect that will allow for natural ventilation away from the noise source. In extreme cases, mechanical systems and other technologies may be necessary to ensure acoustic levels can be maintained along with cross flow ventilation and natural light.

6 Whole of life, flexible and adaptive

New school development should:

- Allow for future adaptation to accommodate demographic changes, new teaching and learning approaches and the integration of new technologies
- Be based on a masterplan of the school site that includes the testing of options for future potential growth
- Take a whole-of-lifecycle approach when considering cost and consider wider public benefits over time
- Provide capacity for multiple uses, flexibility and change of use over time
- Respond to the findings of a site appraisal including in-ground conditions, contamination, flora and fauna, flooding, drainage and erosion, noise and traffic generation
- Understand the potential impacts of future local projected growth
- Design learning spaces to cater for a range of learning styles and group sizes
- Consider providing areas for collaboration, group learning, presentations, specialised focus labs, project space and wet areas, display areas, student breakout, teacher meetings, and reflective / quiet spaces.

7 Aesthetics

New school development should:

- Reflect a commitment to and investment in design excellence
- Create engaging and attractive environments
- Achieve a purposeful composition of materials and elements through a rigorous design process
- Provide an engaging environment for pedestrians visually and materially along public street frontages
- Seek opportunities to enhance public facing areas with landscaping and ensure landscape and building design are integrated
- Integrate service elements with the building design
- Balance internal spatial requirements with an external mass and scale that responds to its environment
- Avoid long stretches of security fencing to public facing areas through arrangement of building edges, landscaping, gates and other openings
- Look for opportunities to include public art.

Extract | Design Guide for Schools
Source: GANSW

B Project Background

B Project Background

1 Project Background

The New High School in Bungendore is part of the 'Monaro Cluster Program'. The proposed new high school will respond to the increased learning demand created by the rapid growth in the new residential development areas in Bungendore, addressing the service needs of the Queanbeyen-Palerang local government area (LGA). It will also respond to a 2019 Election Commitment to establish a new high school with initial capacity of approximately 450 students in Bungendore.

The increase in learning demand also stems from the newly introduced 'NSW Pathway Zones' seven-year phasing plan which seeks to reallocate NSW-residing student enrolment back to the NSW live-in catchments from the ACT.

The new schools within the Monaro Cluster of Schools program will address this increased need whilst also considering projected expansions in the future. The new high school in Bungendore is predicted to be operational by 'Day 1 Term 1' 2023.

2 Project Brief

The school buildings are predominantly new-build, with a degree of refurbishment works to the existing council chambers building which is to become part of the school's assets. The school will accommodate facilities that serve the adjacent primary school, which include staff and administration functions. The school facilities are required to be developed in accordance with the Department of Education's (DoE), Education Facilities Standards and Guidelines (EFSG).

2.1 Required School Facilities:

> 24 general learning spaces including 3 support learning spaces.
> An agricultural plot and support building
> Outdoor learning and play areas including 2x sports courts and a batting net

The core facilities that are designed to meet Stream 4 requirements are as follows:

> Staff
> Administration
> Library
> Hall
> Canteen

2.2 Community Facilities

In addition to the high school facilities, the project includes the proposal of new facilities dedicated for community use that consist of:

> A Community Library
> A Community Health Hub, to relocate facilities from the existing Bungendore Community Centre
> A QPRC Council Shopfront

2.3 Ancillary works in support of the high school

> new roundabout to the corner of Majara and Gibraltar Street
> new roundabout to the corner of Gibraltar and Butmaroo Street
> pick up and set down bays on Gibraltar Street and Turallo Terrace
> relocated school bus zone to Gibraltar Street
> pedestrian crossing to Gibraltar Street
> pedestrian crossing to Turallo Terrace
> shared path to Bungendore Park
> shared path to Turallo Terrace
> public 90 degree parking to Turallo Terrace
> new vehicular access way to staff car park from Majara Street
> new vehicle crossover to scout storage shed
> new vehicle crossover to agricultural plot
> new pedestrian path to agricultural plot

2.4 Modern Methods of Construction (MMoC)

The new-build components of the school are to be constructed via Modern Methods of Construction (MMoC)

2.5 Hours of Usage

Refer to the adjacent table

2.6 Shared Use of High School Facilities

The application contemplates the use of the hall and school library for community use, whether for one-off or periodic events. This will be subject to reaching a shared use agreement in the future.

Item	Use	Times
General	The new high school in Bungendore will cater for students Year 7 - Year 12. The school will have the following capacity following completion of the development: > 41 full time staff > 450 students	Monday to Friday between 7am and 6pm
Before and After School Care (BaSC) and offline courses	The new High School in Bungendore will provide before and after school care for students (BaSC). BaSC is expected to be required for: > 250 - 300 students on a regular basis > 15 - 20 staff will be present The new High School in Bungendore will provide offline classes for students to attend to supplement their regular learning times. This will occur in class rooms before and after school.	Monday to Friday in the morning between 6am and 8:30am and in the afternoon between 3pm and 7pm For BASC – Vacation Care the facilities will be utilised between 6am and 7pm Monday to Friday.
Hall/ Gym	Generally used during standard school hours. BaSC is expected to be conducted in the school hall. This application contemplates the future use of school facilities out of school hours. In particular, the use of the hall and associated facilities for school events such as presentation nights, drama or music recitals. The application contemplates the use of the hall for community use, whether for one-off or periodic events. This will be subject to reaching a shared use agreement in the future.	Monday to Friday between 6am and 7pm Monday to Friday in the morning between 6am and 8:30am and in the afternoon between 3pm and 7pm during school terms The Hall is considered the most relevant after-hours use of the site and occasionally may be used outside of standard school hours on weekdays until up to 10pm. If a shared use agreement is reached, from time to time use of the school hall may be used for out of hours community use. Sat, Sun and Public Holidays between 8am and 10pm
Outdoor Sports Courts	Intended to only be used by School during standard school operating hours. These will form part of the licence agreement for BASC onsite.	Monday to Friday between 7am and 6pm Monday to Friday in the morning between 6am and 8:30am and in the afternoon between 3pm and 7pm
School Library	Intended use for school only during standard school hours. This area will be used for BaSC and Homework or Study Centres outside of general use hours. These will form part of the licence agreement for BASC onsite.	Monday to Friday between 7am and 6pm Monday to Friday in the morning between 6am and 8:30am and in the afternoon between 3pm and 7pm
Community Building	Health Hub and Community Library	Existing council hours of operation are Monday to Friday between 8:30am and 4:30pm. This is not a school asset and any changes in hours of use will be determined by council.

C Site Analysis

C Site Analysis

1 Queanbeyan Context

The Queanbeyan area is in the south-eastern highlands region of New South Wales, located adjacent to the Australian Capital Territory in the Southern Tablelands. It is located on the Queanbeyan River.

Queanbeyan's economy is based on light construction, manufacturing, service, retail and agriculture. Canberra is located 15 kilometres to the west, so many Queanbeyan residents commute to Canberra for work or education.

2 Broader Site Context

Bungendore is a town in the Queanbeyan Region of New South Wales, Australia, in Queanbeyan-Palerang Regional Council.

The town is a progressive historic Rural village experiencing strong growth pressures. There are new residential developments occurring or proposed on the south eastern, eastern and northern edges of the town.

There are a relatively large number of places included on the LEP Heritage Schedule for the size of the village. There is a strong 19th Century character & scale in the central areas of the village and the heritage character is valued by the community.

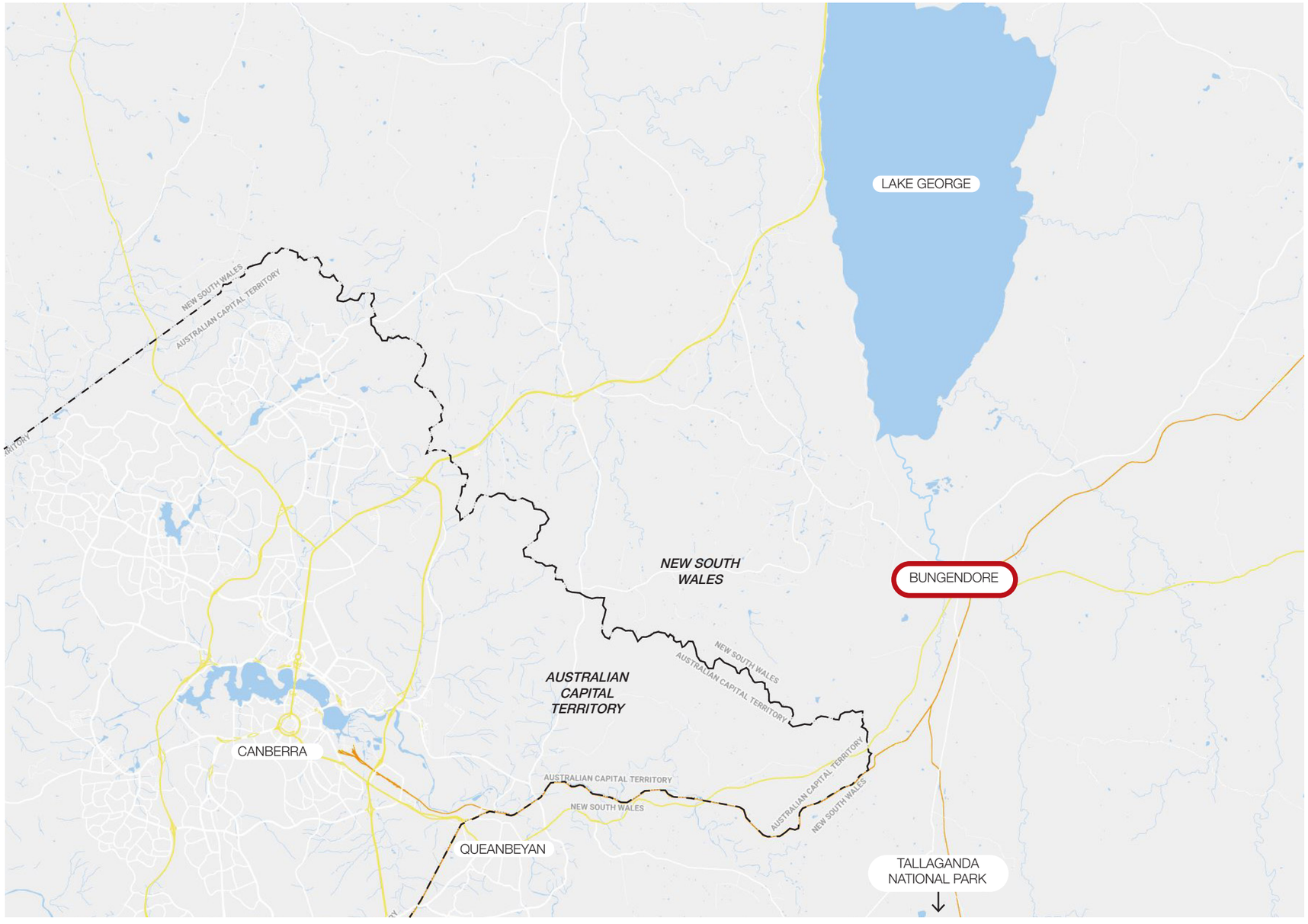
There is no high school in the town meaning secondary students need to commute daily to larger regional centres for schooling. Many of the families living in Bungendore have parents who work in Canberra or Queanbeyan. There is a shortage of community meeting facilities or internal spaces large enough for large community functions, performances or sports practice. There have historically been issues with the adequacy of water supply to meet the growth demands of the town.

Aerial image of Canberra city centre
Source: chessmoving.com.au

Mount Palerang, Tallaganda National Park
Source: googleearth

Lake George
Source: googleearth

Bungendore Region
Source: belleproperty.com.au



Town Location Plan
Source: TKD Architects

3 Indigenous History Context

Studies conducted indicate that the Canberra-Queanbeyan area has been occupied since between 20,000 and 10,000 years ago.

Ethnographic records indicate that at the time of European occupation the ACT was occupied by up to three aboriginal groups; Ngunnawal and Ngarigo people occupying the land around Queanbeyan and the Wolgal people appearing to live further to the south west.

The Ngarigo people are thought to have occupied the area of Bungendore.

4 European History Context

In 1820 the first Europeans reached the area. Captain Richard Brooks established a stock station in the district and named one of his outstations “Bungdow”. The town began to emerge around 1835 as an important crossroads connecting Goulburn, Braidwood, Queanbeyan and Cooma.

The township was approved and Bungendore proclaimed in 1837. In 1868 Bungendore public school opened and the railway arrived in 1885.

5 Immediate Site Context

The site is in a relatively central location to the town area. The main development facilities are to be located on the eastern section of the Mick Sherd Oval, the northern section of Majara Street, which is to be closed for school use, and includes the lots of the existing Council Chambers Building and Community Centre. The railway line is to the east of the site and Bungendore station is nearby to the South east. Turallo Creek is to the north of the site. The agricultural plot is to be located on an adjacent site to the north which is currently part of Bungendore Common.

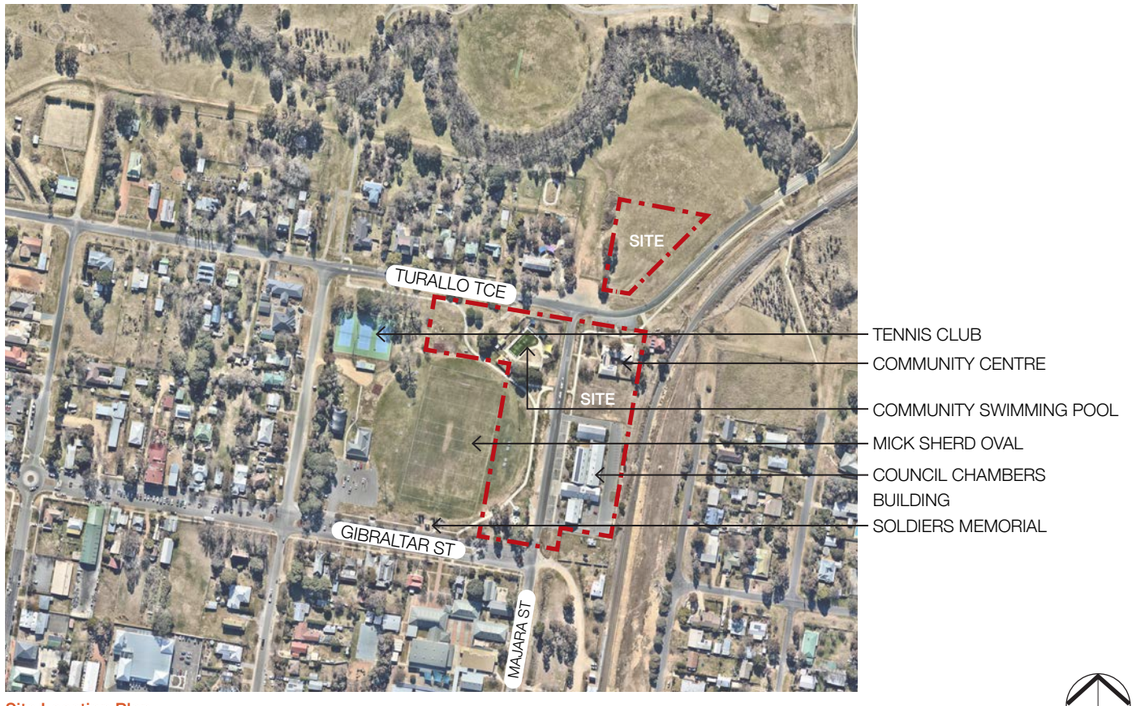
The Primary School is opposite the site on the south side of Gibraltar Street. The Mick Sherd Oval includes a football field with lighting, a number of community facilities, sports facilities and a war memorial.

The site is surrounded by a medium density residential suburb to the north and west.

Car parking is provided on the surrounding streets. Formed 90 degree parking is provided on Gibraltar Street to the centre of the road. There is parking on site of the existing Council Building. There is a public car park to the south western corner of the site adjacent to the Mick Sherd Oval amenities. Unsealed 90 degree parking is also provided along Mick Sherd Oval on Majara Street.

Site Context Plan

Source: Near Maps with TKD Architects overlay



Site Location Plan

Source: Near Maps with TKD Architects overlay

TKDArchitects
Tanner Kibble Denton

5.1 Urban Grain and Urban Context

Bungendore is a rural town with a strong 19th Century character & scale in the central areas of the village. There are a relatively large number of places included on the LEP Heritage Schedule for the size of the village.

The site is in a relatively central location to the town area and located to the eastern edge of the historic portion of the town. Newer medium density residential suburbs are located to the north across Turallo Creek and east across the railway line.

There is a strong east west, north south street grid which runs perpendicular to the general direction of Turallo Creek which dissects the town and is the only immediate significant natural land form. The Goulburn Bombala railway line is to the east of the site running in a north to south axis. Bungendore station is nearby to the south east of the site.

The site is bounded by Gibraltar Street to the south of the site. Gibraltar Street is one of the main streets of Bungendore and extends to the west to one of the towns main commercial precincts. It provides the south end of the site with an urban character.

The public school is opposite the site to the south of Gibraltar Street. The School of Arts building, Post Office and Shop, and Police Station are also located adjacent to the Public School.

The Scout Facility, Pre-school building and Bungendore Common are located along the northern edge of Turallo Terrace. In contrast the south of the site, the northern portion of the site beyond Turallo Terrace is more rural in character with open paddocks and open plains beyond the town.

Mick Sherd Oval, which is located to the west provides an open feel to the site. The existing Council Chambers building located on the eastern side of the new high school site, which is proposed to be retained, was constructed in 2014 and has contemporary regional character.

5.2 Land-form

The township is located centrally within the South Eastern Highlands within the Monaro Sub Region and sits within a valley with ridges to the east and west and Lake George to the north.

The site is located within the sub-alpine region at approximately 700m above sea level.

Lake George (Weereewa in the indigenous language) is an ancient lake located to the north of the town and the dominant hydrological feature of the area.

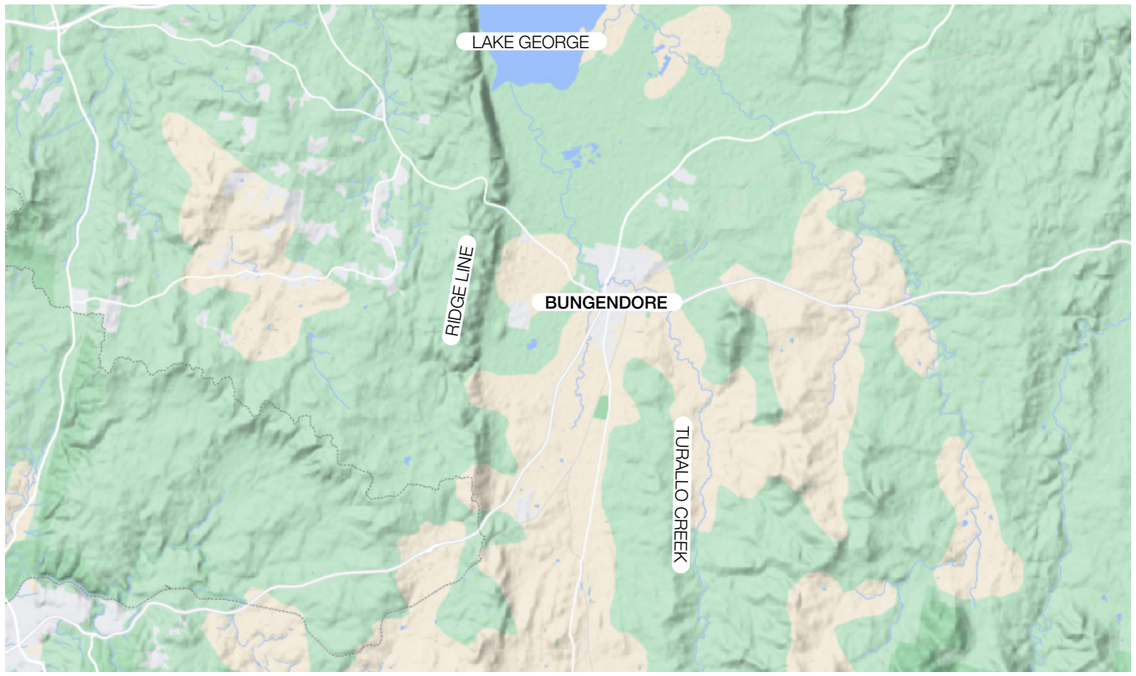
The Turallo Creek which traverses the Bungendore valley and dissects the town, flows from the north western edge of the Tallaganda National Park into Lake George.

The section of Turallo Creek which dissects the town of Bungendore is located at the northern end of the site.

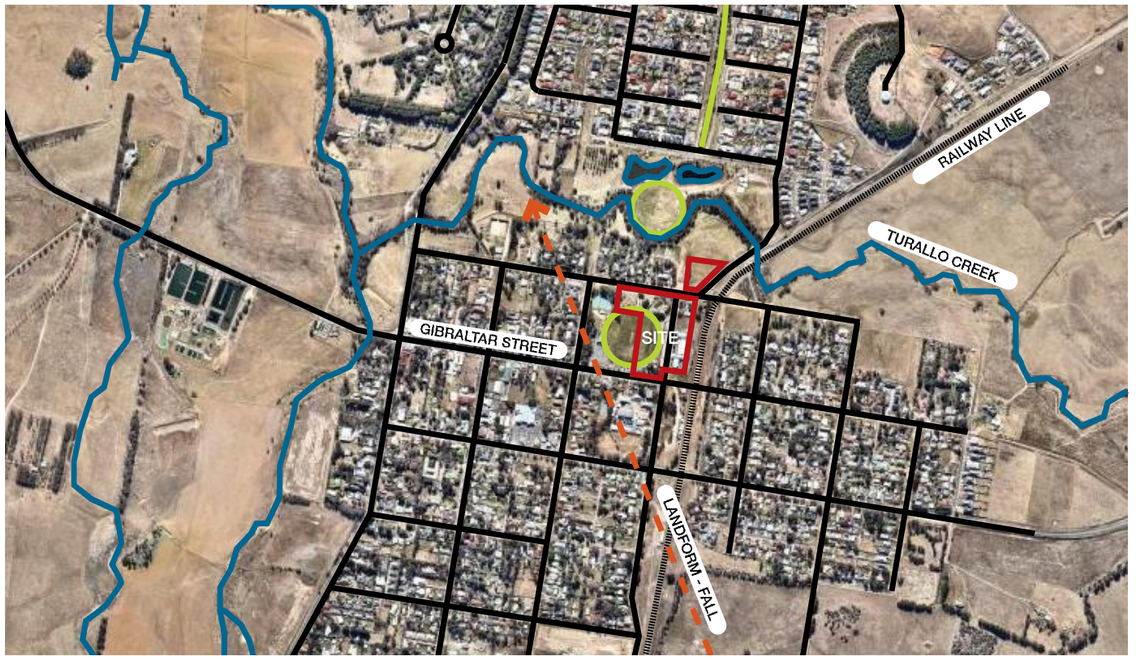
The site's topography typically falls from south east to north west towards Turallo Creek.

Turallo Creek
Source: TKD Architects

Gibraltar Street
Source: Bungendore.com.au



Site Context Terrain Map
Source: Google Maps with TKD Architects overlay



Site Context Plan
Source: Near Maps with TKD Architects overlay

Majara Council + Council Chambers Building

Mick Sherd Oval

Council Chambers Building

Mick Sherd Oval

Community Swimming Pool

Bungendore Tennis Club

Bungendore Scout Facility

Bungendore Common (proposed agricultural plot site)

Turallo Creek

Site Photos
Source: TKD Architects

6 Built Form

6.1 Building Heights, Bulk and Scale

Planning height limit controls within the Palerang LEP 2014 typically stipulate maximum building heights throughout the town are between 8.5m and 10m. The area of land zoned R2 has a 8.5m building height limit. No height limit applies for the land zoned RE1 and SP2.

There are no LEP floor space provisions for the site.

The surrounding buildings and structures are of low level scale and consist of a mix of single and double storey buildings.

Heritage Context

Heritage buildings of public and community use are typically larger in scale. Steep roof pitches and high floor to ceiling heights are a typical architectural feature of the historical single storey buildings surrounding the site.

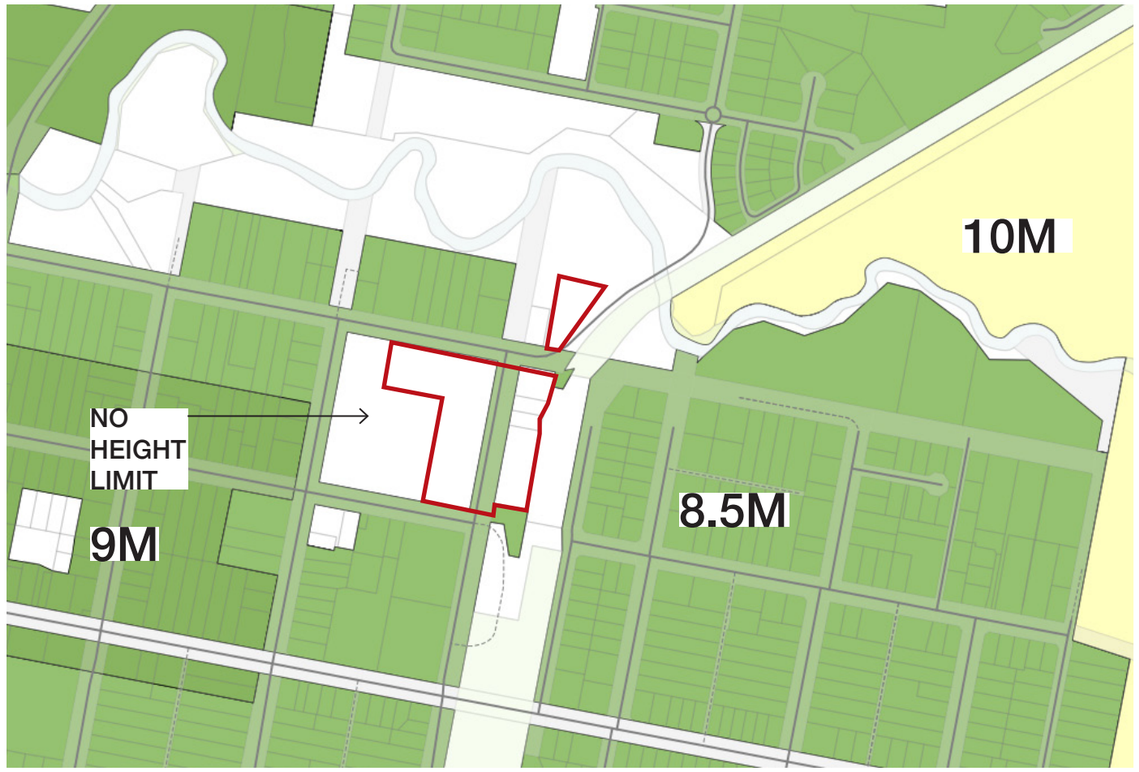
Examples of single storey historic public and community buildings include:

> Bungendore Public School Original Building A
> Bungendore Railway Station
> Bungendore Pre-School
> St Mary's Catholic Church

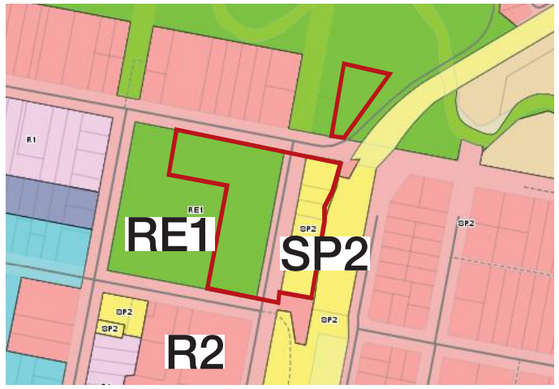
Two storey historic public or community use buildings are less common and include:

> The Royal Hotel
> St Joseph's Convent (former)

Heritage residential buildings are typically single storey construction.



LEP Maximum Building Heights Map
Source: Palerang LEP Mapping Tool with TKD Overlay



LEP Land Use Map
Source: Palerang LEP Mapping Tool with TKD Overlay


Bungendore Public School (A)


Bungendore Train Station


Bungendore Pre-School


St Mary's Church


The Royal Inn


St Joseph's Convent (former)

Photographs of Historical Context
Source: Various

Contemporary Context

Newer buildings within the town are of varying character and sympathy to the character of the village.

Buildings of a public or community use are notably larger in height, bulk and scale to meet contemporary needs.

Examples in the immediate vicinity include:

> Public School Library and Hall Buildings
> QPRC Council Chambers Building
> Bungendore IGA
> Bungendore Scout Facility

Newer residential buildings are typically single storey and varied in scale, with larger houses of Californian Bungalow style or multi-unit town houses.

6.2 Density, Setbacks and Streetscape

The pattern of the original village and low to medium scale development create an open, informal and spacious character that contributes to the rural village character.

Houses, public and commercial use buildings within the immediate vicinity of the site are typically setback from the street at varying distances, generally between 10 - 20 meters, with buildings located in the front half of the lot, providing large spacious back yards.

Streets widths range between 10-20 meters. Many lots and the streets are planted with mature trees that have created a significant canopy cover.

6.3 Public Open Spaces

The major landscape features within the village are the trees and spaces consisting of the Turallo Creek reserve, Frogs Hollow, Bungendore Park and the Bungendore Cemetery.

Bungendore IGA

Bungendore Scout Facility

QPRC Council Chambers

Bundendore Public School Gym

Photographs of Modern Context
Source: Various

Nolli Map - Existing Context
Source: TKD Architects

7 Heritage Context

The proposed new high school buildings are located within the heritage curtilage of the Bungendore Soldier's Memorial (LEP I199). The heritage curtilage of the Memorial includes the whole of Bungendore Park. The curtilage does not reflect the location of the heritage item or its significance and includes non-significant items such as the Mick Sherd oval, the tennis courts, the pool, parking and various park amenities.

Vacant land to the north east of Bungendore Park will be repurposed as an agricultural plot. The proposed agricultural plot is located in a small portion of the Bungendore Common heritage curtilage (LEP 243) and will remain an open vegetated area. Two small single story buildings will support the adjacent scout facility and the agricultural plot.

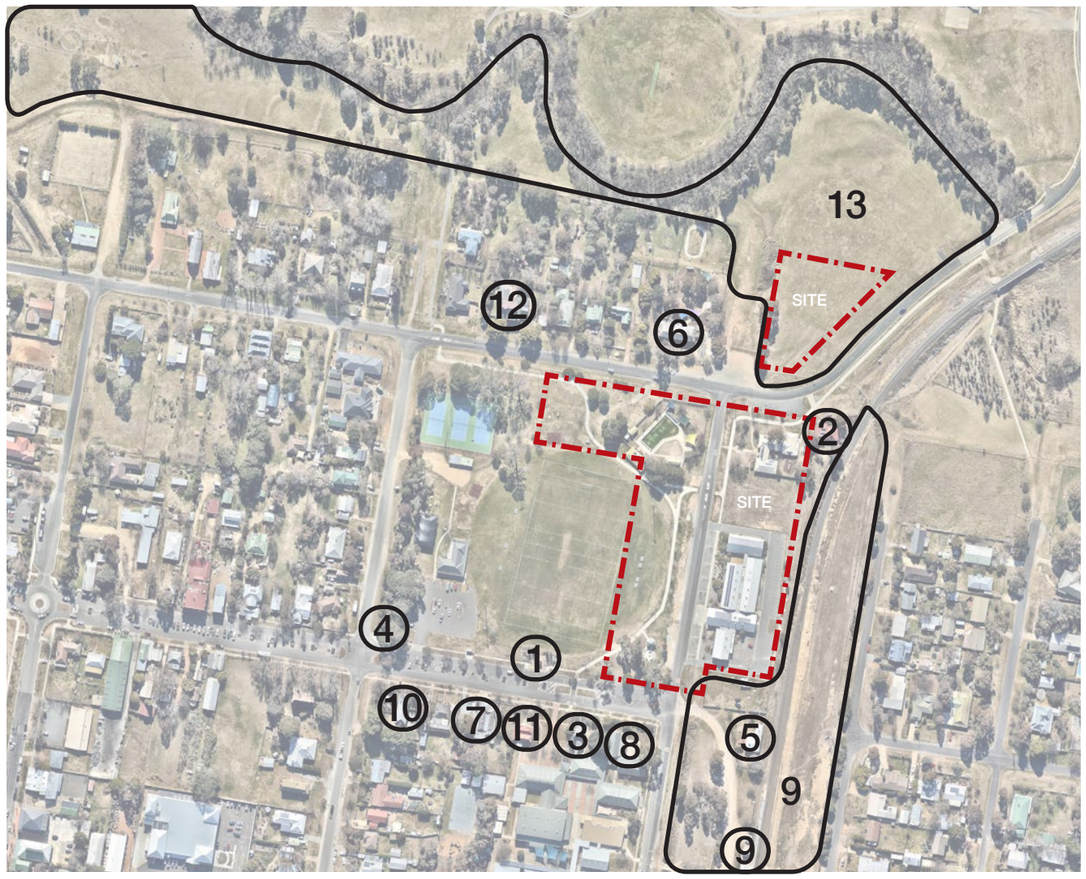
No works are proposed within the heritage curtilage of Bungendore Public School (LEP I197) south of Bungendore Park.

No works will be undertaken within the State heritage listed curtilage of the Bungendore Train Station (SHR 01105).

There are also a number of other structures and buildings identified of Local Heritage significance within the vicinity of the site.

Bungendore is a rural town with commercial, civic and residential neighbourhoods. The characteristic subdivision pattern of the original village and low scale development creates an open, informal and spacious character that contributes to the rural village character. This area is bounded by Molonglo Street, Rutledge Street, Majara Street and Turallo Terrace. There is a clear delineation between the historic nineteenth century village and the late twentieth and twenty first century residential areas

There are typical architectural forms repeated through the buildings of the 19th century era, which is the principal development period for the historic core of the township. Most buildings are single storey and finished with painted timber, brick or stone with corrugated steel roofs. Roof pitches are typically between 25-30 degrees and are of hipped or gabled or skillion concealed behind parapets. Verandahs or awnings are a dominant feature of throughout the village.



Site Heritage Plan
Source: Near Maps with TKD Architects overlay

Heritage listed items within the vicinity:

1 | Soldiers Memorial
2 | Signalmans Cottage
3 | Original Public School Building
4 | P.J.B Osborne Fountain
5 | Stationmaster's Cottage
6 | Preschool
7 | Post Office and Shop
8 | Orignial Public School Building
9 | Railway Station + goods yard
10 | Police Station
11 | School of Arts Building
12 | St Joseph's Convent (former)
13 | Bungendore Common


1 | Soldiers Memorial


2 | Signalmans Cottage


3 | Original Public School Building


4 | P.J.B Osborne Fountain


5 | Stationmaster's Cottage


6 | Preschool


7 | Post Office and Shop


8 | Orignial Public School Building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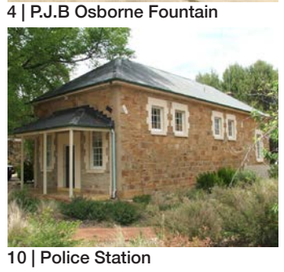

10 | Police Station


11 | School of Arts Building


12 | St Joseph's Convent (former)

Photographs of Heritage Listed Context
Source: Various

8 Landscape

The existing landscape within and surrounding the site is largely defined by the Mick Sherd Oval and is open in character.

The western boundary of the Mick Sherd Oval is defined by large pine trees which line Butmaroo Street. Gibraltar Street to the south and the western edge of Majara Street facing the Mick Sherd Oval are lined by smaller exotic trees. The three streets have a formal landscape treatment. The formality of Gibraltar Street is further defined by the Soldiers Memorial and associated planting.

The Periphery of Mick Sherd Oval also consists of clusters of mature and younger native and exotic trees and shrubs, including a group to the south eastern corner of the Mick Sherd Oval opposite the public school.

The Agricultural Plot, which is proposed to be located on a portion of the Bungendore Common, currently used as an off leash dog park is open in character. A tree line follows the creek to the south of the site.

The landscape beyond the immediate context is rural in character and consists of open plains and ridges to the east, west and south.


Bungendore Common looking south to Turallo Creek


Community Swimming Pool from Majara Street


Mick Sherd Oval from Majara Street


Bungendore Park Car Park - Trees to Butmaroo Street


Gibraltar Street looking west from Majara Street


Shared path to east of Mick Sherd Oval


Bungendore Community Centre from Majara Street


Soldiers Memorial + associated planting


Southeastern corner of Mick Sherd Oval looking south


Southeastern corner of Mick Sherd Oval looking south


Community Swimming Pool looking north


Turallo Terrace looking west

Photographs of Landscape Context
Source: TKD Architects

9 Topography and Site Features

The site typically falls from southeast to northwest towards Turallo Creek. The main school site falls 2m from east to west from the railway line to the new boundary on the Mick Sherd Oval and 1.5m from south to north between Gibraltar Street and Turallo Terrace.

The agricultural site has a steeper south to north fall of approximately 3m towards the creek.

10 Climate Analysis

The site is classified within the south-eastern highlands of NSW and is subject to warm summers and very cold winters with temperatures typically ranging from 0°C - 27°C and is rarely below -4°C or above 34°C. As defined in AS1170.3, the site is located within a Sub-Alpine zone (above an altitude of 600m) and will require snow loading of the roof structure.

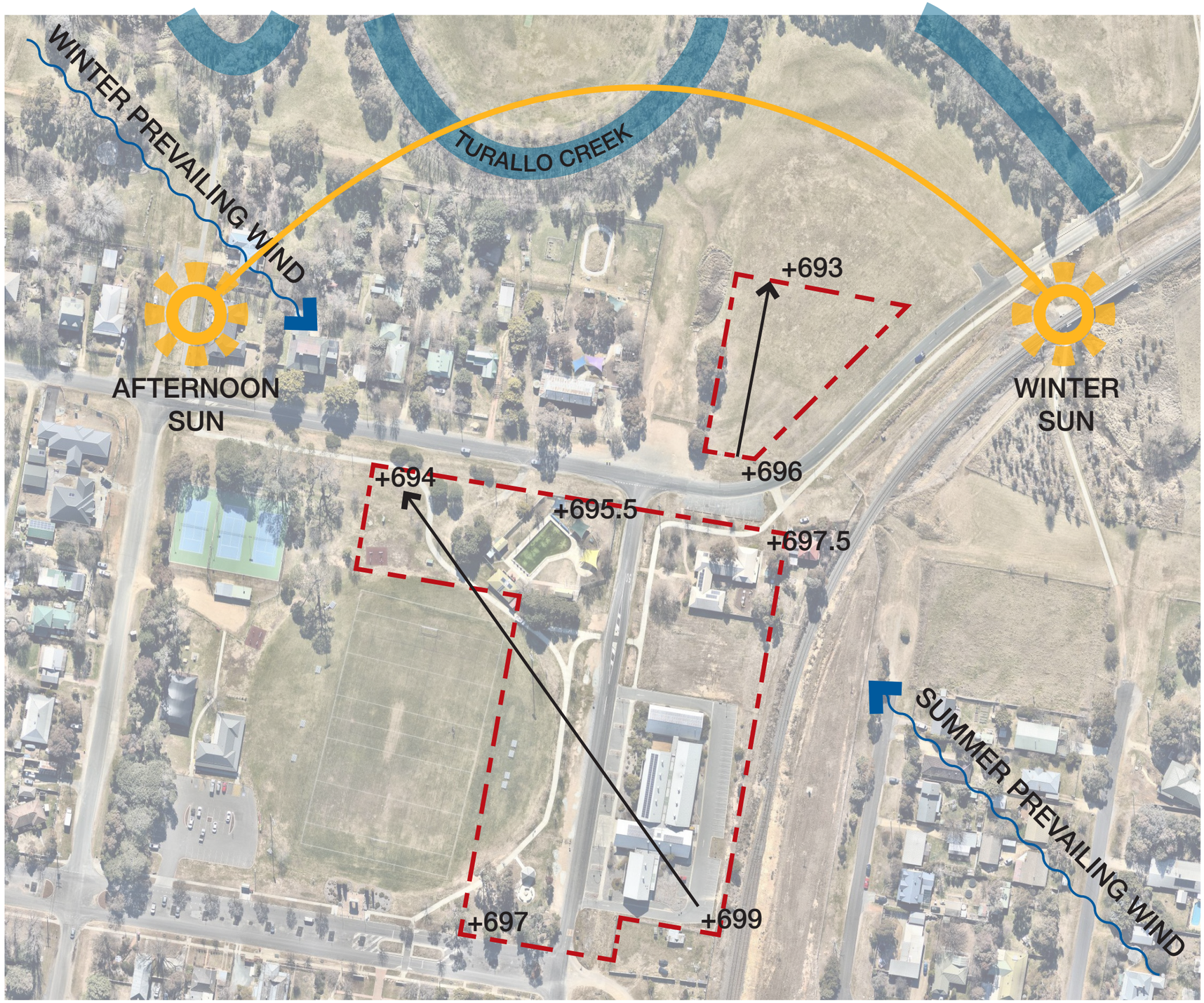
11 Solar Analysis

The site is relatively open, with minimal overshadowing from existing structures. Solar analysis of the site has been plotted between the start & end of general school hours to consider the impact of the new buildings on the site and adjacent context.

12 Prevailing Wind

Winter prevailing winds are identified as from Northwest of the site. The open oval adjacent to the proposed siting leaves the site open to exposed winter prevailing wind.

Summer prevailing winds are identified as from the Southeast of the site. Building openings will be designed to make use of summer prevailing wind for cooling breezes.



Site Climatic and Topography Analysis
Source: Near Maps with TKD Architects overlay

13 Planning Controls

Development in Bungendore is controlled by Queanbeyan Palerang Regional Council (QPRC). The Applicable Planning instrument is the Palerang Local Environment Plan 2014.

13.1 Land Use Zoning

The western portion of the main site and agricultural plot are zoned for Public Recreation, RE1. The eastern portion of the site is SP2 – Special Purpose which allows community use.

13.2 Maximum Building Height

Planning Height Limit Controls within Palerang LEP 2014 typically stipulate maximum building heights throughout the town are between 8.5m and 10m. The area of land zoned R2 has a 8.5m building height limit. No height limit applies for the land zoned RE1 and SP2.

13.3 Floor Space Provisions

There are no LEP floor space provisions for the site.

14 Flood Prone Areas

A large portion of the proposed agricultural plot is identified within the Palerang LEP Flood Planning Mapping as flood prone area. The main site is not identified as flood prone land.

A Flood Assessment Report by Martehs Engineers has been prepared for this EIS.

15 Bushfire Prone Areas

A Bushfire Protection Assessment has been prepared by Eco-Logical for this EIS.

The report analysed two parcels of land:
- Parcel 1: the lot north of Turallo Terrace identified for the Agricultural Plot
- Parcel 2: the main high school campus, primary school site and Mick Sherd Oval

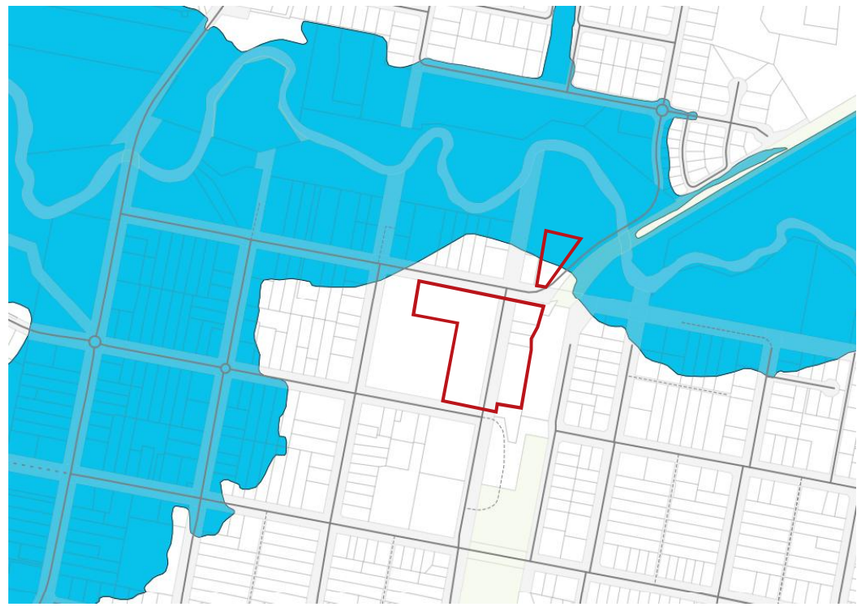
Two areas of vegetation were identified as Bush Fire Prone Land, they are located directly to the east of Parcel 1, and approximately 300m to the south east of Parcel 2.

On both parcels the proposed development is exposed to BAL-LOW. BAL-LOW is based on insufficient risk to warrant specific bushfire construction standards

Land Use Map

Heritage Map

Terrestrial Biodiversity Map



Flood Map

Planning Controls
Source: Palerang LEP Mapping Tool with TKD Overlay

16 Existing Services and Easements

Electrical, telecommunications, stormwater and sewer services are located to the eastern edge of the existing Majara Street which is to form part of the new high school site. The telecommunications cabling is to be decommissioned, however a new easement is proposed for the existing services located within the school site.

17 Site History

The western portion of the main site has predominantly been a sports field for over 100 years.

18 Site Contamination

A Preliminary Site Investigation and Limited Sampling (Contamination) Report has been prepared by Douglas and Partners for this EIS.

Investigations included intrusive ground testing to the main school site. The report considers the site can be made suitable for the proposed school use. Further intrusive testing is recommended to the agricultural plot.

19 Terrestrial Biodiversity

The site is substantially a community sporting field which was established over 100 years ago. There is a stand of mature pines of this age to the western side of the Bungendore Park and scattered on the north and south. The majority of the site is dry land grass with some scattered more recent tree plantings.

A BDAR has been prepared by KLEINFELDER for this EIS. The report summaries that there are no prescribed biodiversity impacts associated with the proposed development.

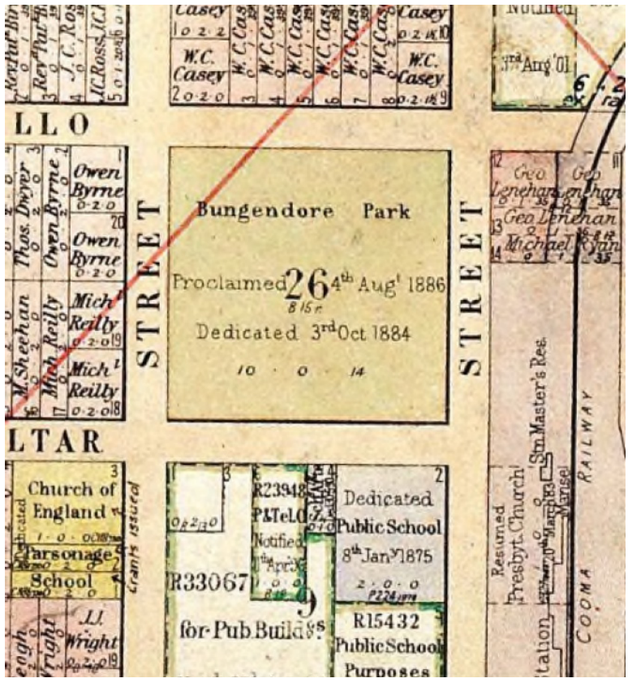
20 Heritage and Aboriginal Assessment

A Statement of Heritage Impact and Archeological Assessment (SOHI) has been prepared by Ecological for this EIS.

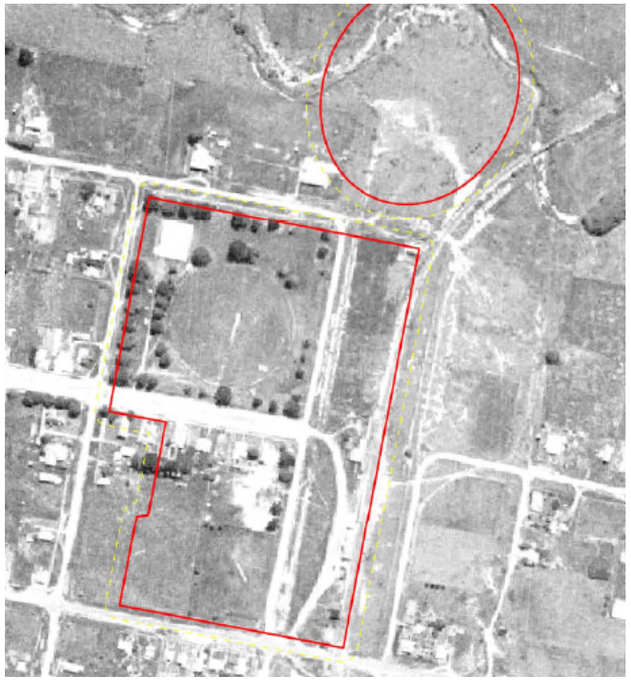
The report summarises the proposed development is in keeping with the character of the town, with no direct or indirect impacts to the heritage items within the vicinity.

A Aboriginal Cultural Heritage Assessment Report (ACHA) has been prepared by Ecological for this EIS.

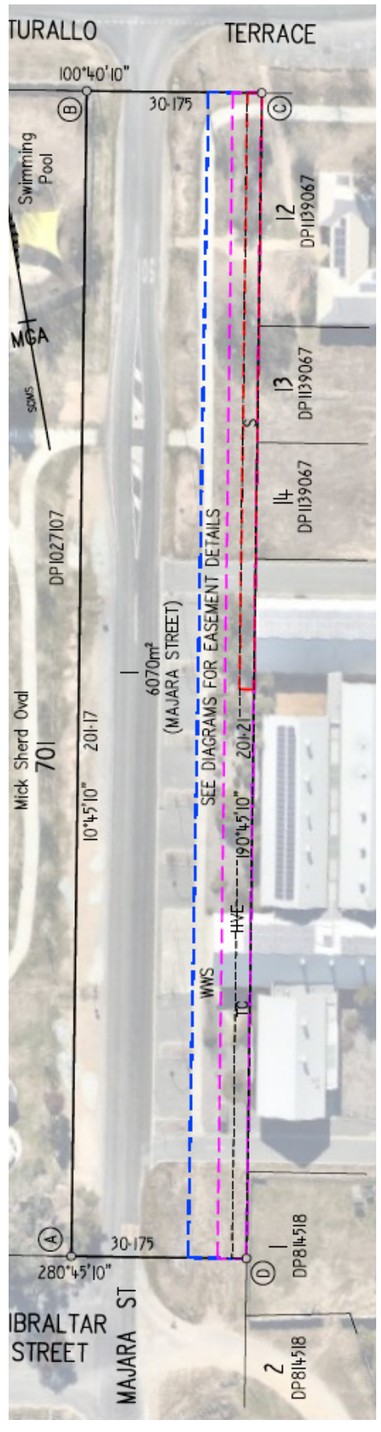
The report summaries that no aboriginal sites were identified within the study area, the study area was found to have low archeolgical potential, and that the proposal will have no direct impacts on Aboriginal cultural heritage.



Heritage Aerial Imagery 1961
Source: NSW Spatial Services



1900 Parish Map of Bungendore
Source: Historical Lands Records



Draft Easement Plan
Source: Clarke & DiPaulie Surveyors

21 Views

21.1 Aspect

The site is visible from the neighbouring streets of Butmaroo Street, Turallo Terrace, Gibraltar Street and Majara Street.

The site will also be visible from within Bungendore Park (Mick Sherd Oval).

There are no important vista's or views in the area which the proposal will obscure.

21.2 Prospect

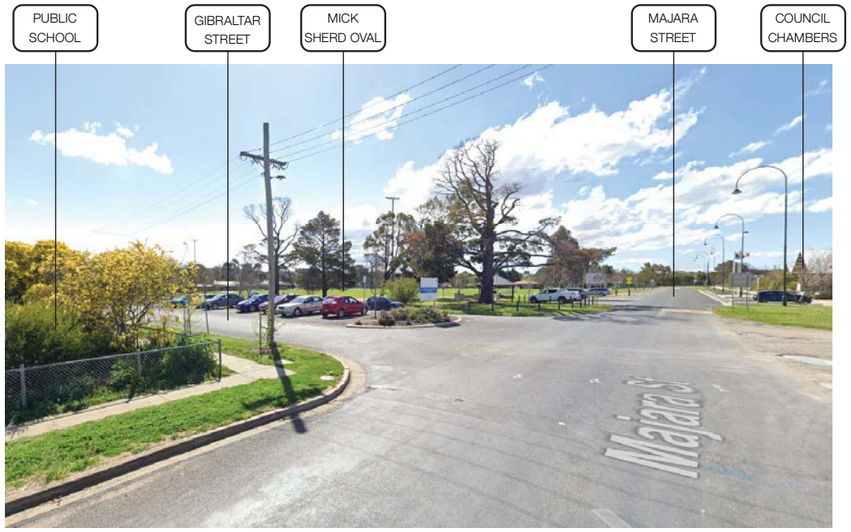
The site offers high quality views of the surrounding urban environment. Raised views from buildings will also offer views to the Country beyond, particularly to the ridges to the east and west of the town and towards the creek to the north.

22 Noise

A Environmental Noise and Vibration Assessment has been prepared by Acoustic Logic for this EIS.

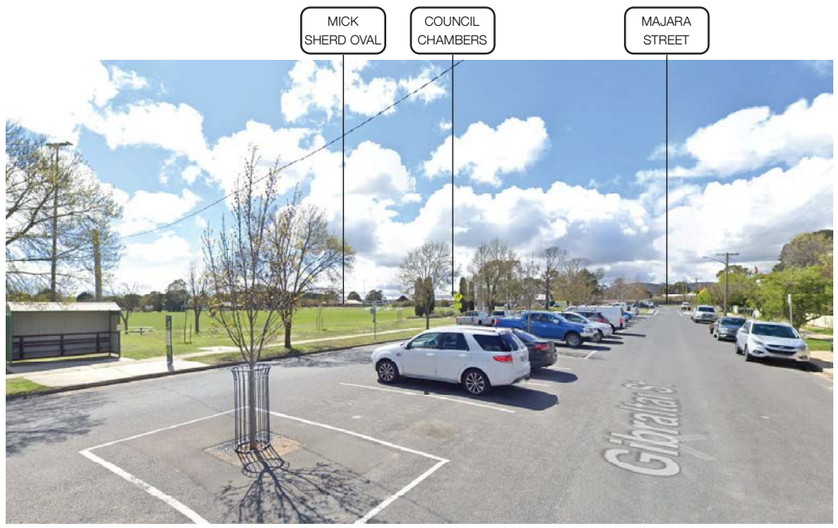
The report summarises that the adjacent railway line will not adversely impact the internal spaces of the school and no specific measures to control noise intrusion are required.

The report also outlines recommendations to mitigate acoustic impact from the school as much as practical, which include limiting activities and hours of use as defined in the report.



View 1. Looking north from Majara Street

View 2. Looking west from Turallo Terrace



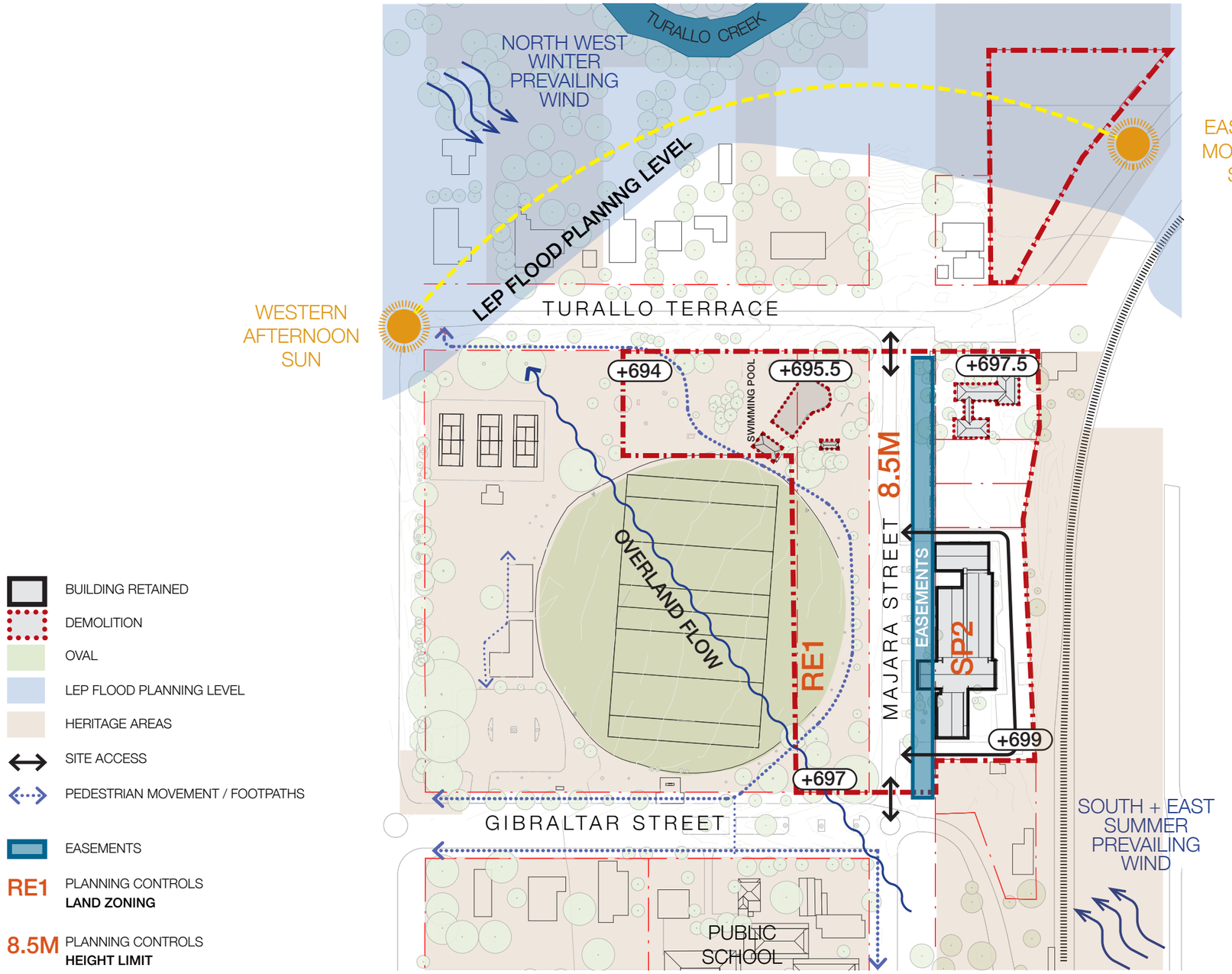
View 3. Looking north along Gibraltar Street

View 4. Looking east along Turallo Terrace

Site Photos
Source: Google Maps - Street View

23 Summary of Site Constraints

- > Some portions of the site have an LEP 8.5m maximum height limit
- > Location of existing services limits building and tree locations
- > Small site area requires shared use of Council owned land for open play space which includes the Sports Courts and play space to the west, as well as shared use of the oval for curriculum activities
- > Agricultural plot largely affected by flood zone
- > Unsheltered prevailing winter winds from northwest
- > Potential for heritage impacts
- > Negotiation of level differences across the site will likely require ramps
- > Consideration of overland flow strategy due to closure of existing street
- > Separate agricultural plot and shared high school and primary school accommodation requires traffic safety consideration
- > Separate agricultural plot and shared high school and primary school accommodation requires traffic safety consideration
- > Shared use of facilities will require safety consideration



BUILDING RETAINED

DEMOLITION

OVAL

LEP FLOOD PLANNING LEVEL

HERITAGE AREAS

SITE ACCESS

PEDESTRIAN MOVEMENT / FOOTPATHS

EASEMENTS

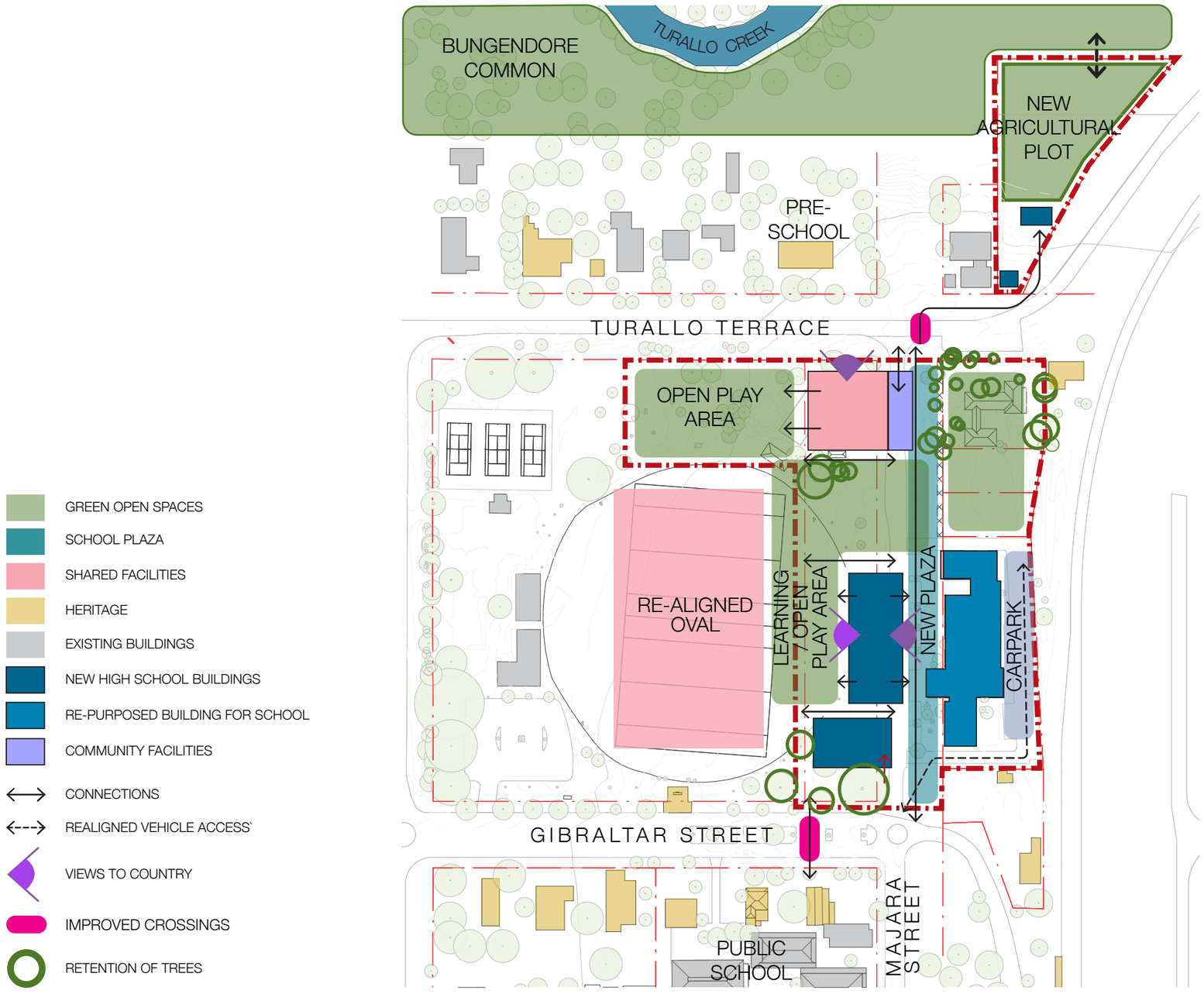
RE1 PLANNING CONTROLS **LAND ZONING**

8.5M PLANNING CONTROLS **HEIGHT LIMIT**

Site Constraints Diagram
Source: TKD Architects

24 Summary of Site Opportunities

- > Creation of educational precinct within the town and the creation of a shared campus between the high school, public school and pre-school
- > Connections, shared use and safe access to Mick Sherd Oval for curriculum activities
- > Integration of the high school within the community through providing new community facilities and shared use of high school facilities
- > Alignment of the site and new buildings to the town's urban planning grid
- > Connecting to country through, relating buildings to the creek and providing views of the landscape beyond the town
- > Respond to the heritage context through built form, materials and planting
- > Siting of the agricultural plot to retain the open character of Bungendore Common
- > Planting of new trees to shelter play spaces from winter prevailing winds
- > Shared traffic peak-hour arrangements with the Primary School
- > Infrastructure in place



Site Opportunities Diagram
Source: TKD Architects

D Masterplan Proposal

D Masterplan Proposal

1 Site Planning Options

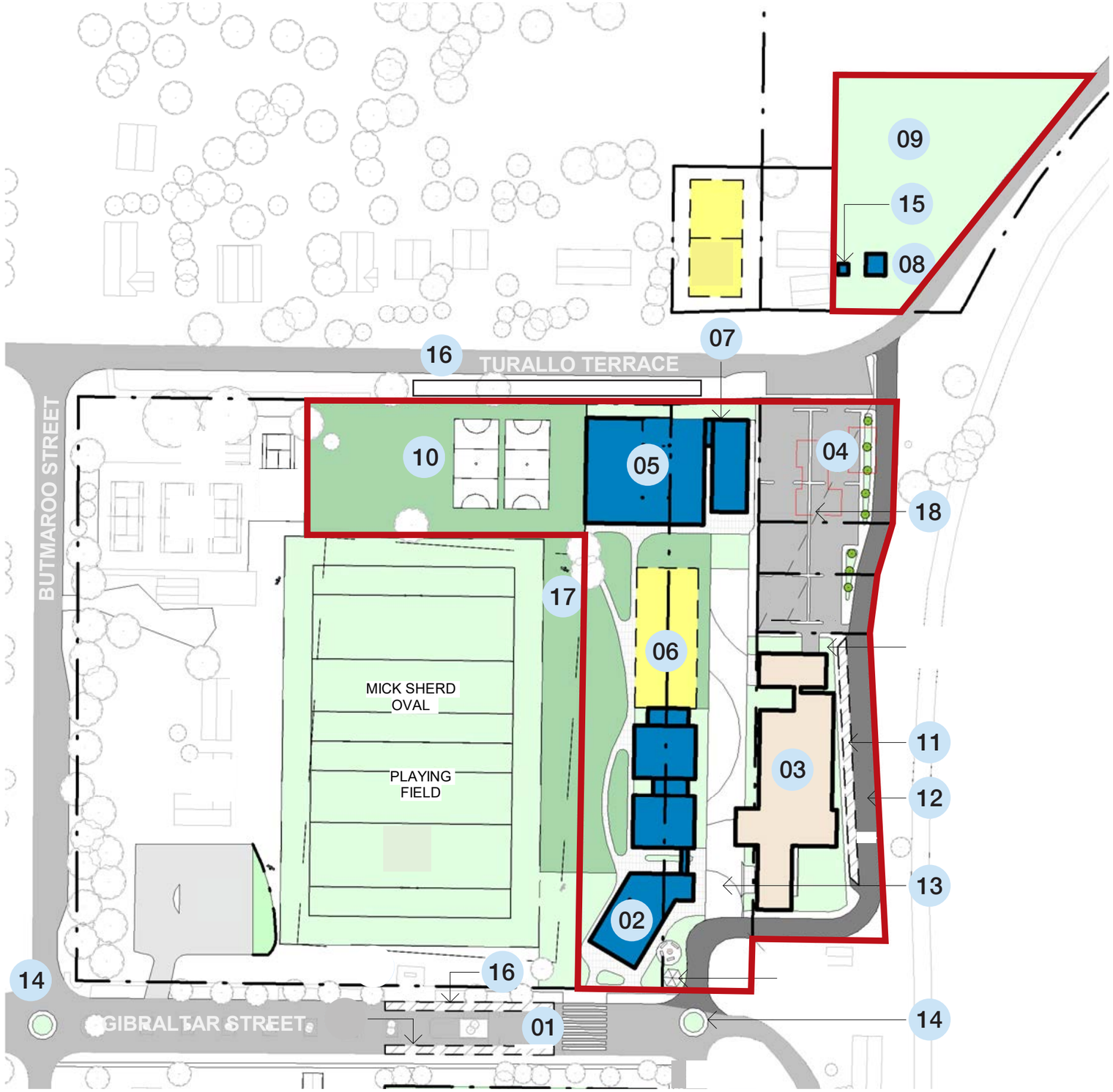
The selection of the preferred site for the new high school led to the investigation of a number of different options for siting of facilities and explored the detailed planning responses to the site, the Department of Education's Educational Principles and the Educational Rational for the Monaro Region Projects.

2 QPRC Endorsed Masterplan

In December 2020 Queanbeyan Palerang Regional Council voted to endorse the preferred Master Plan for the new high school, which located the new school campus to the eastern side of Mick Sherd Oval.

A description of the Key Masterplanning Principles are described ionthe adjacent plan and below.

01 | New pedestrian crossing connecting the high school and public school
02 | New shared high school + public school admin + staff unit on the high school site
03 | Existing Council Chambers building repurposed for high school use (technology hub)
04 | Existing Community Centre (Health Hub) demolished
05 | New High School Library adjacent to Community Library with controlled access device
06 | Potential Future Expansion (Green Space Initially)
07 | New two storey building for Community Library, QPRC Shop Front and Community Health Hub
08 | New high school agricultural plot support building
09 | New high school agricultural plot
10 | New high school games courts on Council Land
11 | New school bus bays
12 | New school access way (private road)
13 | New high school plaza (closure of Majara Street)
14 | New roundabout
15 | New scout storage shed on agricultural plot with drive through access road
16 | New kiss and drop
17 | New subdivision of Bungendore Park
18 | New shared high school and community car park



QPRC Endorsed Masterplan
Source: SQC Architects/ TKD Architects

E Development Guidelines and Development Parameters

E Design Guidelines and Development Parameters

1 Architectural Concept

Through the detailed site analysis and masterplan development, the following Design Guidelines have been developed for the project.

1.1 Guiding Principles

The design is guided by three key principles - Purpose, Place and People. These lenses have been used to inform decision-making around the arrangement of buildings on site, the building forms, functional layouts, façades and landscape and allow a greater connection with Country to be developed.

Landscape Design Principles have also been established and are outlined in section F within this report.

Purpose

The High School at Bungendore will be a new high school that will facilitate the transition of students from the Public School across the road to High School.

How can the buildings and landscape inspire students to expand their understood horizons? What can be done to create opportunities for looking out, looking up, and looking beyond?

> Looking out: The linear form of the buildings encourages looking out. Raised tiered seating provides an amphitheatre overlooking the oval. The alignment of the building forms allow students to look towards the urban streetscape of Gibraltar Street and towards Turallo Creek from the central plaza.
> Looking Up: Roof lights over internal shared learning areas act as windows to the sky. The high angular ceiling and the spill of natural light draws the eye upwards.
> Looking Beyond: The massing and alignment of the proposed buildings enables students to look beyond their immediate surroundings.
> Enhancing Existing Landscape Features: A fully integrated landscape design approach with diverse spaces and learning areas plays a vital role in the site strategy

Place

Bungendore is a progressive historic rural village. There are a relatively large number of places included on the LEP Heritage Schedule for the size of the village. There is a strong 19th Century character & scale in the central areas of the village and the heritage character is valued by the community. Turallo Creek dissects the town and goes on to flow into Lake George. The land-form falls towards the creek and the northern part of the site fronts onto the creek.

How will the School integrate with the town and its unique landscape? How will students appropriate the new School and feel connected to this place, no matter where they are on the site?

> Connecting to the town: Aligning with street grid and responding urban grain provides a connection to town. Establishing a public plaza at the entry to the School is a welcoming and secure space below a new shade tree to replace the existing radiata pine which is at the end of its life.
> Connecting to the Country: The through site connection to Turallo Creek which flows into Lake George connects the school to beyond the township. Aligning buildings with the land fall, provides a passage to the creek enhancing the connection, with vistas to the creek provided from northern facade of the new library.
> Celebrating Place: Picture windows that look over the landscape and the town
> Prioritising Place: Green walls and planters integrated in circulation nodes, inviting the natural world into the built.

People

There is no High School in the town meaning secondary students need to commute daily to larger regional centres for schooling. Many of the families living in Bungendore have parents who work in Canberra or Queanbeyan There is a shortage of community meeting facilities or internal spaces large enough for large community functions, performances or sports practice.

How can the buildings and landscape inspire the students and the community to appropriate the new high school as part of the town? The school benefits from a diverse and engaged community. How can this community feel most supported by this physical place? What opportunities are there for enhanced engagement, identity and ownership of it? What can be done to create a legible and connected place?

> Creating a learning precinct: Proximate to the Primary School and sharing some of the High School facilities creates a learning precinct for the town convenient to public transport and sporting facilities
> Sharing with the Community: The schools shared use of the oval and other sports facilities and the consideration of community shared use of the schools library and hall; Vocational Education and Training (VET) opportunities to support the towns rural location; and the location of community health facilities on the site will integrate the school with the community. The commercial kitchen and VET café will allow the sharing of food with the community.
> 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.
> Legibility and Ownership: Each building, although part of a cohesive whole, has its own individuality and identity. Providing key node points of circulation with significant breaks in the building form helps users navigate their way around the school. A graphic overlay will further develop the individual identity of each building.

2 Project Principles and Approach

The design outcomes are to align with the following Department of Education's, Educational Principles (as outlined in the Educational Facilities Standsrds and Guidelines).

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

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

Education Principle 3: Be aesthetically pleasing

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

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

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

3 Reference Design Documents

> Educational Facilities Standards and Guidelines (EFSG)
> DFMA Guidelines - School Infrastructure NSW
> State Environmental Planning Policy – Educational Establishments and Child Care Facilities 2017 (Education SEPP)
> 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

4 Educational Facilities Standards and Guidelines (EFSG)

The school facilities are required to be developed in accordance with the Department of Education's, Education Facilities Standards and Guidelines (EFSG).

The EFSG is designed to set minimum standards and ensure equality of spaces and facilities are provided across all schools of a similar size.

5 Educational Rationale and Planning

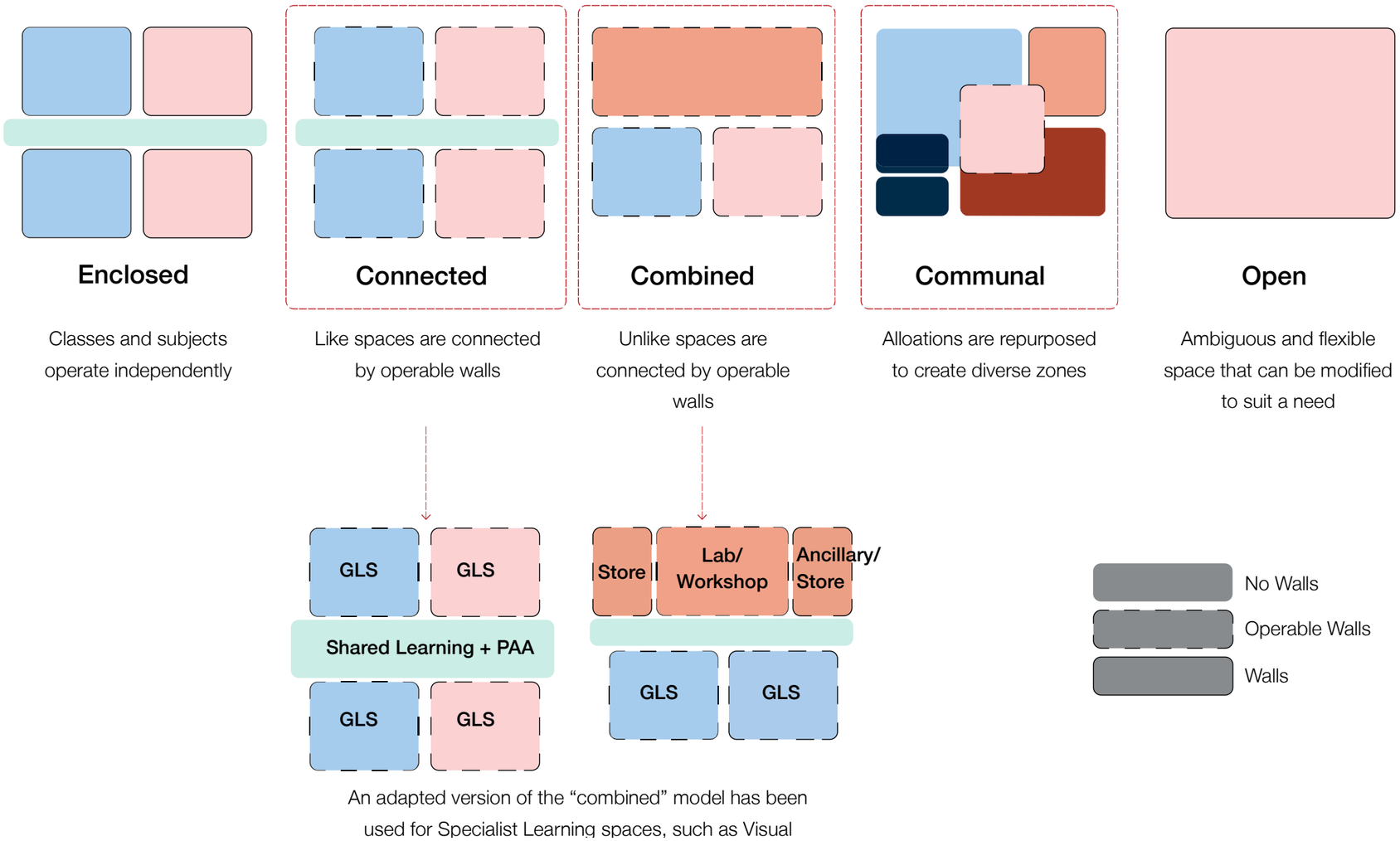
SINSW has developed an Education Rationale for the project through consultation with the Queanbeyan Principal Network. The Queanbeyan Principal Network consists of 20 government schools. The Network engaged in a consultation process involving a 'Discovery Workshop' which included Directors, Educational Leadership, school executive, and teaching staff from the Queanbeyan principal network.

The department's aspirations are for the delivery of facilities that are able to support 'future focused learning'. The objective of future-focused learning is to furnish students with lifelong learning skills (e.g. creative and critical thinking, collaboration and communication, and problem solving) as well as literacy and numeracy proficiency. It recognises learning will be facilitated via a range of delivery methods, and engage students in different learning styles, each fostered by emerging technologies and social changes.

The SINSW tiered framework for learning environment design considers "zones" that can be shared across classes in order to create the diverse offering of spaces that best support contemporary learning and teaching practices.

Two new organisational tiers (beyond class and school) are introduced to consider these new ways of learning, teaching, through the design of spaces in the form of Hubs and Neighbourhoods.

The educational rationale has been developed to inform the location and spatial arrangement of learning spaces.



An adapted version of the "combined" model has been used for Specialist Learning spaces, such as Visual

Educational Hub Model
Source: SINSW/ TKD Architects

6 Modern Methods of Construction (MMoC) and Design for Manufacture and Assembly (DfMA) Guidelines

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'.

The DfMA approached has been identified to allow for future adaptability and flexibility. Through use of an 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 specialist spaces, future proofing the ability to steer education and pedagogy towards potential future of cross disciplinary learning methods.

Pedagogy First

- Enable flexibility and best possible teaching outcomes, now and in the future.
- Increased building efficiency: larger teaching spaces, more outdoor space, less circulation

Equity

- Consistency across all schools
- Ability to deliver the same level of education, design, layout and joinery across the state

Prioritise Resilience & Wellness

- Adapt for a changing climate
- Change the focus to the wellness and best possible teaching and learning environment for student and teacher.

Kit of Parts

- A single universal education planning grid
- Interchangeable module for all primary, high school and special education teaching spaces.
- Enables state-wide spatial and social equity.
- School building as a learning opportunity.

Investment & Infrastructure

- Enable all construction methods from off-site volumetric to conventional to secure quality and program, and maximise use of budget.
- Establish demand to grow NSW manufacturing capacity
- Drive lower construction costs per sqm.

Whole of Life Thinking

- Shift the discussion on capital cost to encompass whole-of-life cost, flexibility, durability and maintenance.
- Put in place easy to use performance guidelines that set simple rules and allow for innovation.

SINSW DfMA Principles
Source: SINSW with Woods Bagot

F Context, Built Form and Landscape

F 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 4, Education SEPP

1 Site Context + Built Form

1.1 Overview

The new high school site was selected for it's close proximity to the existing public school and preschool, enabling the creation of an education precinct within the town of Bungendore; it's location within the town, maximising the opportunity for the new school to consider shared use facilities with the community; and the opportunity for shared use of the Mick Sherd Oval for school sporting curriculum activities.

The urban design response has been developed to integrate the new high school into the town and site's context.

1.2 Urban Design Response and Building Orientation

Buildings are typically sited on a north south axis, responding to the strong urban street grid and general fall of the land towards Turallo Creek.

Building A is located to the south of the site and oriented to address Gibraltar Street. Building B is located to the centre of the site, oriented to address the school plaza (former Majara Street), the existing Council Chambers building (Building C) and the existing Mick Sherd Oval to the west. The building's north south axis also responds to the fall of the land towards Turallo Creek. Building D+E is similarly orientated but also to reponds to Turallo Terraced to the North. Building F, located on the agricultural plot is orientated to address and maximise views of the creek and agricultural plot to the north.

A new school plaza is proposed to be located in place of the northern section of Majara Street which is to be permanently closed, maintaining a visual and physical connection between Gibraltar Street and Turallo Terrace and the creek beyond.

1.3 Setbacks and Building Siting

Large setbacks from the street to the northern and southern boundaries are designed to reflect those of existing adjacent buildings, to maintain the town's open character and create new high quality public spaces to either end of the campus adjacent to the public entries.

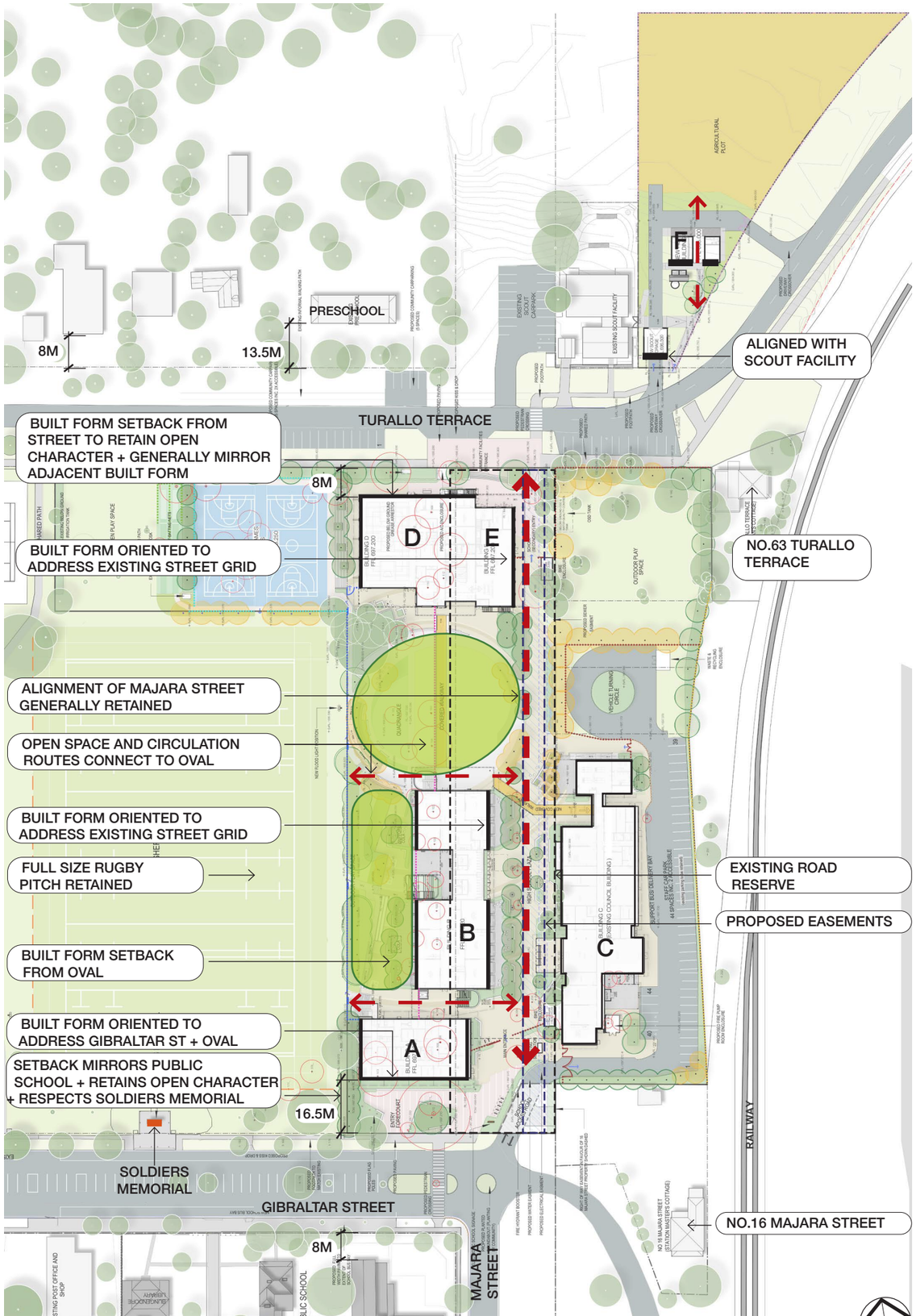
Building siting on a east west axis has been carefully considered to minimise any impact on the existing Mick Sherd Oval and with the consideration of retaining the existing street grid.

Buildings have been sited to provide sufficient open play space for the new school to the western edge of the campus, while providing a setback of the built form to the oval to reduce impacts of overshadowing, massing and density, in addition to considering proposed easement located to the eastern side of the existing Majara Street and locating buildings away from neighbouring residents.

1.4 Density

The new facilities on the main campus are provided within 3 new buildings. Circulation routes and open spaces between buildings provide permeability throughout the campus, creating strong connections with the existing oval and providing an open and low density response, in keeping with the town's context.

Response to Urban Street Grid
Source: TKD Architects



Built Form Diagram
Source: TKD Architects

1.5 *Functional Relationships*

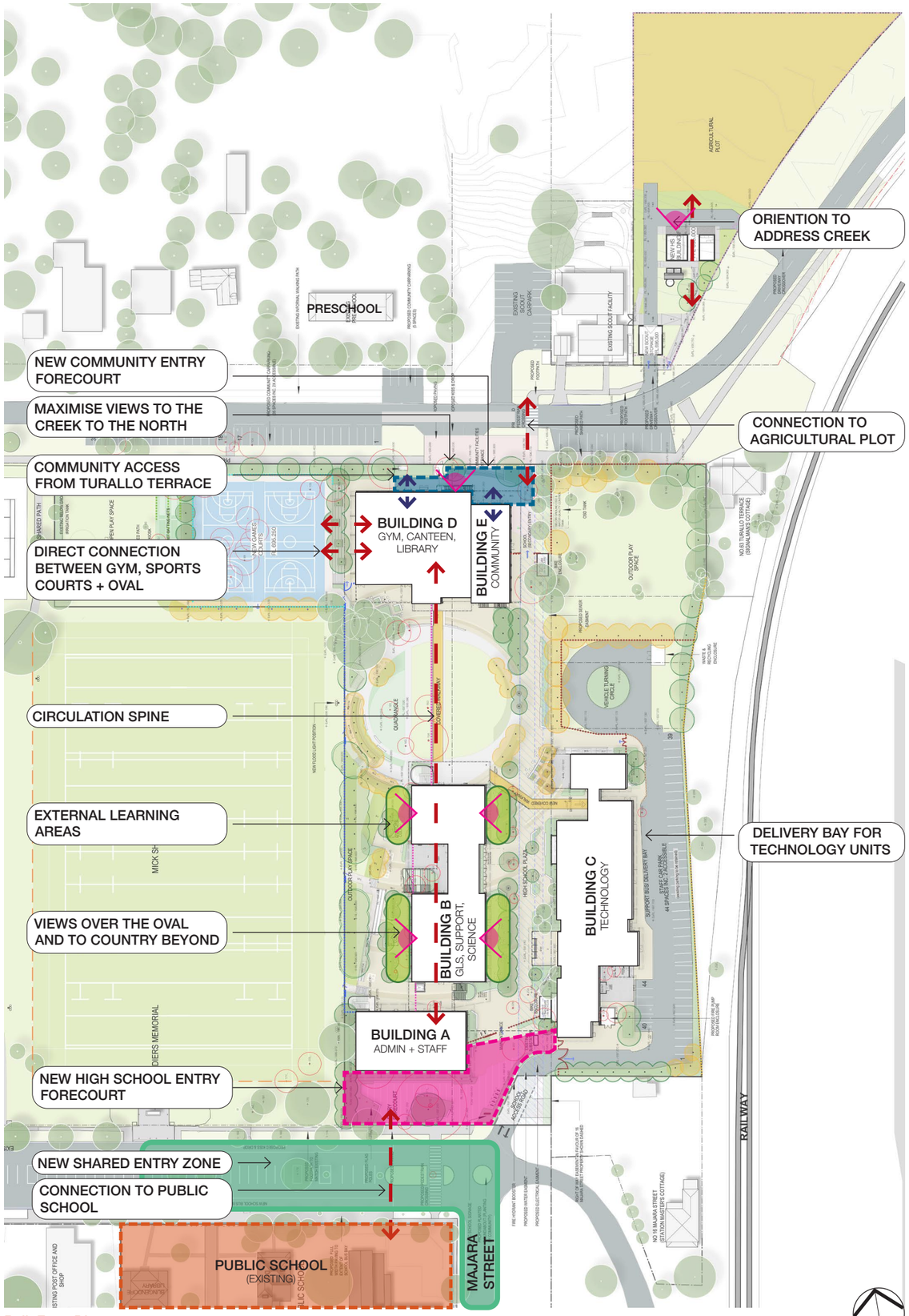
Building A contains the public main entrance, administration and staff functions which are to be shared with the public school. The location adjacent to the existing public school will create an entry zone for the two schools, allowing for a shared transport strategy to be utilised as well as providing a direct and legible circulation sequence for the public school staff. The setback from the street will create a welcoming and inclusive entrance space.

Building B, located to the centre of the campus, contains the main general learning spaces, support learning unit and science learning spaces. Orientation of the building creates opportunities for classes to spill out to the external areas to foster greater learning opportunities, as well as provide views over the oval and to Country from first floor level. A central internal circulation spine runs parallel to the buildings, providing a legible connection between the administration and staff areas to learning spaces, the quadrangle, and the library and hall beyond.

The existing Council Building, Building C, also runs in a north south direction following the urban street grid. The building is to accommodate the technology hub for the school, utilising the existing vehicle circulation for deliveries and containing workshop spaces within one zone of the campus for acoustic separation.

Building D + E, located to the north of the site and contains the schools gym, library and canteen. The building is strategically located to provide sporting and community connections to the adjacent sports courts and oval to the west, and provide the opportunity for direct public access from the street. The libry, which is split over two levels, connects the quadrangle to the south to the creek to the north.

Building F, located on the agricultural plot is smaller in scale, reflective of the accommodation requirements and agricultural character of the context. The building is sited to the south to be in close proximity to the main campus, located out of the flood impact zone and to maintain the existing open and rural character of the Bungendore Common.



Built Form Diagram
Source: TKD Architects

1.6 Bulk and Scale

The masterplan, siting of buildings, massing, bulk and scale have been carefully considered through a detailed site analysis of the site and its context.

The high school site is generally isolated from the town and neighbouring buildings due to its location adjacent to the Mick Sherd Oval to the west, Bungendore Common to the north and railway to the east.

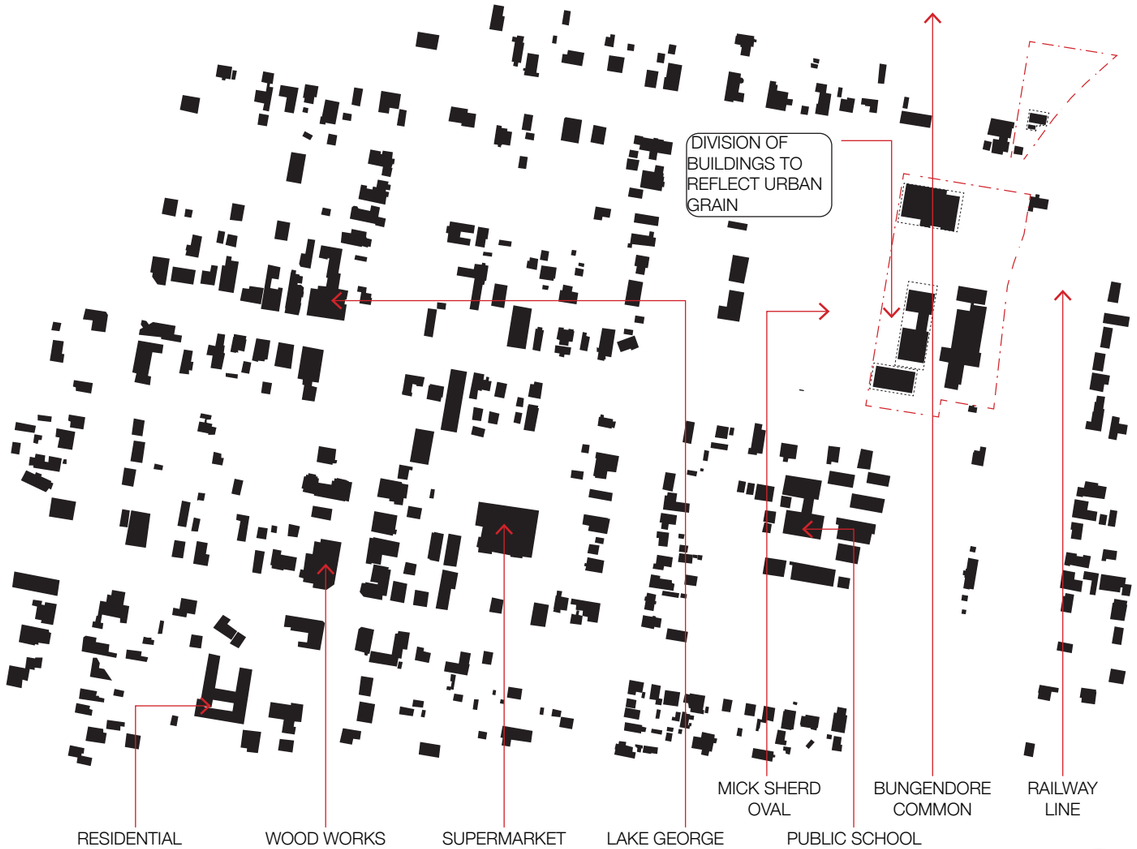
The new high school buildings are of one and two storey scale and are driven by the facilities required to cater for predicted student numbers and forecasted population growth of the town, the incorporation of new community facilities within the campus and with consideration of the impact of Mick Sherd Oval and the adjacent heritage items.

The new facilities within the main campus have been split into 3 new buildings, breaking down the overall building mass to respond to and be in keeping with the bulk and scale of the town, as well as create a permeable campus with good legible connections and meet functional internal accommodation requirements.

The new buildings are located away from the adjacent single storey residents and will not impact on views or overshadowing.

Siting of the new buildings to the centre of the campus and large landscaped setbacks from the street and Mick Sherd Oval provide a separation from the adjacent public realm, reducing the overall appearance of bulk and scale while providing high quality landscaped spaces to public facing areas.

Physical openings, covered entrances, external learning areas and architectural expression of building façades are further designed to address bulk and scale.



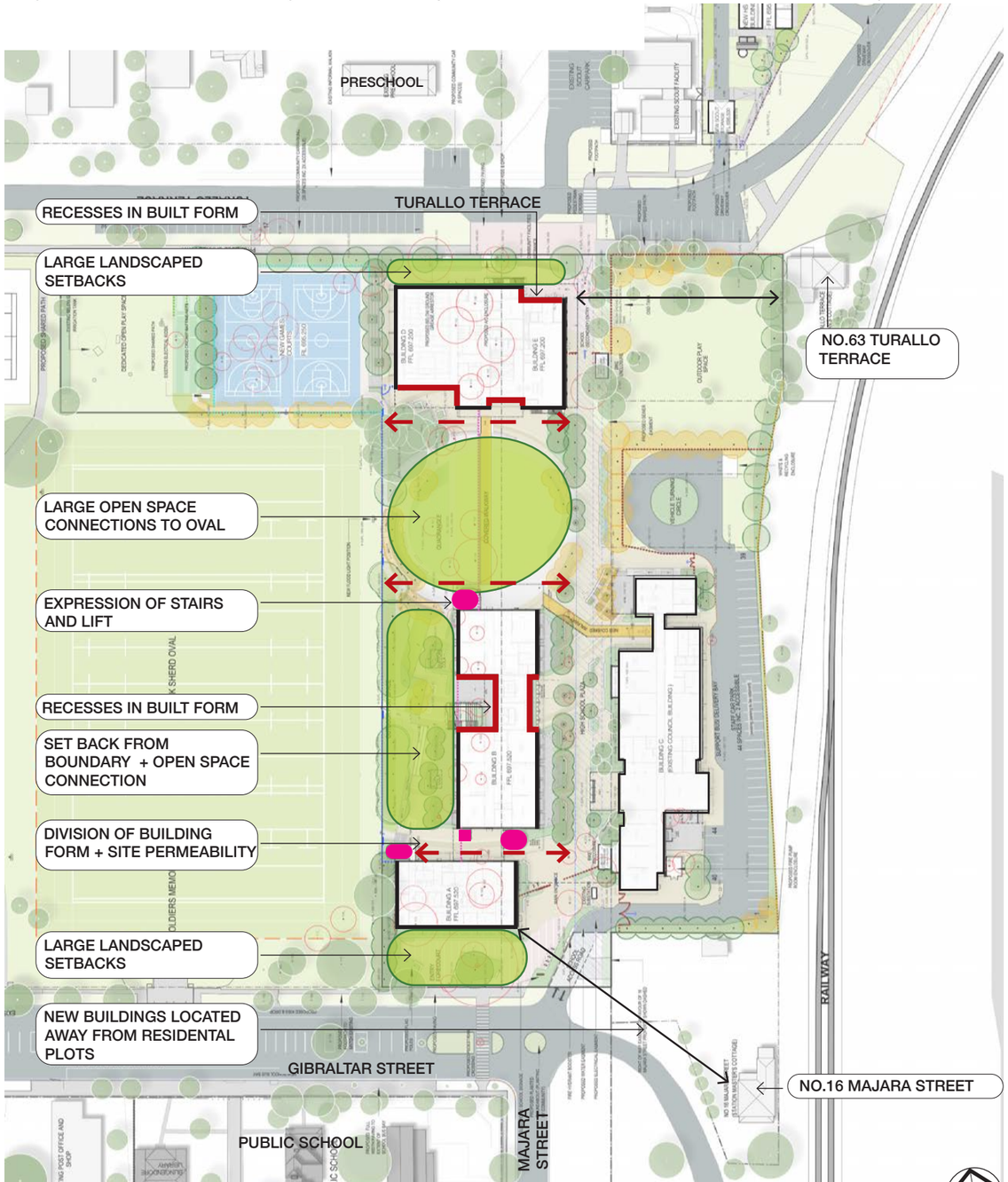
Nolli Map - Proposed
Source: TKD Architects

Bungendore IGA

Bungendore Scout Facility

QPRC Council Chambers

Public School Gym



Bulk and Scale Diagram
Source: TKD Architects

1.7 Building Height

The new high school buildings are of one and two storey scale.

Floor to floor heights of approximately 4 metres have been designed to accommodate NCC and SINSW requirements for ceiling heights and accommodate services reticulation efficiently.

Roofs are designed with shallow pitches to minimise their impact on the scale of proposed buildings.

As a result of the project requirements, a section of the new buildings are proposed to exceed the 8.5m LEP height limit on the land currently zoned as R1, which consists of the existing Majara Street road reserve to the centre of the site.

The overall building height of Buildings A and B are typically 10m high at the ridge.

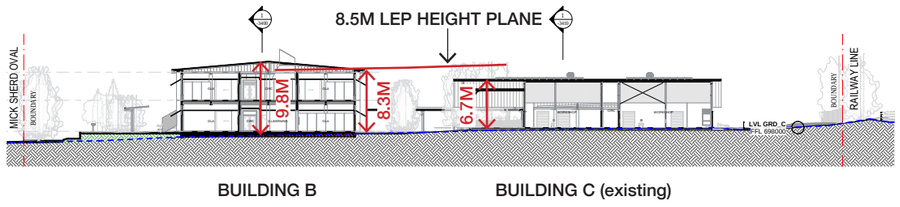
Building D+E are 12m high as a result of the larger building form accommodating core school facilities such as the library and the gym, in addition to community facilities which include a council shop front, community library and community health hub.

The roof eaves of each of the new buildings have been designed to be lower than the 8.5m LEP height limit where it applies.

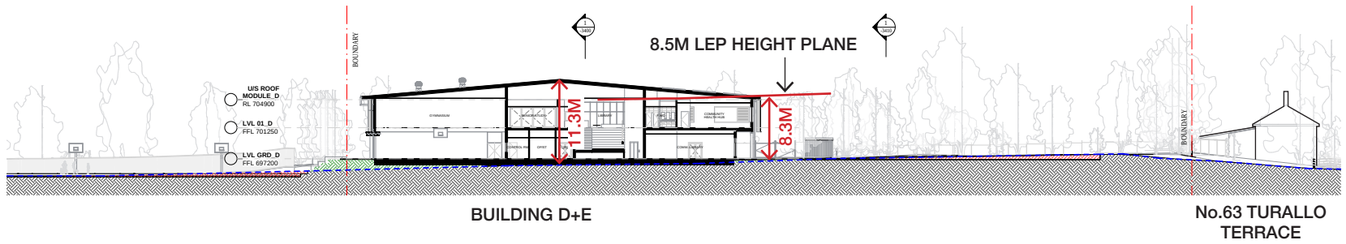
The high school site is generally isolated from the town and neighbouring buildings due to its location adjacent to the Mick Sherd Oval to the west, agricultural plot and Bungendore Common to the north and railway to the east. The proposed new buildings are additionally located away from the neighbouring No.16 Majara Street and No.63 Turallo Terrace and separated by open space. The proposed new buildings do not result in over shadowing of the adjacent properties of playing area of the Mick Sherd Oval.

Adjacent buildings such as the Council Chambers building, Scout Facility to the north, as well as the Pre School and former St Joseph's Convent along the northern edge of Turallo Terrace are of or similar to a two storey scale.

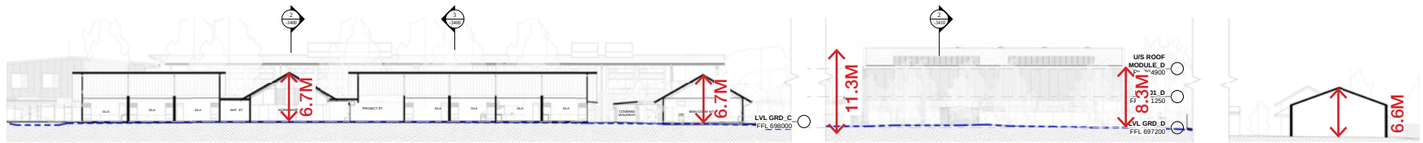
The scale of the proposed buildings is appropriate to the heritage and newer context of the town. The impact of the proposed two storey buildings to the adjacent context is minimal.



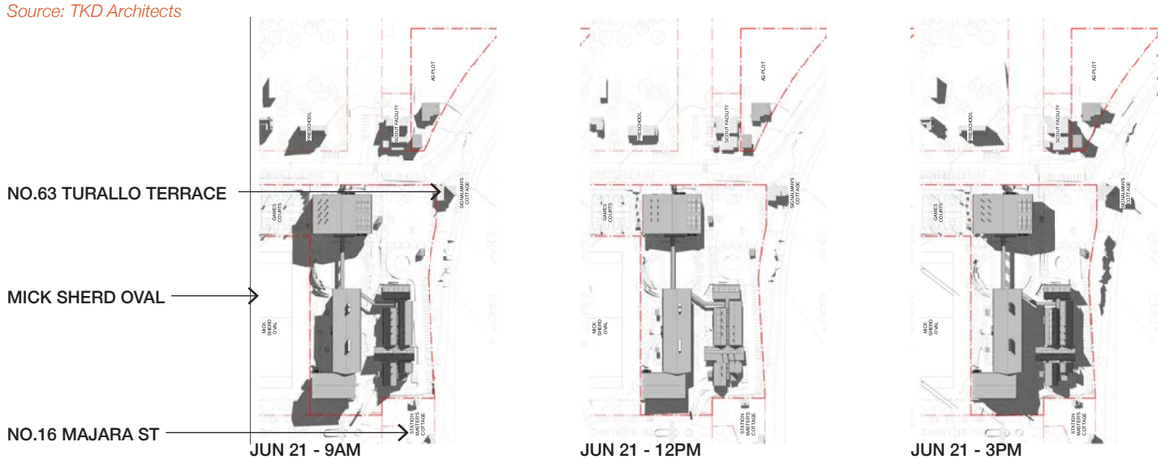
East West Section - Building B
Source: TKD Architects



East West Section - Building D+E
Source: TKD Architects



South North Section - Building C & D+E
Source: TKD Architects



Shadow Diagrams - Wintern Solstace
Source: TKD Architects

TKDArchitects
Tanner Kibble Denton

1.8 Heritage

The proposed new high school buildings are located within the heritage curtilage of the Bungendore Soldier's Memorial (LEP I199). The heritage curtilage of the Memorial includes the whole of Bungendore Park. The curtilage does not reflect the location of the heritage item or its significance and includes non-significant items such as the Mick Sherd oval, the tennis courts, the pool, parking and various park amenities.

The new buildings are located away from the Soldiers Memorial, as well as to the adjacent Stationmaster's Cottage and Signalman's Cottage.

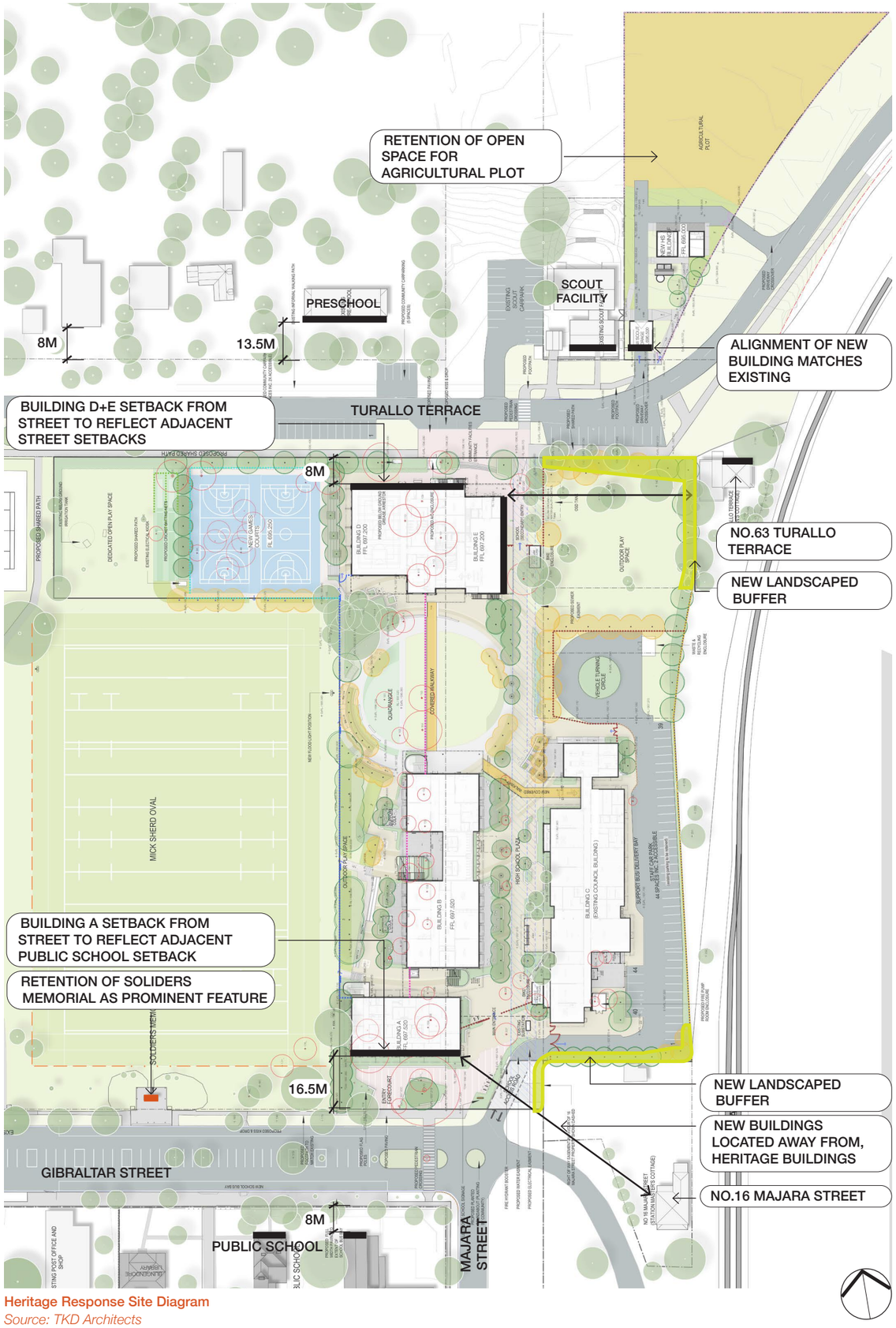
New soft landscaping is proposed to adjoining boundaries with the neighbouring Stationmaster's Cottage (No.16 Majara Street) and Signalman's Cottage (No.63 Turallo Terrace) to provide a landscaped buffer for privacy and visual screening.

Building A to the south of the site is setback from Gibraltar Street and behind the existing tree line which will screen the new building and retaining the Soldiers memorial as the prominent feature of the eastern section of Gibraltar Street. The new entrance forecourt, new tree and planting retain the existing open character of the street frontage adjacent to the public school buildings.

The two storey nature of building D + E are reflective of the Scout facility, heritage listed single storey preschool to the north and former convent to the west along Turallo Terrace. The new buildings are setback 8m from the northern boundary with new landscape planting to the streetscape reflecting the existing setback of the Bungendore Community Centre and the existing streetscape to the northern side of Turallo Terrace.

The agricultural plot, which is located on a section of the Bungendore Common, currently used as an off leash dog park, will keep its open character. The new scout storage shed and agricultural support building will be located to the southern end of the plot, retaining the built form along Turallo Terrace and open character beyond to the north.

3D Perspective View - Gibraltar Street looking east
Source: TKD Architects



Heritage Response Site Diagram
Source: TKD Architects

2 Landscape Overview

The landscape masterplan has been developed by Context Landscape Architecture.

The new high school has been developed from a detailed site analysis, extensive community engagement and engagement with Queanbeyan Palerang Regional Council to develop an endorsed masterplan.

Buildings have been sited to respond to the town's urban grid, provide significant setbacks from the adjacent boundaries to retain the open character of the town and provide new high quality landscape, streetscape and public spaces.

The landscape design looks to retain existing trees where possible and minimise the number of trees being removed. To address impacts of tree loss, the proposed landscape design is to offset trees on site through planting an increased number of trees to the existing conditions, improving the green amenity within the site.

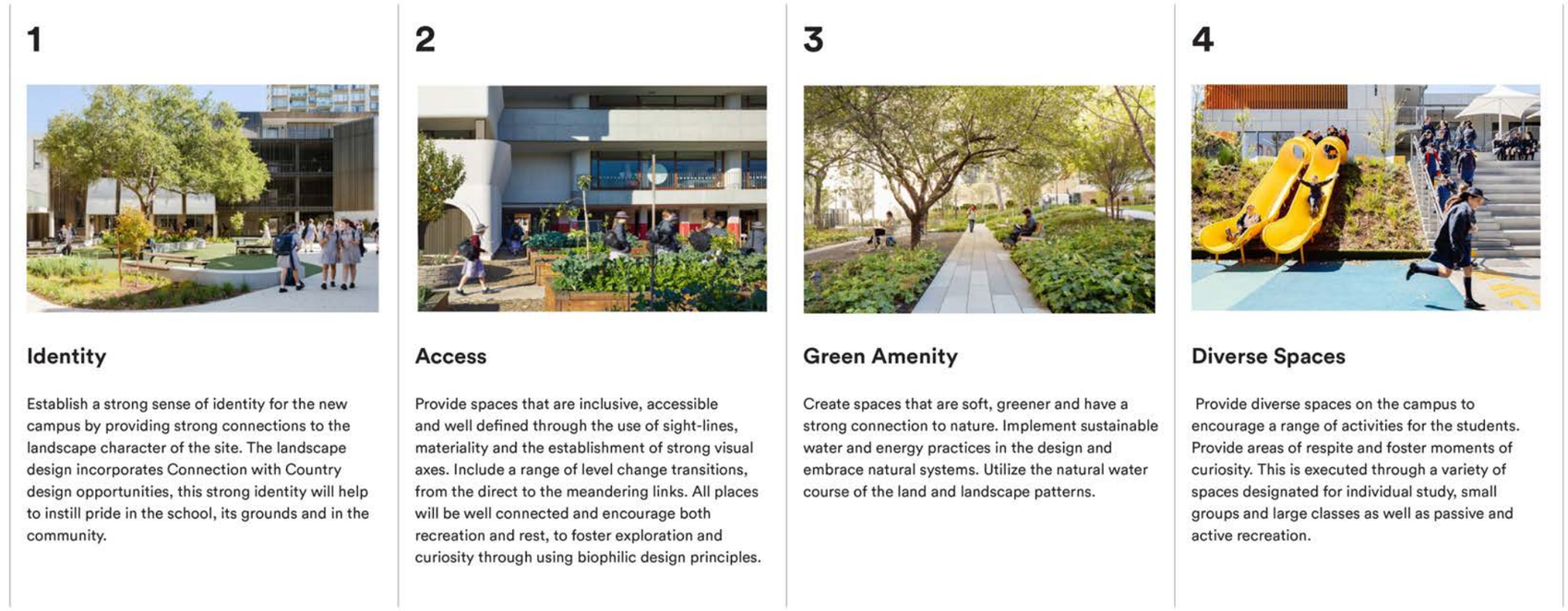
2.1 Landscape Principles

The landscape masterplan proposes 4 key design principles and is to provide an overall, site wide vision for the campus, unifying the various characteristics of the campus while responding to the site's context. The 4 design principles are:

1. Identity
2. Access
3. Green Amenity
4. Diverse Spaces

The landscape principles are described in the adjacent diagram.

A Landscape Design Report has been prepared for this EIS.



Landscape Principles
Source: Context Landscape Architecture

3 Connection with Country (CwC)

3.1 Overview

The new High School in Bungendore has been developed to respond to the Draft Connecting to Country Framework and through consultation with Aboriginal Educational Consultative Group (AECG) and Ngambri Elder Woman, Dr Matilda House, to create a strong, place driven identity that will help instill pride in the school and community.

A Connection with Country has further been developed through the architectural principles of Purpose, Place and People and landscape principles of Identity, Access, Green Amenity and Diversity.

The siting of the school in the midst of an open space provides an inherent connection with the exterior expanse, sky, creek, landscape, which would not otherwise be easily achieved from a more urban site.

Country has been embedded within the campus design and explored within the landscape through the concept of water, responding to the adjacent creek and flood prone lands to the north. Spatially, this concept has been developed through providing welcoming, inclusive entry spaces and gathering spaces throughout the campus which lend the opportunity for indigenous learning, the ability to gain nourishment from the land and to learn to manage the land. Endemic planting, indigenous foods and medicinal plants further strengthen these opportunities.

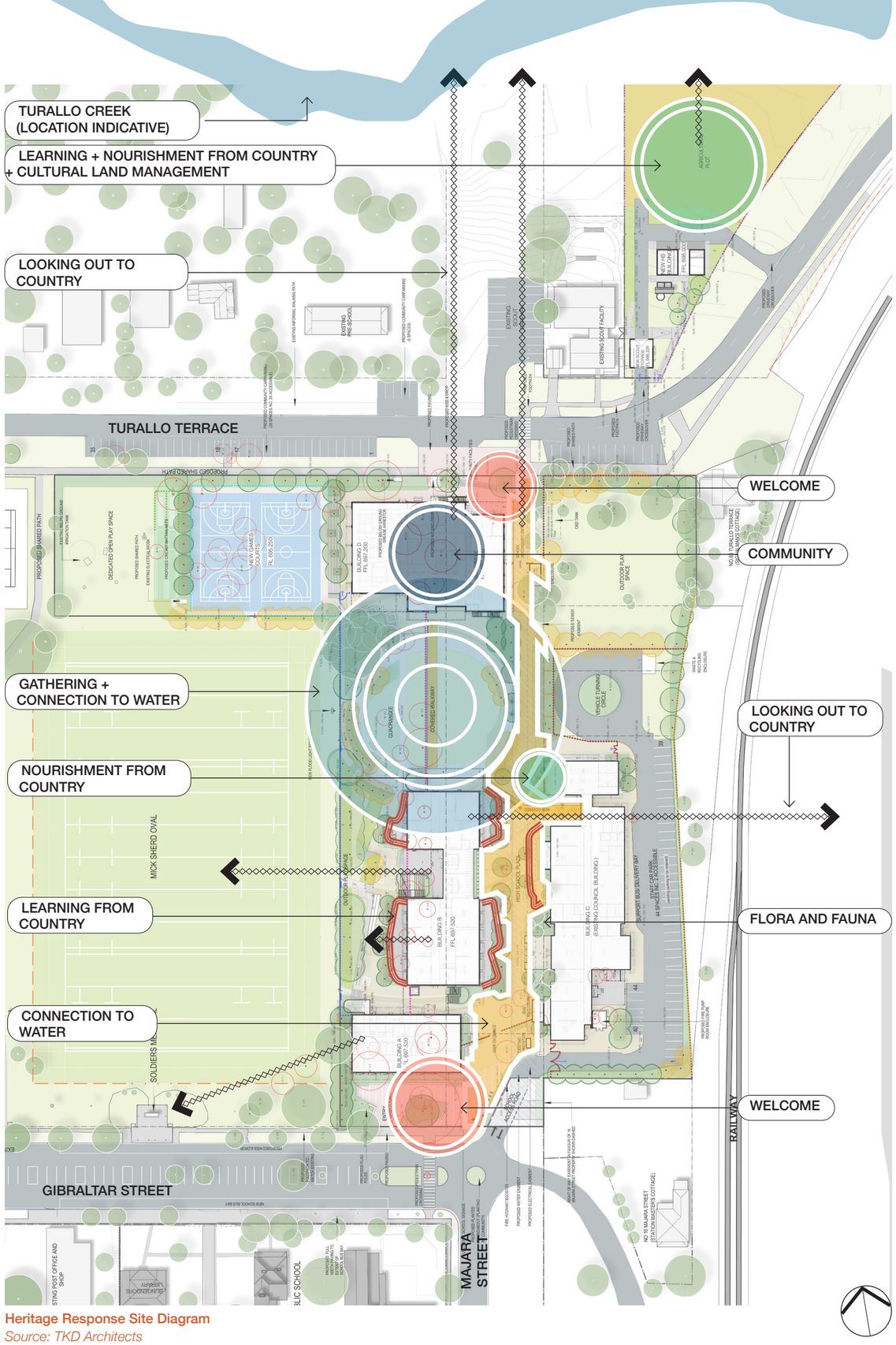
Architecturally, Connection with Country has been explored and integrated through connections to sky, internal planning, materials, colours and providing visual and physical connections to the land. Large skylights over shared learning areas to the centre of Building B provide high levels of daylight and views to the sky. Where possible views of the creek and of the country beyond are framed by large windows across the campus; facade materials have been selected to be tactile and natural in finish and colours reflective of the surrounding natural landscape and architectural vernacular. Learning spaces at ground floor are provided with large sliding doors and level thresholds allowing for learning opportunities to spill outside.

The project seeks to further consider Connection with Country through a number of opportunities which include collaboration with traditional custodians and indigenous artists to develop integration of interpretive signage, artwork and place names; consider opportunities for shared use agreements of school facilities; the holding of a smoking ceremonies; and possibilities to learn from cultural practices and cultural land management.

Creation of Welcoming Entry Forecourt
Source: TKD Architects

Photo from Walk on Country with Dr Matilda House and AECG Representatives
Source: TKD Architects

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.



Heritage Response Site Diagram
Source: TKD Architects

3.2 Purpose:

How can the buildings and landscape inspire students to expand their understood horizons? What can be done to create opportunities for looking out, looking up, and looking beyond?

> Looking out: The linear form of buildings encourage looking out. Raised tiered seating provides an amphitheatre overlooking the oval and outdoor learning spaces.
> Looking up: Roof lights over central learning spaces act as windows to the sky
> Looking beyond: The massing and alignment of buildings enables students to look beyond their immediate surroundings, to the natural landscape to the west and towards the creek to the north
> Enhancing Existing Landscape Features: A fully integrated landscape design approach with diverse spaces and learning areas play a vital role in the site strategy

3.3 Place:

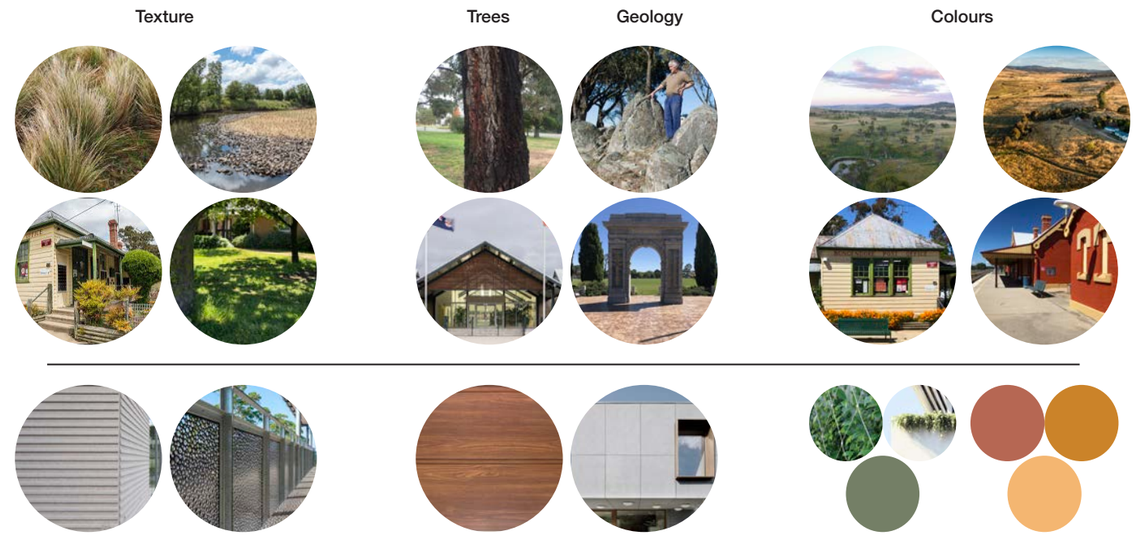
How will the School integrate with the town and its unique landscape? How will students appropriate the new School and feel connected to this place, no matter where they are on the site?

> Connecting to the town: Aligning with street grid and responding urban grain provides a connection to town. Establishing a public plaza at the entry to the School is a welcoming and secure space below a new shade tree to replace the existing radiata pine which is at the end of its life.
> Connecting to the Country: The through site connection to Turallo Creek which flows into Lake George connects the school to beyond the township; aligning buildings with the land fall, provides a passage to the creek enhancing the connection, with vistas to the creek provided from northern facade of the new library.
> Celebrating Place: Picture windows that look over the landscape and the town. Materiality, texture and colour connect the buildings and landscape to their context.
> Prioritising Place: Green walls and planters integrated in circulation nodes, inviting the natural world into the built.

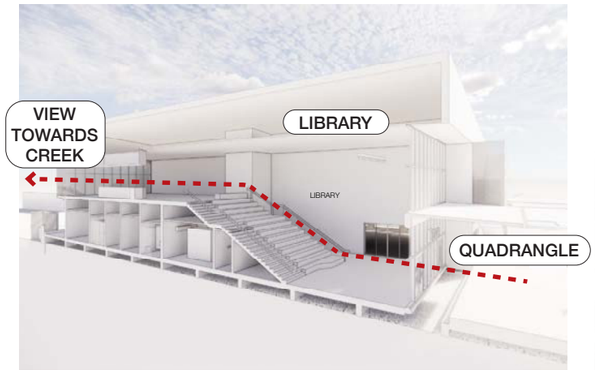
3.4 People:

How can the buildings and landscape inspire the students and the community to appropriate the new high school as part of the town? The school benefits from a diverse and engaged community. How can this community feel most supported by this physical place? What opportunities are there for enhanced engagement, identity and ownership of it? What can be done to create a legible and connected place?

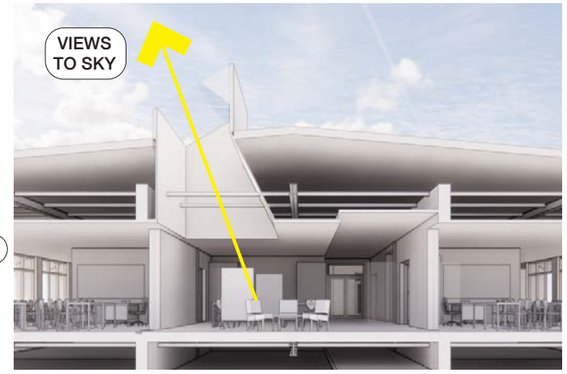
> Creating a learning precinct: Proximate to the Primary School and sharing some of the High School facilities creates a learning precinct for the town convenient to public transport and sporting facilities
> Sharing with the Community: The schools shared use of the oval and other sports facilities and the consideration of community shared use of the schools library and hall; Vocational Education and Training (VET) opportunities to support the towns rural location; and the location of community health facilities on the site will integrate the school with the community. The commercial kitchen and VET café will allow the sharing of food with the community.
> 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.
> Legibility and Ownership: Each building, although part of a cohesive whole, has its own individuality and identity. Providing key node points of circulation with significant breaks in the building form helps users navigate their way around the school. A graphic overlay will further develop the individual identity of each building.



Materiality
Source: TKD Architects



Perspective Library Section - Connecting the Campus to the Creek
Source: TKD Architects



Perspective Section of Skylights - Connection to Sky
Source: TKD Architects

Detailed Design Opportunities to provide a Connection to Country
Source: Various

3.5 Identity

Key outcomes from the Walk on Country were the connection to the water and local fauna and flora.

This connection has been expressed through the idea of a radiating ripple which permeates through materiality and spatial arrangements. In addition the campus thoroughfare explored through the concept of a dried creek bed which follows the fall of the land, connecting a series of diverse programmed spaces.

The connecion to endemic flora is reinforced in the development through Nourishment from the Land through the agricultural plot and productive gardens, providing connections to local indigenous foods and medicinal plants that have significance to the local community.

Further opportunities through a Learning from Country overlay that will reference the narrative of the Black Cockatoo, Wedge Tail Eagle, Black Crow and the Eucalyptus sideroxylon or “Tirriwirri” are to be explored.

3.6 Access

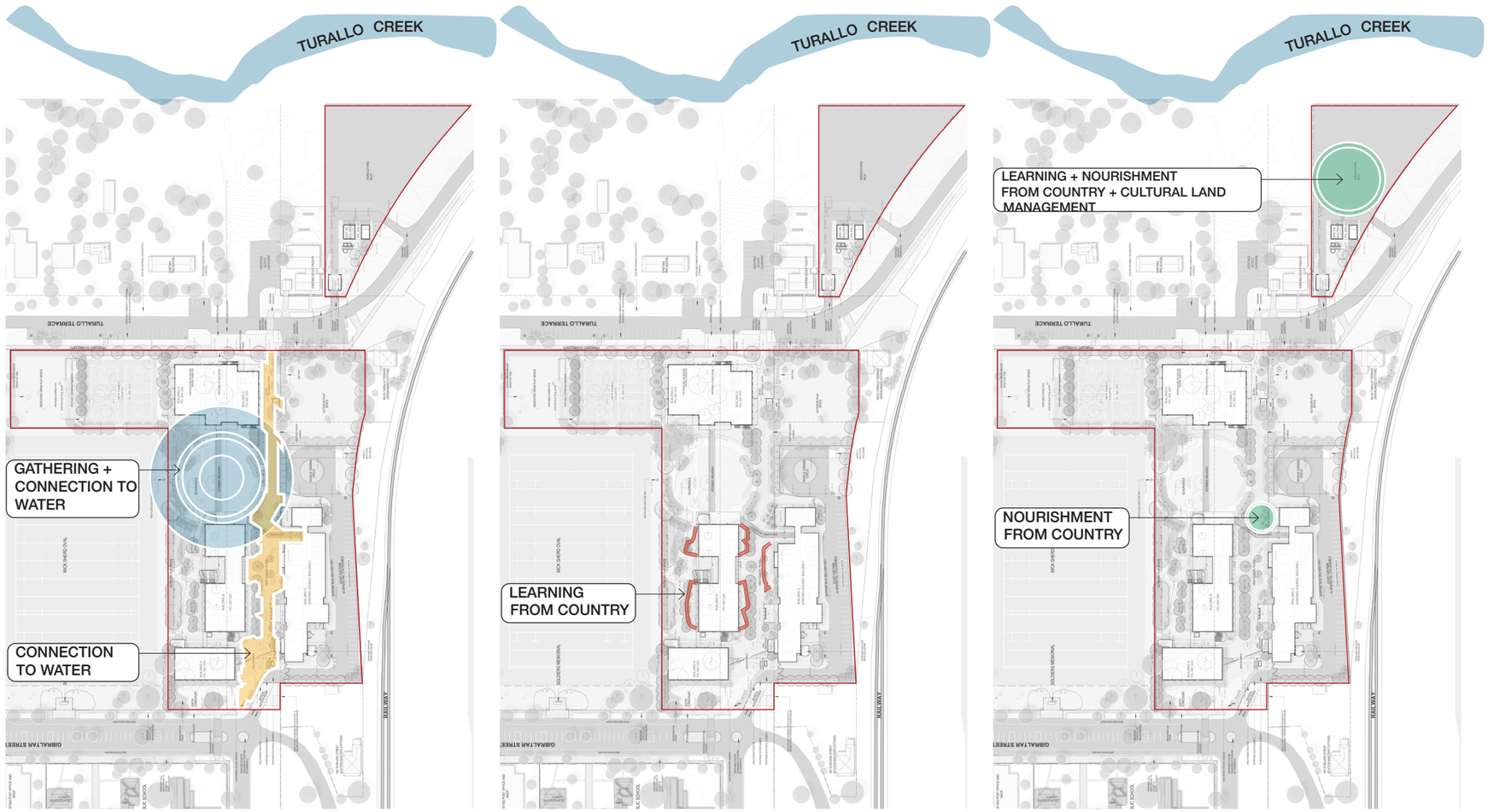
Spaces have been provided that are inclusive, accessible and well defined through the use of sight-lines, materiality and the establishment of strong visual axes and vistas. The design includes a range of level change transitions, from the direct to the meandering links. All places will be well connected and encourage both recreation and rest, to foster exploration and curiosity of the land through using biophilic design principles.

3.7 Green Amenity

The creation of spaces that are soft, greener and have a strong connection to nature, which implement sustainable water and energy practices in the design, embrace natural systems and utilize the natural water course of the land and landscape patterns.

All outdoor learning spaces are enclosed by endemic, local and native planting that will highlight native species and provide learning opportunities. A kitchen herb garden adjacent to the cafe and productive gardens in the new Agricultural Plot which will include native and exotic species will provide fresh produce for use in the food technology classes and for use in the Vocational and Education Training (VET) cafe.

The perimeter buffer planting provides native planting along the school boundaries to strengthen the schools interface with the surrounding landscape. This planting will provide additional biodiversity and habitat for local fauna.



Landscape Connection with Country Diagrams
Source: Context Landscape Architecture/ TKD Architects

3.8 Diverse Spaces

A variety of diverse spaces has been provided on the campus to encourage and enable a range of activities for the students. Provide areas of respite and foster moments of curiosity. This is executed through spaces designated for individual study, small groups and large classes as well as passive and active recreation, each offering an opportunity for Connection with Country.

Culturally Significant Flora and Fauna
Source: Various

4 Visual Impact Assessment

A visual impact assessment of the proposed high school has been provided below.

The visual impact assessment demonstrates the proposed development is generally in keeping with the site's context and that no heritage items in the site or within the vicinity of the site will be impacted by obscured views.

The adjacent No.63 Turallo Terrace (Signalman's Cottage) does not have windows that face the new buildings. The adjacent No.16 Majara Street (Stationmaster's Cottage) is located 70m away from the proposed Building A with no adverse impact. A landscaping buffer is proposed to the boundary tot these two properties. The new buildings are located away from the Soldiers Memorial which is retained as the prominent feature along the Bungendore Park section of Gibraltar Street.

Note: where 3D perspectives have been provided tree sizes are indicative only. Refer to the Landscape Design Report for proposed species and mature height.

Perspective View from Mick Sherd Oval Car park entry
Source: TKD Architects

View 1. Majara Street looking North

Existing View
Source: Google Maps

Proposed View
Source: TKD Architects

View 2. Majara Street looking North

Existing View
Source: TKD Architects

Proposed View
Source: TKD Architects

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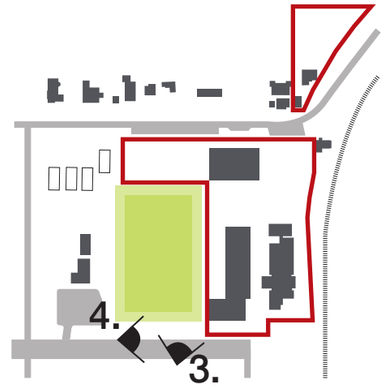

View 3. Gibraltar Street looking North

Existing View
Source: Google Maps

Proposed View
Source: TKD Architects

View 4. Gibraltar Street looking Northeast

Existing View
Source: TKD Architects

Proposed View
Source: TKD Architects

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View 5. Turallo Terrace looking Southeast

Existing View

Source: Google Maps

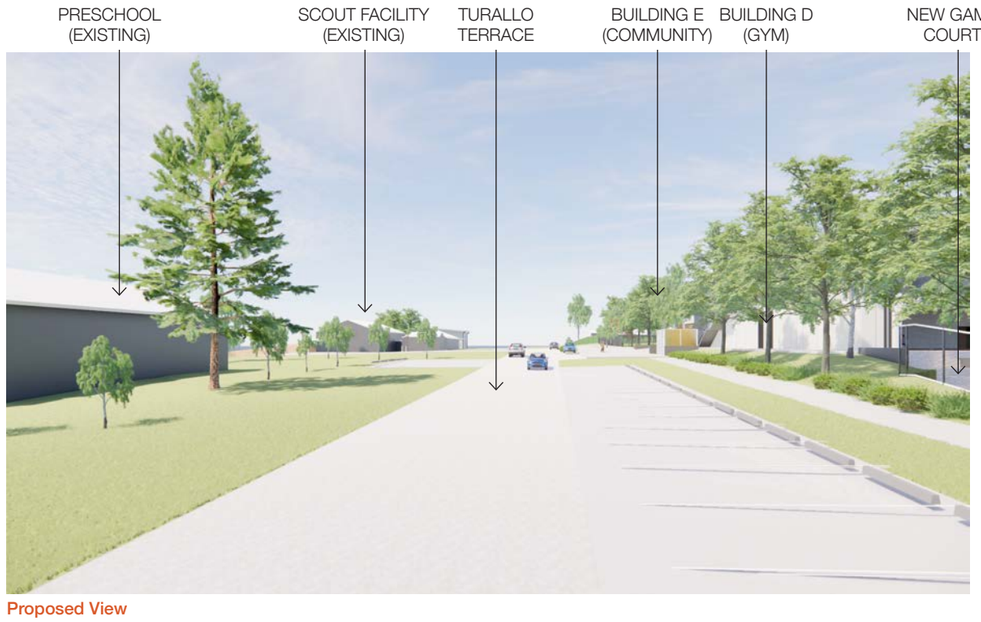
Proposed View

Source: TKD Architects

View 6. Turallo Terrace looking East

Existing View

Source: TKD Architects



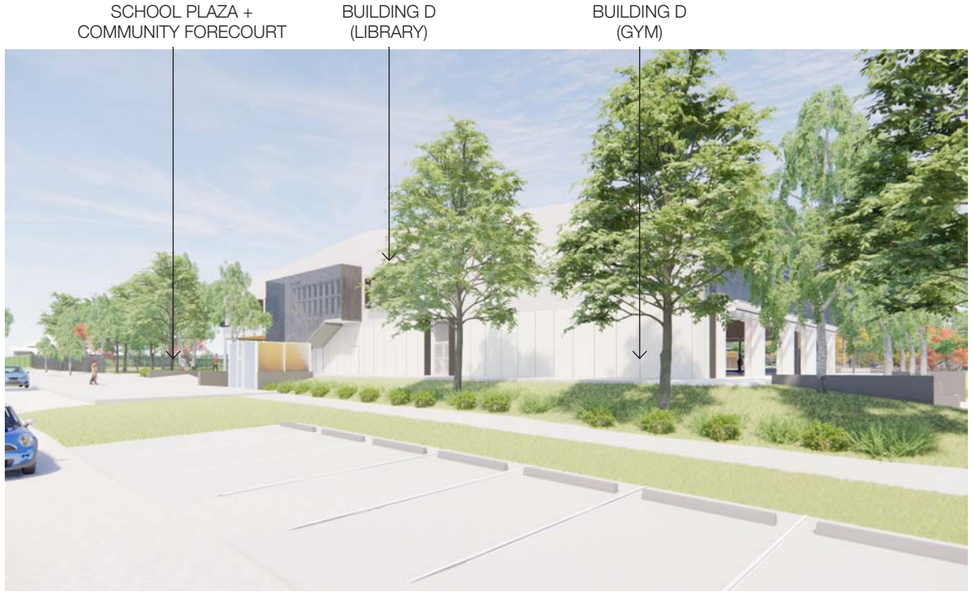
Proposed View

Source: TKD Architects

View 7. Turallo Terrace looking Southeast

Existing View

Source: Google Maps



Proposed View

Source: TKD Architects

View 8. Turallo Terrace looking South

Existing View

Source: TKD Architects

Proposed View

Source: TKD Architects

View 9. Turallo Terrace looking South

Existing View

Source: Google Maps

Proposed View

Source: TKD Architects

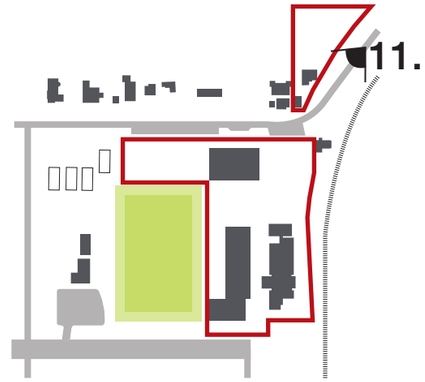
View 10. Turallo Terrace looking Southwest

Existing View

Source: TKD Architects

Proposed View

Source: TKD Architects



View 11. Turallo Terrace Looking Southwest

Existing View
Source: Google Maps

Proposed View
Source: TKD Architects

G Sustainable, Efficient and Durable

G 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 4, Education SEPP

1 Ecologically Sustainable Development (ESD)

The project has been developed using the principles of ESD to create a site wide strategy, and has been assessed against a suitable accredited rating framework - Greenstar. The project is expected to achieve a high level of environmental sustainability and is targeting a 4 Star rating, which is deemed to represent an Australian Best Practice development.

These 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 and provide opportunities for didactic pedagogy.

An Ecologically Sustainable Development Statement has been prepared for this EIS submission. Refer to the ESD Statement for further information.

2 Social and Economic Benifits

The new High School in Bungendore is part of the ‘Monaro Cluster Program’. The proposed new high school will respond to the increased learning demand created by the rapid growth in the new residential development areas in Bungendore, addressing the service needs of the Queanbeyen-Palerang local government area (LGA).

The increase in learning demand also stems from the newly introduced ‘NSW Pathway Zones’ seven-year phasing plan which seeks to reallocate NSW-residing student enrolment back to the NSW live-in catchments from the ACT.

Provision of community facilties as part of the development as well as opportunities for shared use of school facilities and Vocational Education and Training opportunities (VET) are designed to consider the needs of the community.

3 Modern Methods of Construction (MMoC)

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’.

The DfMA approached has been identified to improved sustainability through reduced CO2 emissions, material and water waste; improve health, safety and productivity; as well as make design efficiencies and allow for future adaptability and flexibility.

4 Passive Design

The project is designed to use passive design principles to reduce the energy demand of the buildings in operation and improve indoor environment quality and thermal comfort for students and staff.

The project proposes the following passive design principles:

- Building mass: The bulk and scale of the buildings respond to the size of the site and maximise external areas. The massing of the built form is broken at intervals to facilitate natural ventilation and external sheltered learning opportunities
- Loose-fit floor plans: To enable future adaptation of use
- Facade: High performance building envelope designed to respond to the local climate including sun, wind and aspect to minimise peak heat loads in summer and use passive heating in the winter
- External shading: Vertical and horizontal sun shades provide protection of glazing from solar heat gain
- Natural shading: Trees supplement external sunshading, particularly on the western facade and in play areas
- Materials: Selected to be lightweight, durable, low maintenance
- Solar reflectance: Light coloured roofing to reduce heat gain
- Natural ventilation: Operable windows provided throughout, and ventilation calculations in compliance with EFSG
- Daylight: High levels of daylight through skylights and windows. Skylights respond to cultural awareness through providing a connection to sky while inside.
- Views and Visual Amenity: Line of site to high quality external views and visual amenity
- Acoustics: Acoustic separation between different spaces
- Healthy Buildings: All paints, sealants, adhesives, floor coverings and composite timbers used internally will be low VOC. Engineered wood products to meet formaldehyde limits
- Landscape: Rejuvination of the existing landscape to enhance ecology. Provision of school and community spaces. Canopy trees to reduce heat island effect.
- Water efficient design: Native plant species and sensitive landscape design to minimise water use
- Biophilia: Strong connection to the outdoors from teaching spaces. Integrated balustrade planters and green wall at key circulation and building nodes. A variety of outdoor learning areas. Materials selected based on site colour pallette. Pedagogical opportunities in outdoor learning settings

5 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
- Energy efficient lighting and smart control systems.
- Energy efficient hot water system
- Roof top PVs to reduce the peak electricity demand
- Limitation of the use of gas for heating and cooling (administration and staff areas only)

6 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
- Above ground rainwater storage to the agricultural plot for educational opportunities

7 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

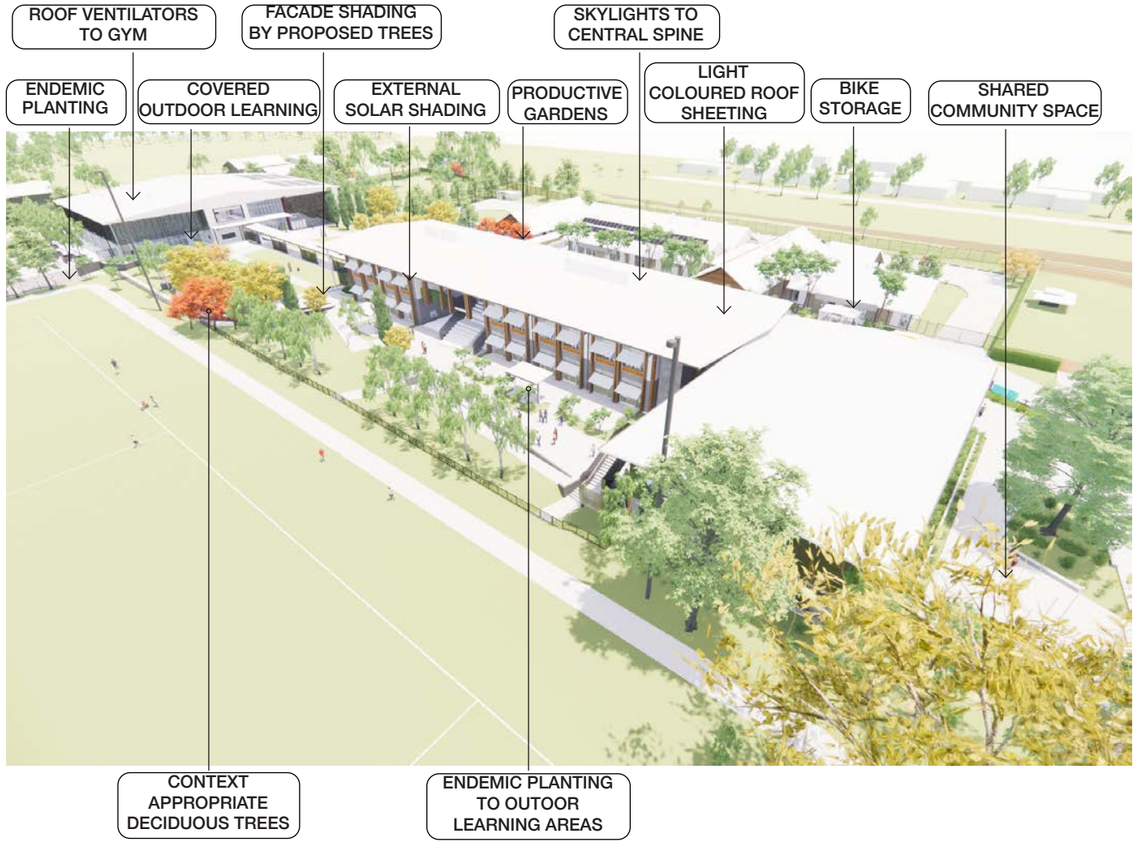
A Construction Waste Management Plan (CWMP) and Operational Management Plan (OWMP) report have been prepared for this EIS.

8 Transport

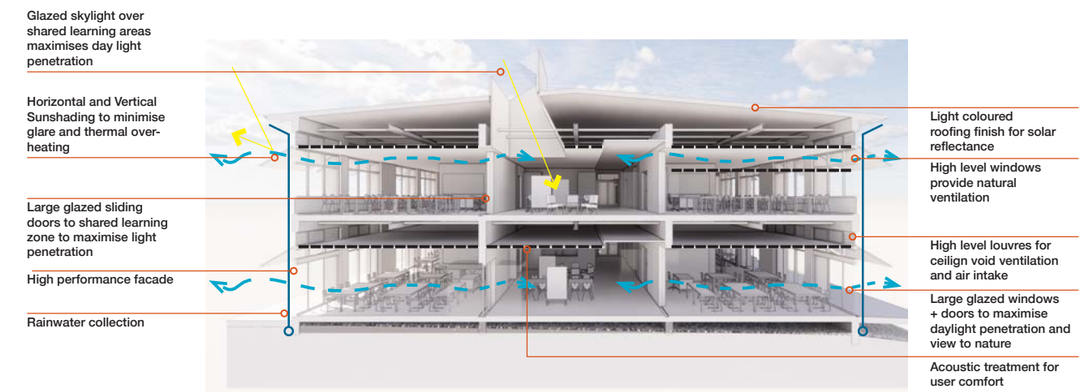
Active transport and sustainable transport stategies include provision of good end of trip facilities (e.g. secure bike parking, showers and lockers for staff and change facilities for students) to encourage active transport.

The creation of a school entry at either end of the school plaza further encourage active transport through direct, legible connections to the surrounding northern, southern and eastern neighbourhoods.

The existing bus network will be expanded to serve the existing public school and new high school.



ESD Strategy Section
Source: TKD Architects



ESD Strategy Section
Source: TKD Architects

H Accessible and Inclusive

H 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.)

Schools should actively seek opportunities for their facilities to be shared with the community and cater for activities outside of school hours.

Design Quality Principle 3, Schedule 4, Education SEPP

1 Accessible Campus

The urban design response to the site provides two key entry spaces. A new school entry forecourt to the southern boundary facing Gibraltar Street provides a welcoming shaded public space below a new feature tree. To the northern boundary facing Turallo Terrace, a community forecourt provides a more civic entry to community facilities and also provides pedestrian access to the school.

Where possible, fence lines are setback from the street facing boundaries, located behind the building line to soften the main campus entries and provide high quality streetscape and public spaces.

The new high school campus is proposed with a central spine in the form of the school plaza, replacing the existing northern portion of Majara Street. Its location, which generally reflects the existing thoroughfare, provides legibility to the campus, connecting all buildings and the campus entries which connect the campus to the neighbouring suburbs beyond.

The new school plaza is to act as a circulation, breakout and play space for the school and is easily navigated due to the gentle fall of the site.

The new administration building which contains the public reception will activate Gibraltar Street and the entry plaza, creating an entrance that is visible, engaging and welcoming.

Community facilities and school facilities are designed to facilitate community use outside of school hours, accessible via the new community forecourt from Turallo Terrace to the north. Entrances to the facilities face the street to provide good wayfinding and a clear separation from the school campus.

Large openings and level thresholds to ground floor general learning spaces, the hall and library will be provided to encourage equitable outdoor learning opportunities.

A series of ramps and landscape batters address level differences between the raised paving areas to the west and the existing levels of the Mick Sherd Oval, while providing equality of amenity for all capabilities.

Compliant access to the agricultural plot is provide by a series of 1 in 14 ramps to navigate the steeply sloping site.

2 Accessible Buildings

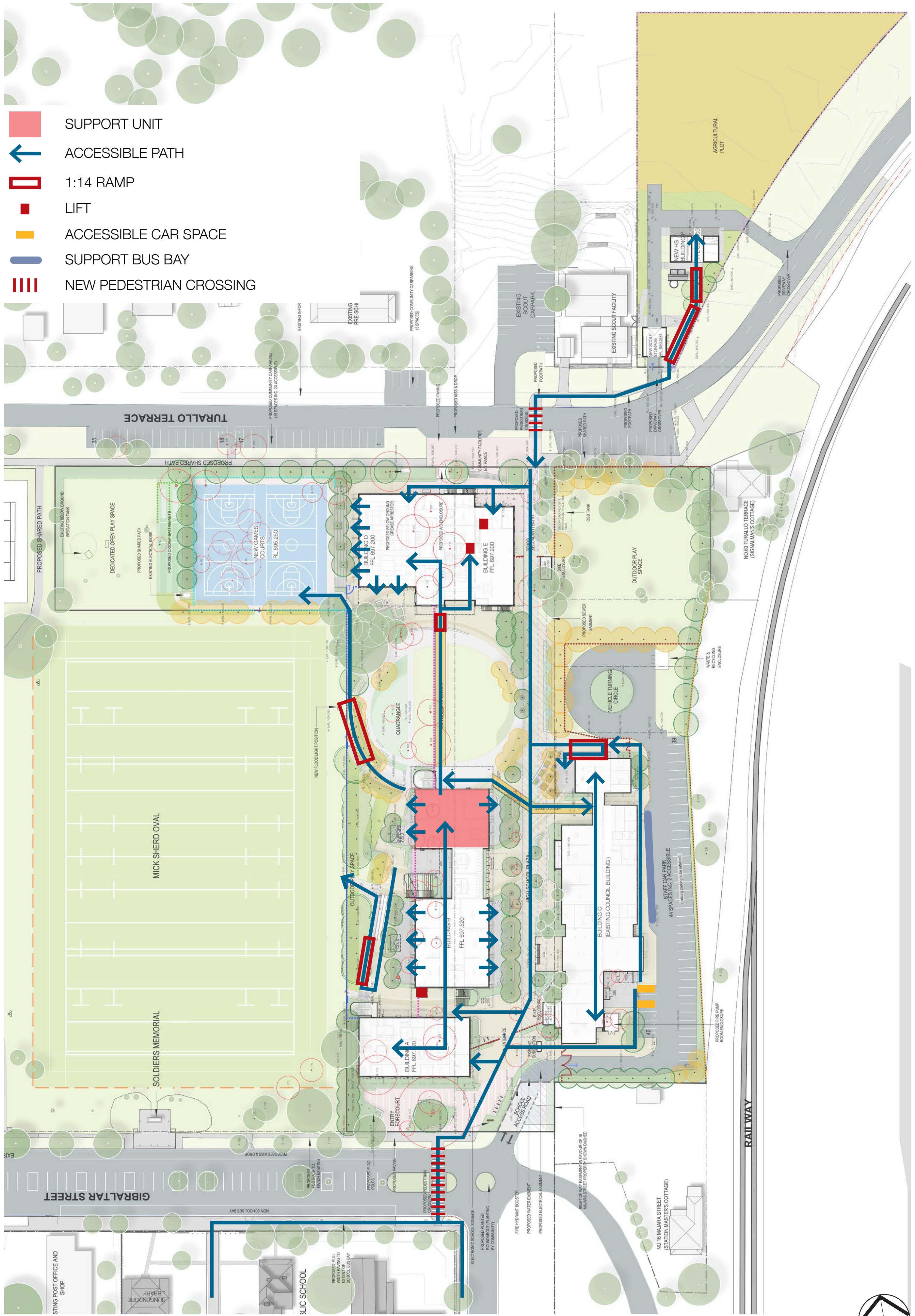
The new high school campus will provide access for people with a disability and provide a continuous accessible path of travel, clear way finding guidance and the equitable provision of accessible facilities.

New building work will be designed in accordance with the Building Code of Australia (BCA), the relevant Australian Standards (AS 1428, AS 2890.6, AS 1735.12) and the Disability Discrimination Act's obligation of equitable and dignified access. This project will be designed to AS 1428.1 – 2009 and AS1428.2 - 1992.

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

Access provisions that will be provided in the high school campus include:

- Walkways and ramps provided in accordance with AS 1428.1.
- 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 1428.2.
- 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 ambulant facilities provided in accordance with AS 1428.1.
- Signage in accordance with AS 1428.1.



Accessibility Strategy
Source: TKD Architects

3 Wayfinding Signage Strategy

Wayfinding strategy is to be provided for the project to ensure the new school campus is legible and to enhance the understanding and experience of the new development. The signage strategy will be developed to comply with the Department of Education's EFSG which outlines wayfinding and safety signage requirements. Below is a list of signage types that form part of the school's wayfinding and identity. It should be noted that statutory signage is excluded from this list, but will be required to be provided.

3.1 School Identification Signage

A feature sign will be positioned on the facade of Building A at first floor level. This will be large enough to be legible to people driving past the school on Majara and Gibraltar Street.

A smaller sign, but of matching materiality and design, will be positioned at the campus's northern pedestrian entry and to the western boundary facing Mick Sherd Oval to clearly identify school grounds.

3.2 Digital Noticeboard

A digital noticeboard will be provided facing Majara and Gibraltar Street adjacent to the main entrance, for the school to display key dates, events and messages.

3.3 Building and Use Identification Signage

Each building will be labelled (for example, Building A), and then the key spaces within them will be labelled (for example, Canteen).

3.4 Wayfinding Signage

Maps and markers will be provided at key locations throughout the campus, directing people to key nearby buildings such as the administration, amenities and the gym. Inside the buildings, similar signage is to be provided.

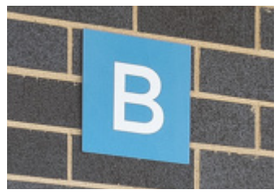
3.5 Interpretation and Identity Signage

A graphic overlay for the school will be explored during detailed design. This overlay will interpret Country, and also form part of the school's identity.

INDICATIVE SCHOOL IDENTIFICATION SIGNAGE

INDICATIVE DIGITAL NOTICE BOARD

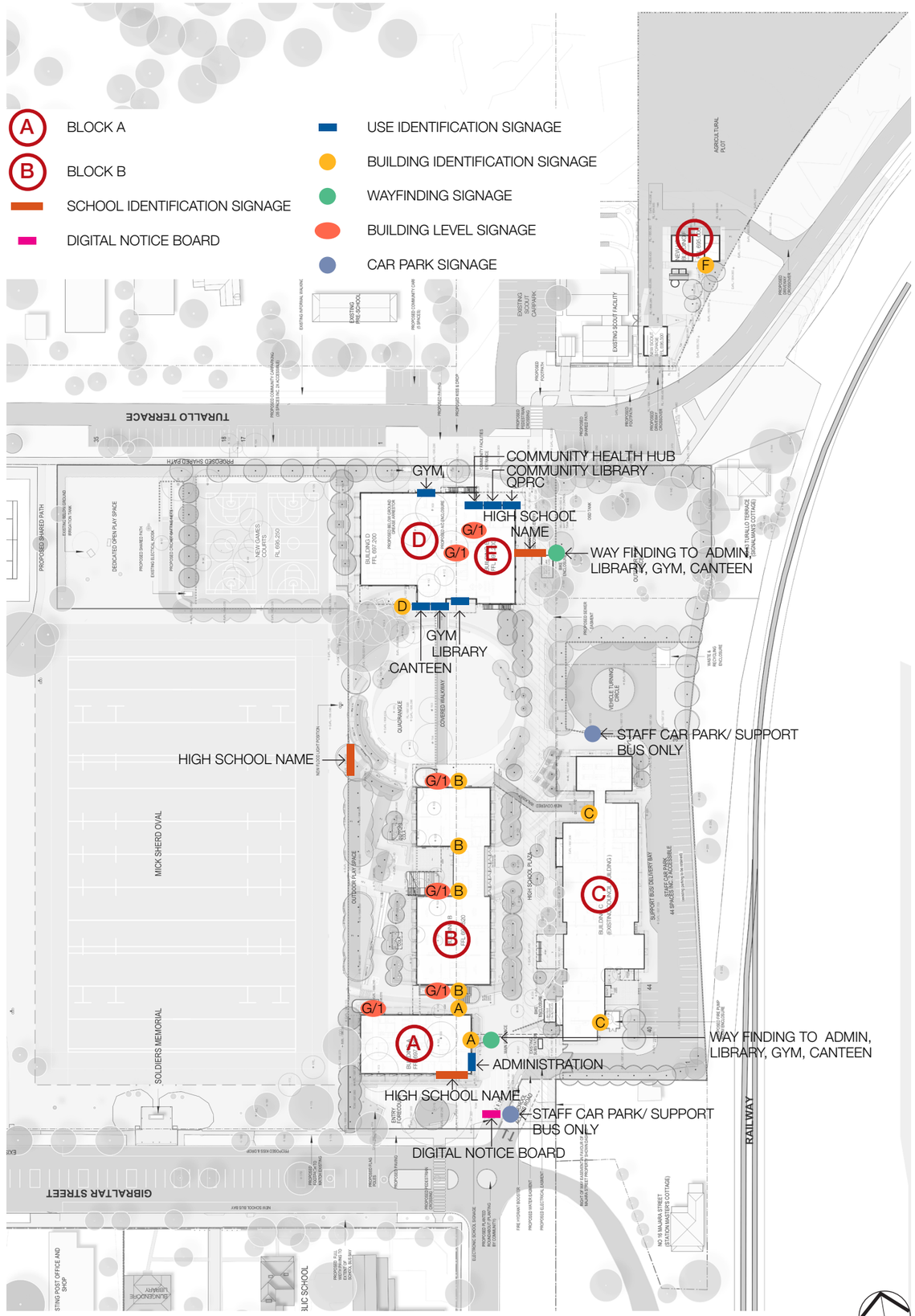
INDICATIVE USE BUILDING AND USE IDENTIFICATION SIGNAGE



INDICATIVE USE BUILDING AND USE IDENTIFICATION SIGNAGE

INDICATIVE WAYFINDING SIGNAGE

INDICATIVE INTERPRETATION AND IDENTITY SIGNAGE



Indicative Signage Strategy
Source: TKD Architects

4 Community Engagement and Use

The Department of Education have conducted significant community engagement and liaison with the Bungendore community and Queanbeyan Palerang Regional Council throughout the project's development to understand and address issues raised.

A Social Impact Assessment (SIA) report has been prepared for this EIS.

4.1 Connection with Country

The new high school has been developed to respond to GANSW's Draft Connecting to Country Framework and through consultation with Ngambri Elder Woman Dr Matilda House and representatives of the Aboriginal Educational Consultative Group (AECG), to create a strong, place driven identity that will help instill pride in the school and community.

The project response has been further described in section F of this report.

4.2 Community Use

The project has been developed with consideration of being an integral part of the Bungendore Community with facilities that can benefit the school and wider community.

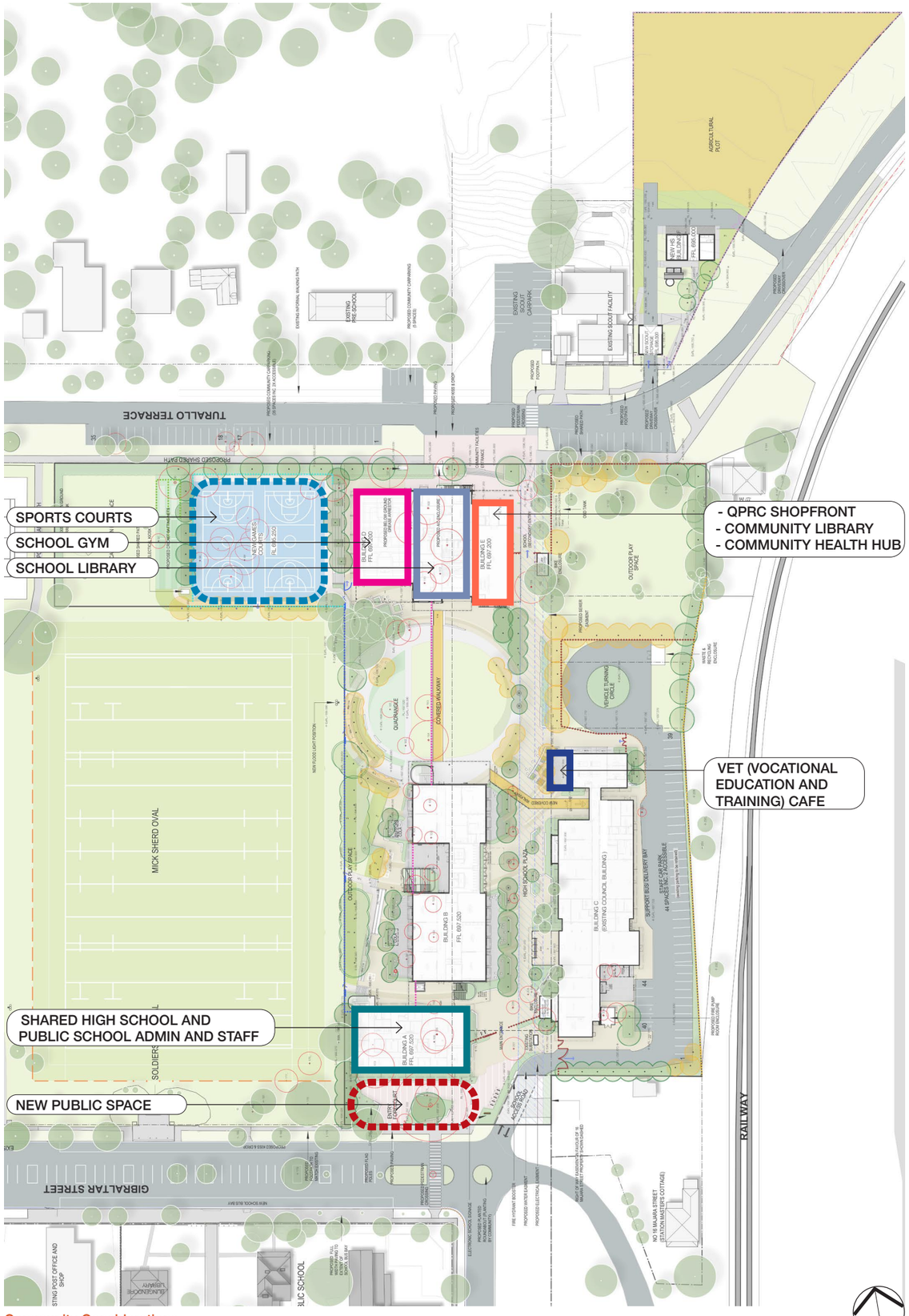
Access to existing public facilities, such as the use of Mick Sherd Oval will be shared with the community outside of school hours. The Bungendore Park, tennis complex, amenity buildings and other facilities west of the playing field will continue to be accessible by the community.

New dedicated administration and staff facilities will be provided for the existing public school on the new high school site, enabling the two schools to act as one campus, providing efficiencies, encouraging collaboration and advancing educational opportunities, while freeing up accommodation on the public school site to cater for growing enrolment demand.

The project incorporates a new Community Library and Community Health Hub to replace the existing facilities which are to be re-purposed or demolished.

The new school facilities are designed to consider out of school hours use of key school facilities such as the hall, library and games courts, and opportunities for Vocational and Education Training which can contribute to community facilities for the town of Bungendore.

Photo of Walk on Country
Source: TKD Architects



Community Considerations
Source: TKD Architects

J Health and Safety

J 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 4, Education SEPP

1 Healthy Buildings

The new High School in Bungendore proposes to optimise natural ventilation and natural light while balancing thermal comfort and energy efficiency to benefit the health and well-being of building 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.

2 Pedestrian Amenity

The high school campus is proposed to be a pedestrian friendly campus where priority is given to pedestrians. A clear hierarchy has been established across the campus to minimise potential conflicts.

Generous pedestrian entries into the proposed high school connect the new school plaza and each of the buildings to create a safe, legible, attractive pedestrian network for the school.

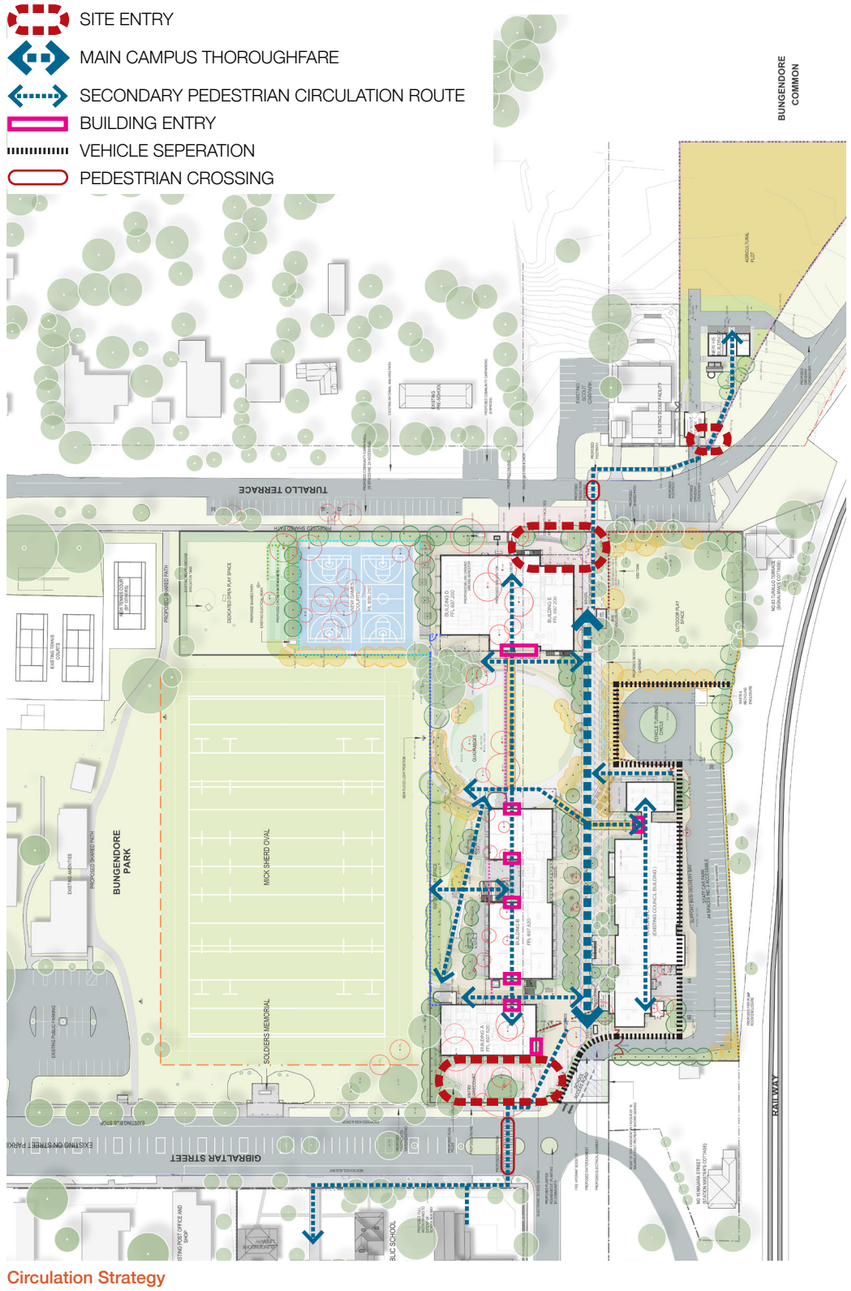
The new landscaped spaces are designed to respond to the 4 landscape principles of identity, access, green amenity and diverse spaces. Key features include avenue planting, low height walls for informal seating, semi enclosed outdoor learning areas, vegetated garden beds, shade trees, open play space, turfed embankments and tiered seating.

Covered walkways, covered outdoor learning spaces and canopy tree's throughout the campus provide protection from the sun and rain.

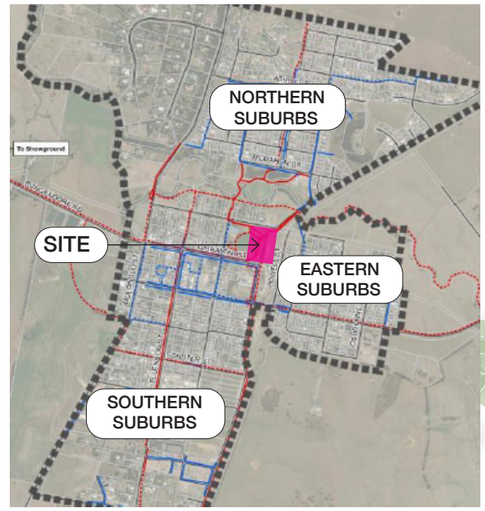
Bicycle parking enclosures are provided at each end of the school plaza for students and hoops adjacent to the administration building for staff. End of trip facilities are provided for staff within the staff unit and for the students within hall changing amenities.

External to the campus two new pedestrian crossings are proposed, providing a safe connection to the public school and bus drop off to the south and to the agricultural plot to the north. A new shared path is also proposed to the west side of Mick Sherd Oval connecting Gibraltar Street and Turallo Terrace, replacing the existing path to the eastern edge of the oval.

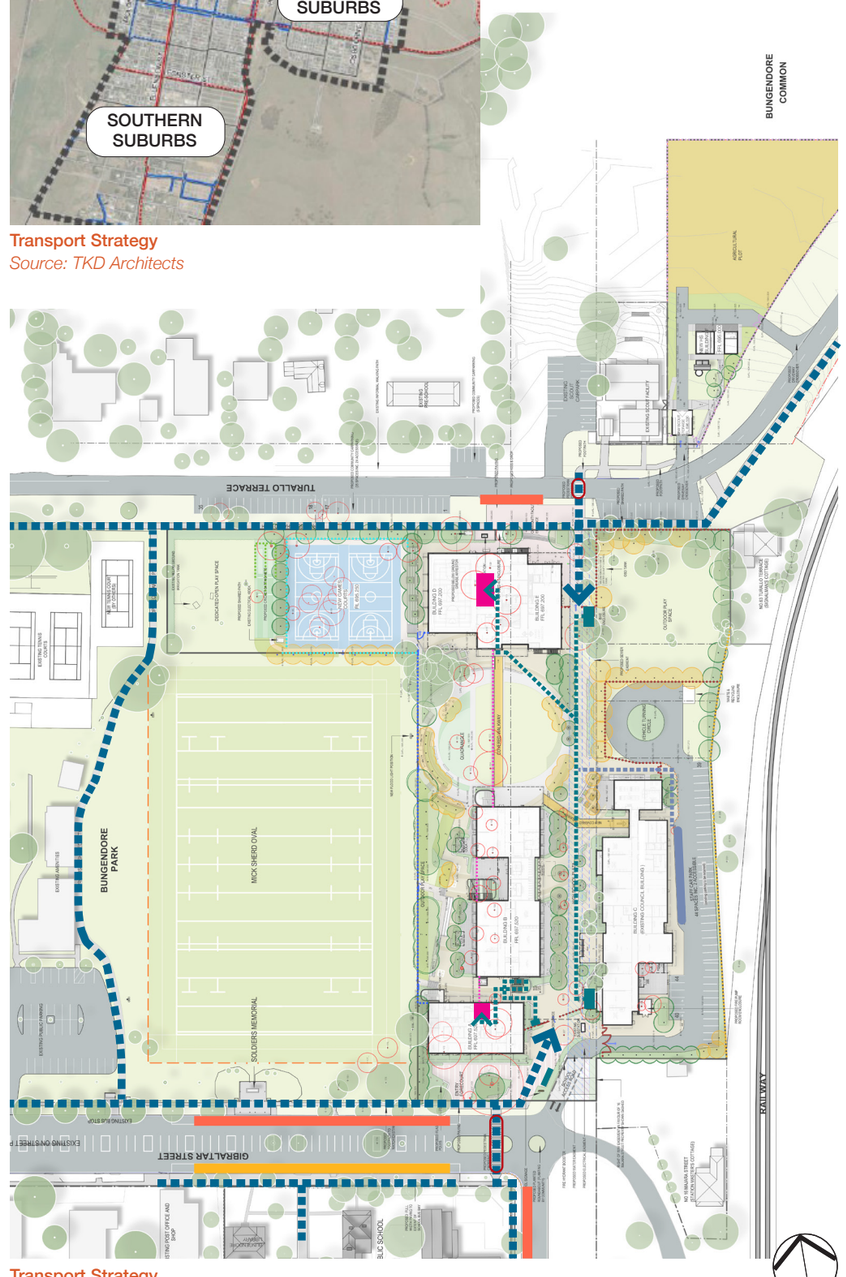
A Transport Assessment Report has been prepared by GHD for this EIS.



Circulation Strategy
Source: TKD Architects



Transport Strategy
Source: TKD Architects



Transport Strategy
Source: TKD Architects

TKDArchitects
Tanner Kibble Denton

3 Car Parking and Servicing

The existing Council Chambers car parking is proposed to be retained for staff use and provide access for service vehicles including support bus dropoff, materials delivery and refuse collection. A total of 44 car spaces including 2x accessible spaces are proposed.

A Transport Assessment Report has been prepared by GHD for this EIS.

A separate driveway entry into the car park is located parallel to the pedestrian entry and is directed behind the technology building to provide a clear separation between pedestrian and vehicular movement, while allowing for car parking for staff and site servicing. A planter provides a safety barrier and landscaping buffer between the two entries.

A new turning head is proposed to the northern end of the car park to facilitate turning of a waste collection vehicle in a forward direction only to maximise pedestrian safety.

4 Crime Prevention Through Environmental Design (CPTED)

The proposed High School in Bungendore 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 fencing and gates. To street facing frontages, where possible, fencing lines have been setback behind the building line with low level planting in front, so that their visual impact is reduced, and utilising the buildings as the secure line to provide welcoming, inclusive entries to the school and community facilities.

> The fencing type to site boundaries varies across the site, responding to the adjacent uses. Fencing to the main entries is proposed as EFSG compliant 2.1m palisade fencing. Fencing between the school site and Mick Sherd Oval is proposed as low height fencing to provide a more open connection to the oval and community. A second 2.1m fence line is proposed to the centre of the campus to provide a secure line for the school and is in place to provide a safe environment for students and staff in the case of an emergency. The fencing will be designed to provide wide openings to facilitate good connections throughout the campus. Fencing to the rail corridor is proposed as 2.4m high palisade fencing to comply with TfNSW requirements.

> The school is naturally surveilled from within the school campus by staff who will be using the facility at all times when the school is open

> Within the school, all spaces will be supervised by the school staff at all times when being used

> The staff administration area and public reception is located adjacent to the Gibraltar Street entry

> Community facility entries are accessed directly from Turallo Terrace and provide clear sightlines to the street and maintain a separation between the community and school facilities

> The entry forecourts are design as high quality spaces with the opportunity for the public and students to gather

> There are views across the school play areas and Mick Sherd Oval from the high school site and school buildings

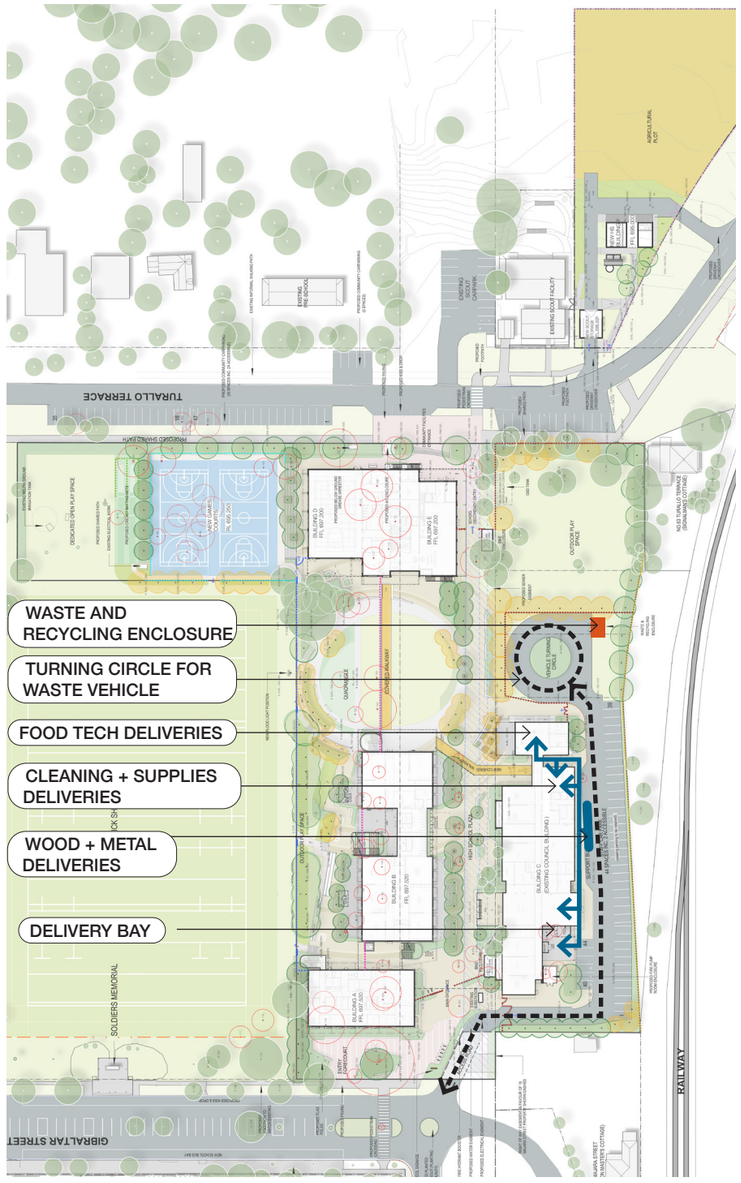
> External lighting will be provided to illuminate external spaces and avoid dark shadows

> Clear sightlines of the building have been maximised and landscaping designed so as to not obstruct surveillance

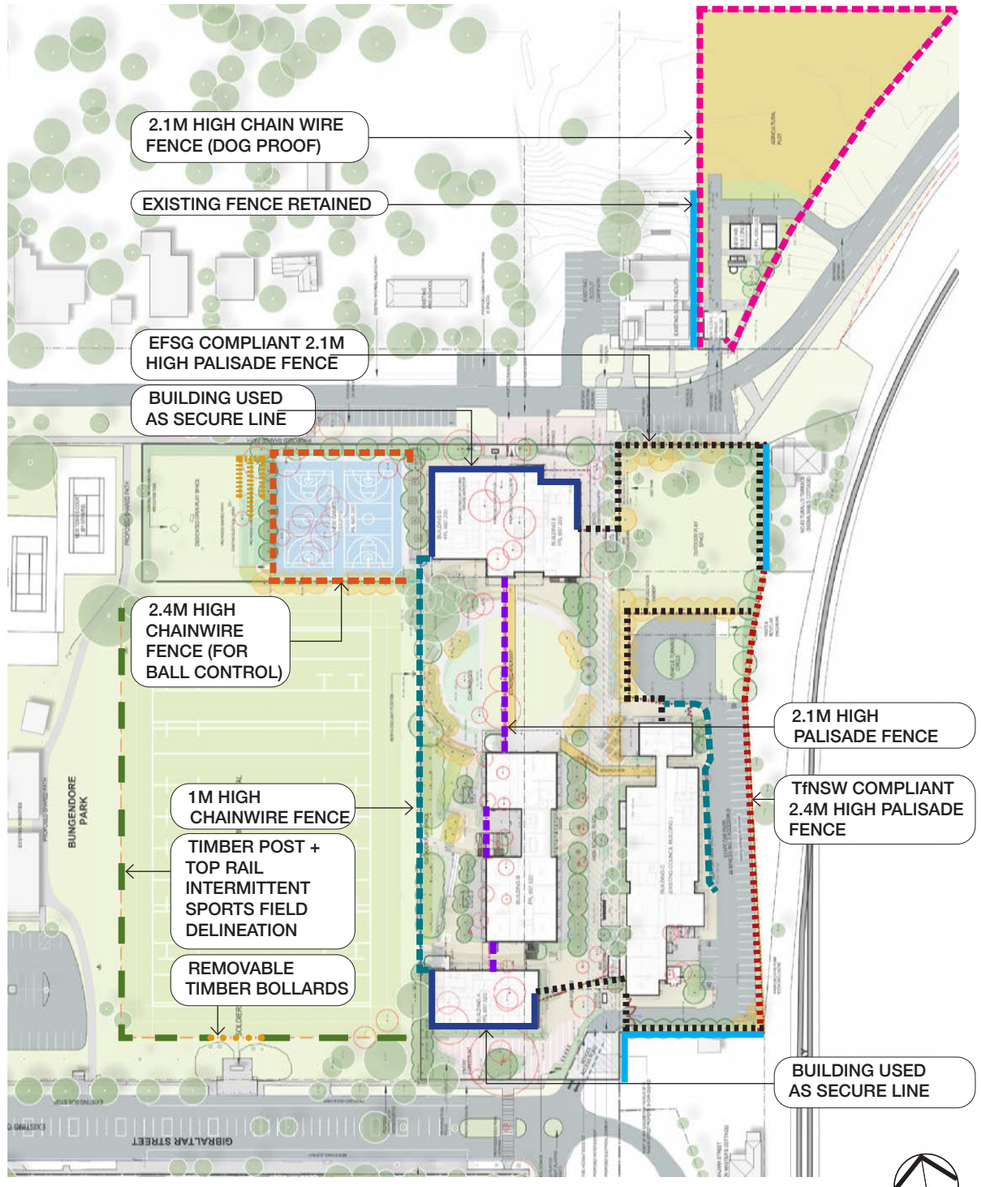
> The school will be well maintained and will be highly used

> The school will be provided with an integrated system of security cameras and alarms in accordance with DOE requirements

A CPTED Report has been prepared by Mecone for this EIS.



Site Serving Strategy
Source: TKD Architects



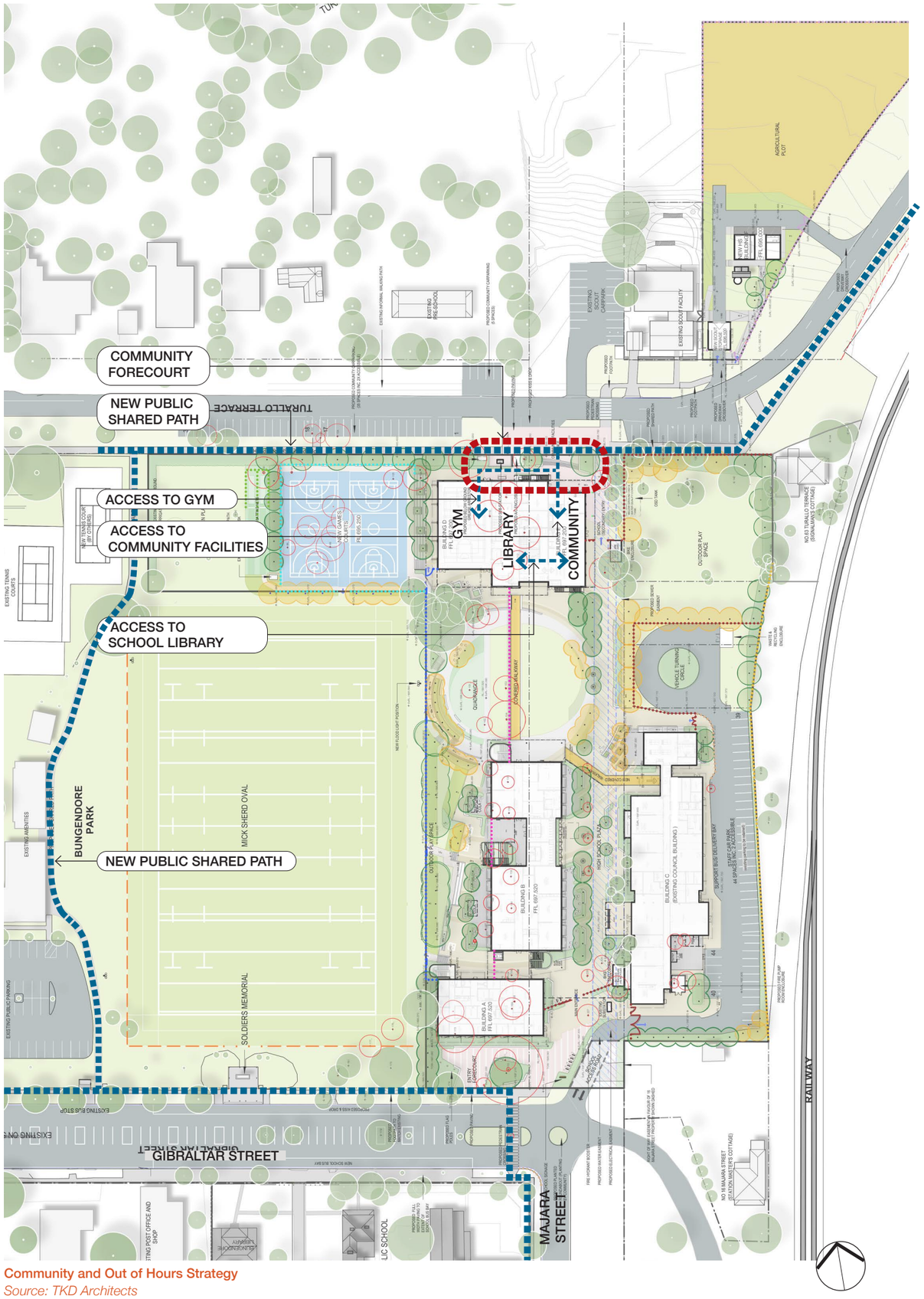
Fencing Plan
Source: TKD Architects

TKDArchitects Tanner Kibble Denton

5 Out of Hours Community Access

The school gym/ hall and school library are designed to consider shared community use outside of school hours. Opportunity for community access to the school hall is proposed via a separate entrance door to the northern facade. The door is visible from the street and accessed from the Community Entry Forecourt. The community library has been co-located adjacent to the school library to provide the potential for direct access from one another via an internal sliding door. The door would be access controlled and locked during school hours. A new public shared path is proposed to the western side of the Mick Sherd Oval, connecting Gibraltar Street, the existing Community amenities and Turallo Terrace. The new shared path replaces the existing shared path currently to the eastern side of Mick Sherd Oval.

Perspective of Community Forecourt
Source: TKD Architects



Community and Out of Hours Strategy
Source: TKD Architects

K Amenity

K 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 4, Education SEPP

1 Amenity to Neighbours

The project has been developed to act as an integral part of the Bungendore Community with facilities that benefit the school and consider opportunities for the wider community.

The school has been designed to have a considerate and desirable visual impact on the neighbouring streets and communities. Buildings are setback from the adjacent boundaries to provide high quality streetscape and maintain the open character of the town. The massing of buildings has been minimised and its form has been broken down into proportional elements. The materials palette ties into the historical context and surrounding natural landscape.

2 Visual Privacy

The new buildings are located away from neighbouring residential properties. A landscaped buffer is proposed to the adjacent No.16 Majara Street. and No.63 Turallo Terrace.

It is not envisaged the project will result in adverse visual privacy issues.

3 Visual Amenity

The new buildings are located away from neighbouring residential properties.

The 2 storey height of the buildings are designed to accommodate the required spaces to cater for the predicated enrolements, while maximising external area to retain the town's open character and maximise opportunity for student play space. The 2 storey height is typically in keeping with the town's character and scale.

A small section of the site is subject to an 8.5m LEP height limit. To minimise the impact of the roof breaching this height limit as a result of the required floor to floor heights, roof eaves are designed to be lower than the LEP height limit and a shallow roof pitch minimises any additional height impact.

Large landscaped setbacks are provided between the new buildings and adjacent site boundaries, retaining the open character of the town, reducing overall bulk and scale and providing a high quality streetscape and public spaces.

Buildings A and B have been articulated and modelled to reduce their perceived scale and volume. Building D + E have been articulated as agricultural in character, responding to the character of the scout facility and Country beyond. The building is to become an important community facility within the town.

4 Shadowing

Shadow diagrams have been prepared for the proposed development. These diagrams demonstrate that there are no adverse shadowing impacts from the proposed development to the adjacent neighbours throughout the year.

Refer to the Shadow Diagrams for further information.

5 Wind Impacts

The project is not expected to have any wind impacts to the surrounding locality

6 Acoustic Impacts

A Environmental Noise and Vibration Assessment prepared by Acoustic Logic for this EIS.

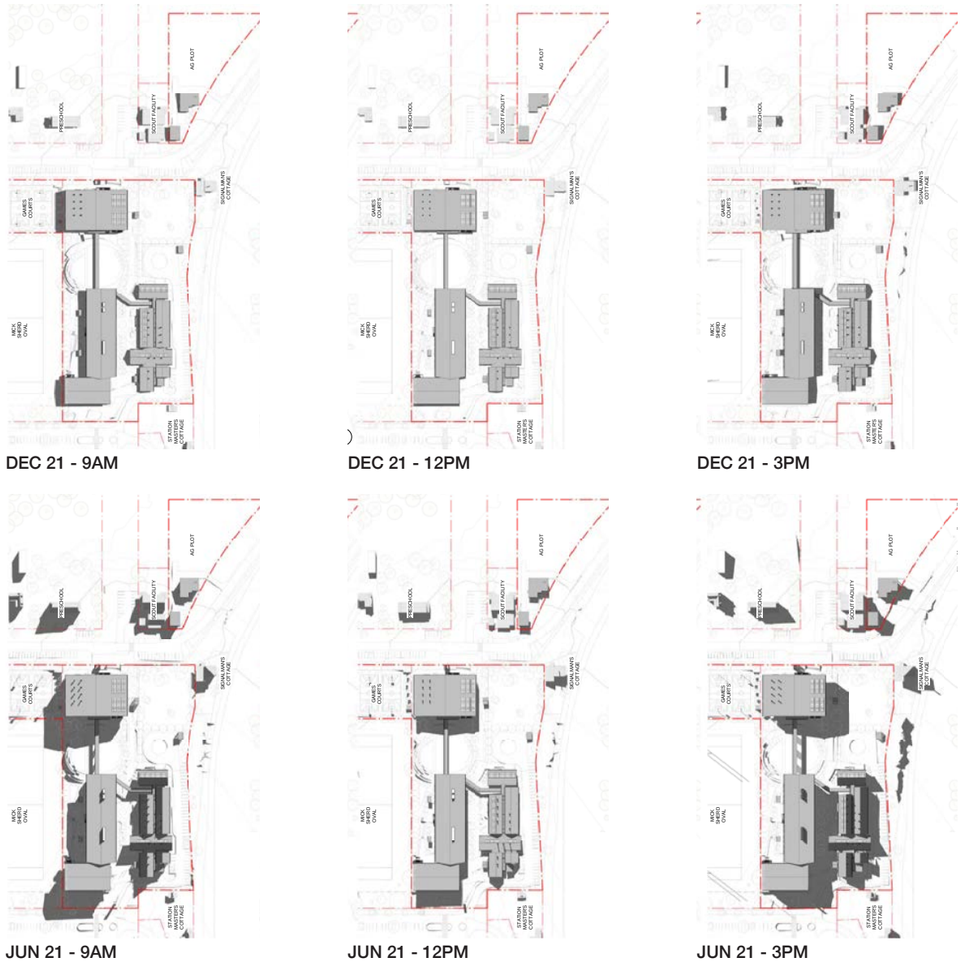
The report summarises that the adjacent railway line will not adversely impact the internal spaces of the school and no specific measures to control noise intrusion are required.

The report also outlines recommendations to mitigate acoustic impact from the school as much as practical, which include limiting activities and hours of use as defined in the report. All plant items will be capable of meeting noise emission requirements of Council and the EPA Noise Policy for Industry (2017) Trigger Levels, with detailed design to be done at CC stage.

7 Lighting Impacts

The proposed lighting as part of the new High School works consists of security lighting to provide low illumination levels to pathways and a new car park. The design will be done in accordance with "AS1158:2020 Lighting for the roads and public spaces" and "AS4282.2019 – Control of the obtrusive effects of outdoor lighting."

A Lighting Services Report by NDY has been prepared for this EIS.



Shadow Diagrams
Source: TKD Architects

8 Campus Amenity

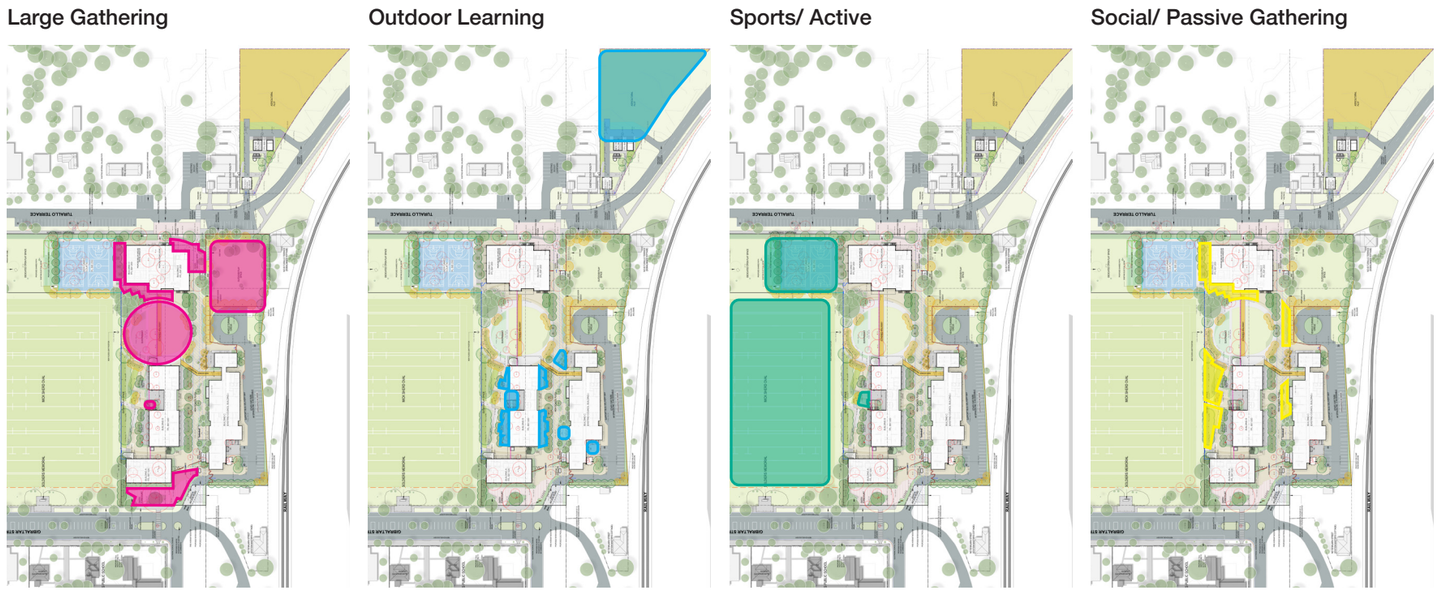
The new high school in Bungendore has been developed to provide a high quality architectural and landscape setting throughout the campus, designed to respond to the Design Guidelines, Development Parameters and the site's context of the township and country.

Site planning and layout provide legible, pragmatic connections throughout the site that connect each of the buildings as well as the campus to the oval, surrounding suburbs, creek and country beyond.

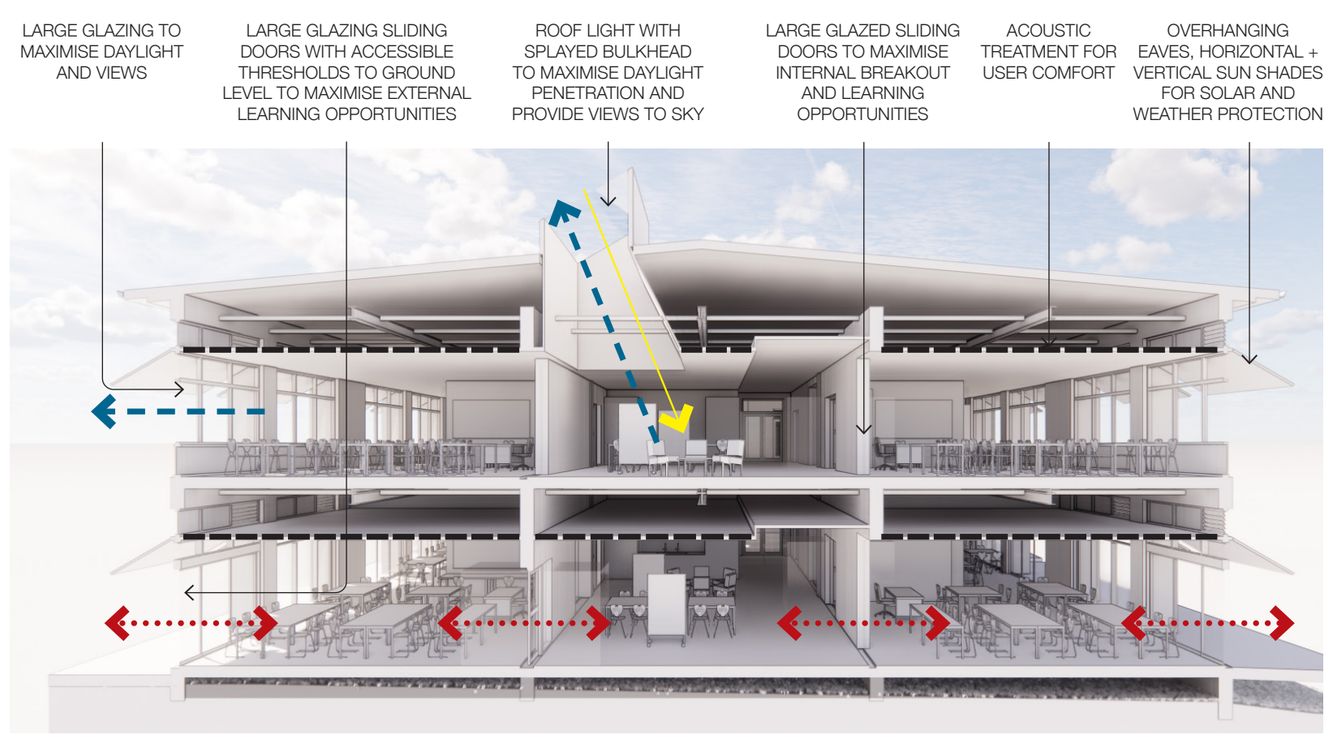
Landscape principles of Identity, Access, Green Amenity and Diverse Spaces have been developed to provide an overall, site wide vision for the campus, which will provide a campus with a strong sense of identity that is inclusive and accessible; greatly enhances the green amenity of the site and provides diverse spaces that encourage a range of activities for students.

Internal spaces have been developed in the form of Hubs and Neighbourhoods around central shared learning areas that facilitate learning via a range of delivery methods, and engage students in different learning styles, each fostered by emerging technologies and social changes.

Large external glazed windows and doors provide high quality physical and visual connections to outside, and high levels of daylight and natural ventilation inside. Acoustic internal sliding doors, and wall and ceiling treatment will provide appropriate acoustic control to learning spaces.



Diverse Landscape Spaces
Source: Contrext Landscape Architecture/ TKD Architects



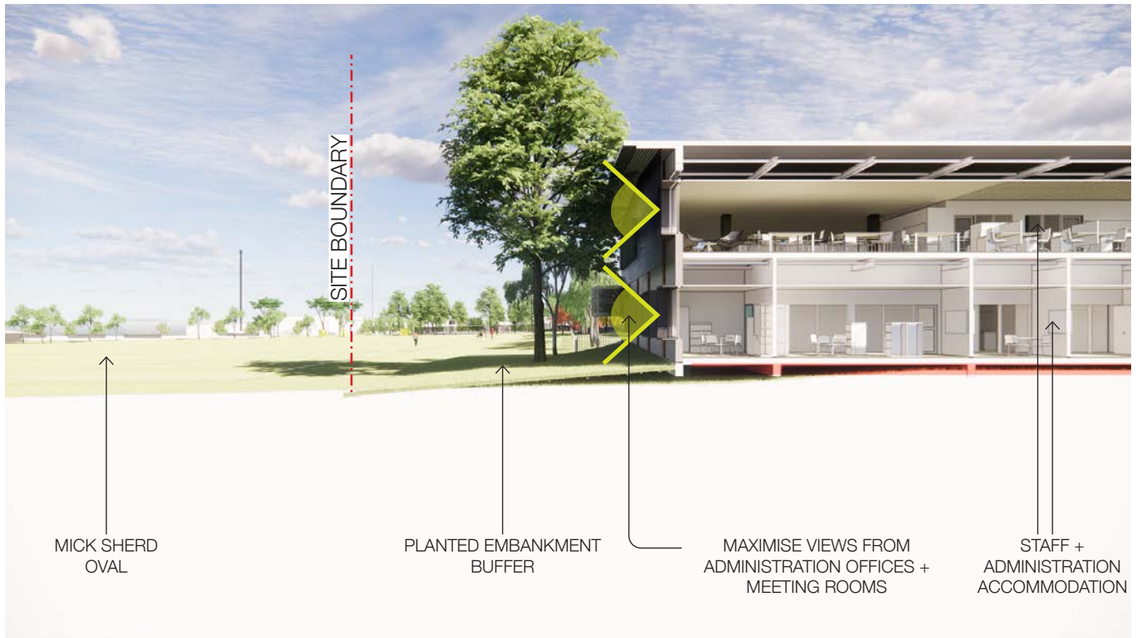
Perspective Section - Building Amenity
Source: TKD Architects

8.1 Building A

The Entry Forecourt to the school is to be a public accessible space to provide a welcoming entrance to the school. Privacy to offices and meeting rooms from the forecourt is provided through use of a raised landscape planter, providing separation between the building line and public space. Visual surveillance of the Entry Forecourt is provided through large glazed windows from the administration and staff areas.

The building facade to the western facade is similarly used as the secure line for the school to provide a high quality welcoming edge to the school campus which fronts the Mick Sherd Oval. A planted embankment provides a separation of the building to the oval. Large glazed windows to staff spaces are designed to maximise high quality views over the oval.

Perspective Section - Building A - Admin and Staff - Entry Forecourt
Source: TKD Architects



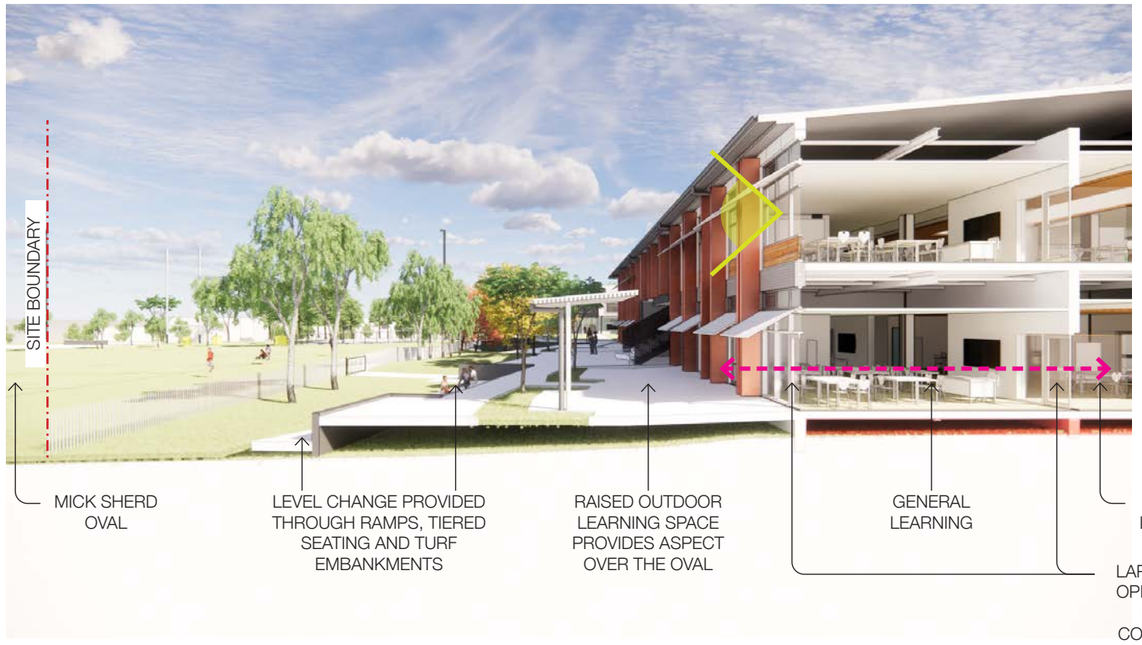
Perspective Section - Building A - Admin and Staff - Mick Sherd Oval
Source: TKD Architects

8.2 *Building B*

Large glazed doors connect the general learning spaces located at ground floor level of Building B to the surrounding landscape on both sides of the building. Adjacent to the building, external learning spaces allow classroom activities to spill out. Learning spaces are defined by different paving finishes and low level endemic planting.

To the centre of Building B the building form is split to provide sheltered learning spaces at ground and first floor level. A tiered amphitheatre setting connects the first floor level with the landscape and provides opportunity for seating and outlook over the oval.

Perspective Section - Building B - Outdoor Learning Space - Western Campus
Source: TKD Architects



Perspective Section - Building B - General Learning Space - Western Campus
Source: TKD Architects

Perspective Section - Building B - General Learning Space - School Plaza
Source: TKD Architects

8.3 Building C

The facade of Building C is proposed to be retained in its existing condition. Full height windows provide views to outside.

Landscaping to the east of the building is designed to provide access from the support bus and delivery bay and maintain views to the railway line and beyond.

To the western facade, landscape spaces designed to be quite, relfective spaces are proposed amongst native planting and connect to the School Plaza.

To the northern end of the landscape plaza, the student learning kitchen connects to the covered Vocational Education and Training (VET) cafe. Adjacent productive gardens provide opportunities for learning and nourishment from Country and for foods to be used in the kitchen.

Perspective Section - Building C - Kitchen - VET Cafe + School Plaza
Source: TKD Architects

Perspective Section - Building C - Visual Arts General Learning Space - School Plaza
Source: TKD Architects

Perspective Section - Building C - Visual Arts - Staff Car Park
Source: TKD Architects

8.4 Building D

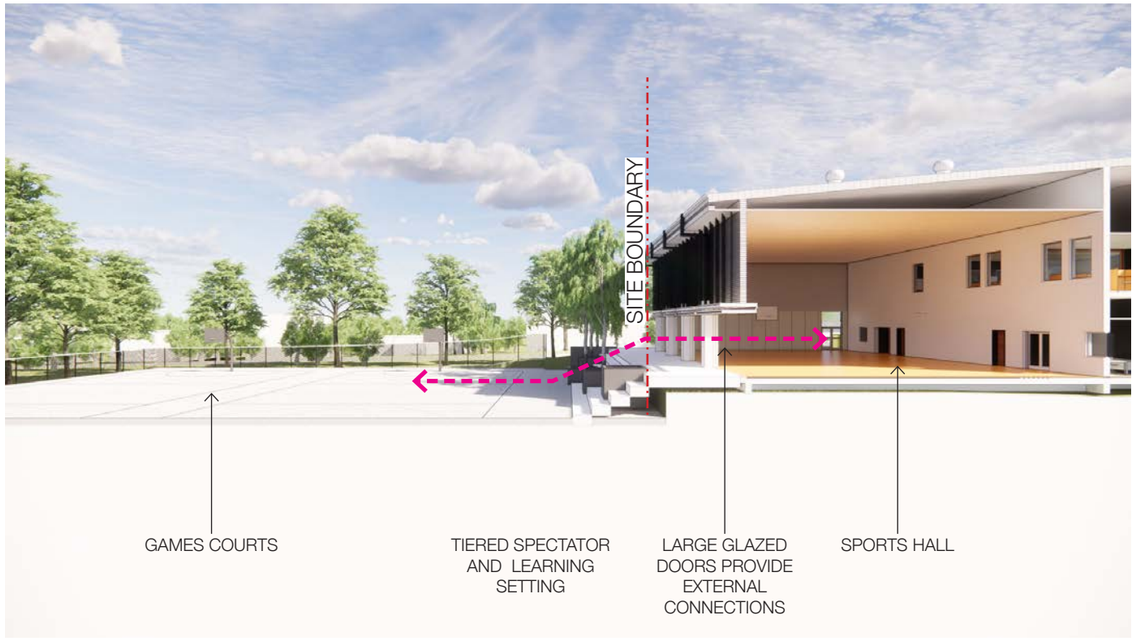
Building D contains the high school library and gymnasium functions.

Glazed overhead doors to the west and southern façades of the gym connect the space to outside, allowing for school activities to extend outside. A raised covered area staggers around the existing tree groove, providing lunch opportunities adjacent to the canteen.

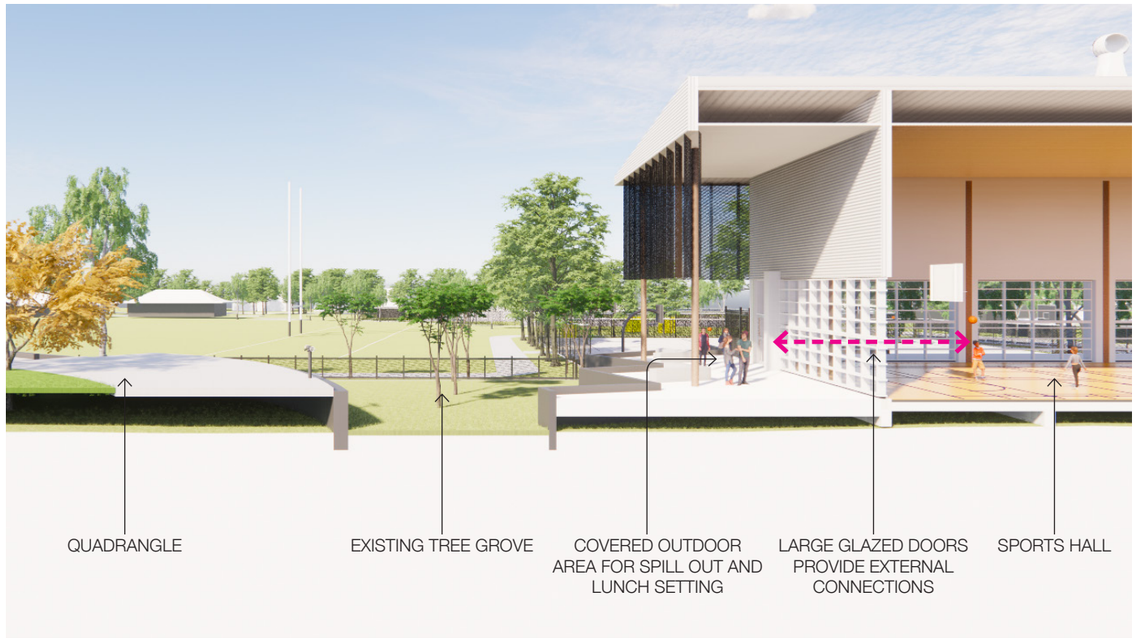
To the eastern facade, tiered seating navigates the level different to the sports courts, providing spectator and demonstration opportunities.

To the northern facade, the building is setback from the street. A planted embankment provides a high quality streetscape in keeping with the existing street.

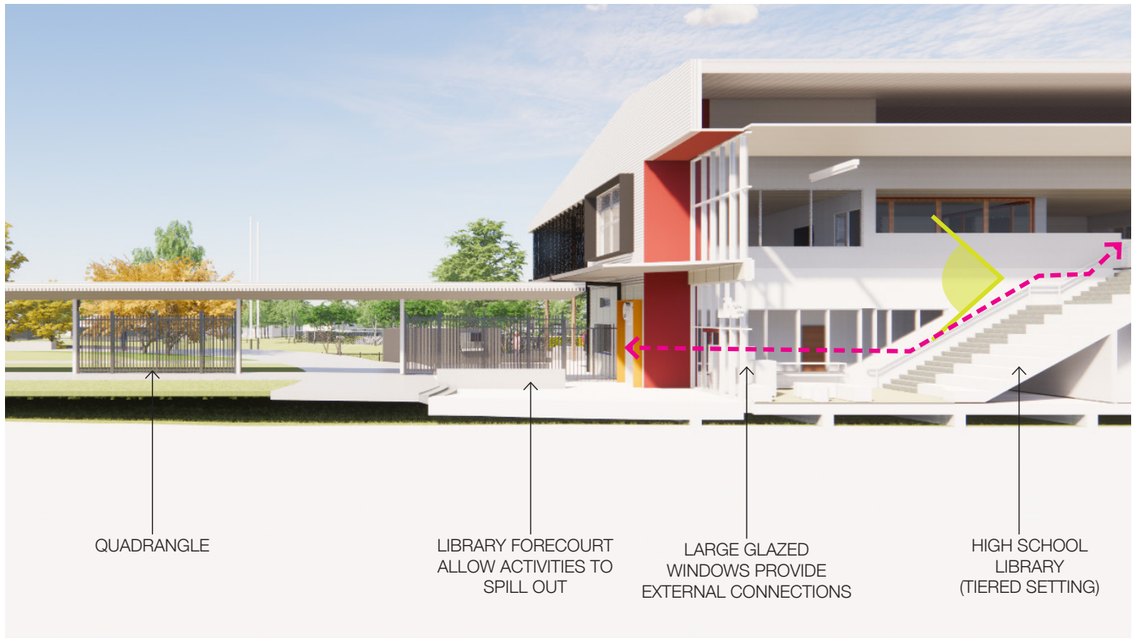
The school library is split over two floors. A double height space to the southern facade and a tiered learning setting connect the two floors. Large glazed windows to either end of the biilding provide opportunities for loooking out and connect the campus to the country beyond.



Perspective Section - Building D - Hall - Games Courts
Source: TKD Architects



Perspective Section - Building D - Gym - Covered Outdoor Space - Quadrangle
Source: TKD Architects



Perspective Section - Building D - Library - Quadrangle
Source: TKD Architects

8.5 Building E

To the north of the site, Bulding E fronts on to the new community forecourt and Turallo Terrace. The entries to the community facilities are recessed in to the facade to provide a sheltered entry space.

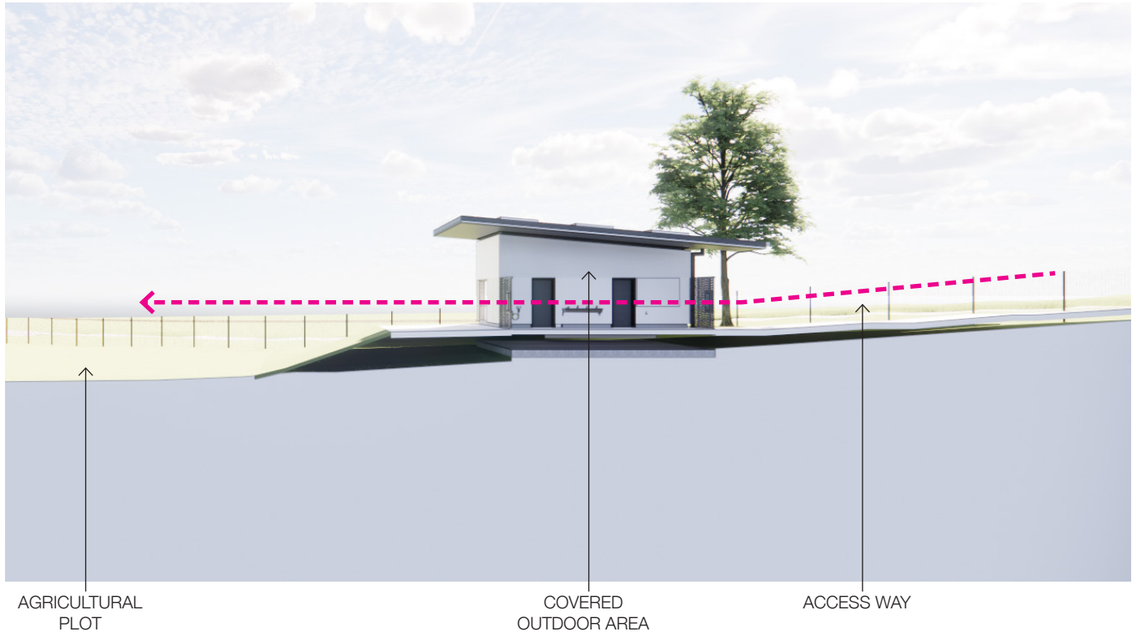
At ground floor level a solid, internal sliding door provides opportunity for a connection between the community library and school library. At first floor the community health hub overhangs slightly, providing shading to the ground floor facade

8.6 Building F

The agricutural support building is divided in two, providing a central covered outdoor space connecting the various functions and providing an opportunity for classes to gather.

The building is orientated to the north, addressing the agricultural plot. A large overhanging eaves provides opportunity for shelter and outlook.

The access pathway is aligned with the central covered outdoor space to provide views out to the plot and creek beyond.



Perspective Section - Building F - Agricultural Building - Plot
Source: TKD Architects

Perspective Section - Building E - Community Library Entry - Community Forecourt
Source: TKD Architects

Perspective Section - Building E - Community Library - School Plaza

L Whole of Life, Flexibility and Adaptation

L Whole of Life, Flexibility and Adaptation

Principle 6 | Whole of Life, Flexibility and Adaptation

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 4, Education SEPP

1 Flexibility and Adaptation

The new High School in Bungendore is designed to be highly flexible and adaptable.

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 library and hall are designed to accommodate a wider range of activities, including functions, sporting and community uses where there is a need for large indoor spaces.

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'. The DfMA approached has been identified to allow for future adaptability and flexibility. Through use of an 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.

2 Whole of Lifecycle

The project has been designed to consider a whole-of-lifecycle 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

3 Future Development

The proposed facilities are designed in accordance with the DoE's Educational Facilities and Guidelines to meet the needs of the high school, with core facilities, such as the library, hall, canteen, administration and staff areas sized to suit future needs.

The requirement for potential additional learning spaces to bring the school up to a Stream 4 DoE standard has been investigated during the design process. The area between Building B and Building D has been earmarked as a possible location for future accommodation in line with the QPRC endorsed masterplan.

M Aesthetics

M 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 4, Education SEPP

1 Relationship to the Context of the Site

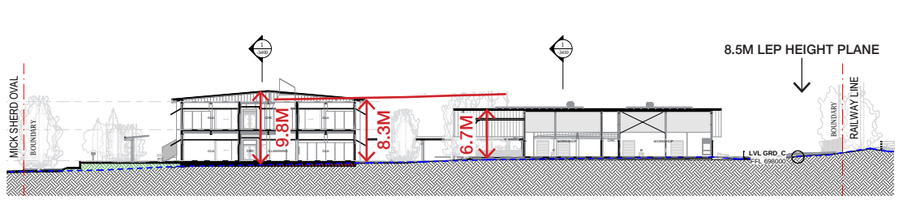
The town of Bungendore has a strong 19th Century character and scale with few institutional facilities. The new school campus and buildings will form an important contribution to these facilities and have been designed to be respectful of their context while providing contemporary educational facilities which accommodate educational needs for present and future demand.

Building heights are defined by compliance and functional requirements, with building eaves typically compliant with the LEP 8.5m height limit where it exists, and reflect the town's larger scale buildings which include the council chambers building, cout facility and public school library and hall.

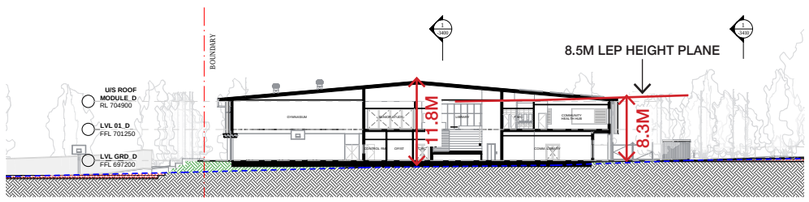
The elevational treatment of each building across the campus carefully considers the issues of bulk and scale. Each building is articulated individually, each responding to their slightly different context, but with a shared palette of materials which express a unified architectural response to the new campus while responding to the contextual aesthetic. Through materiality, shading devices and window proportions, the articulation of buildings are broken down to closer reflect the immediate historic and contemporary context.

Each building is described in more detail within the below section.

Perspective Image from Mick Sherd Oval
Source: TKD Architects



East West Section - Building B
Source: TKD Architects



East West Section - Building D+E
Source: TKD Architects

2 Storey Scale Built Context
Source: TKD Architects

2 Facade Composition

The facade composition for each component of the school campus has been developed in accordance with the Design Guidelines and Development Parameters established for the project.

Generally the facade composition for each component responds to the surrounding development, urban context and unique environmental conditions.

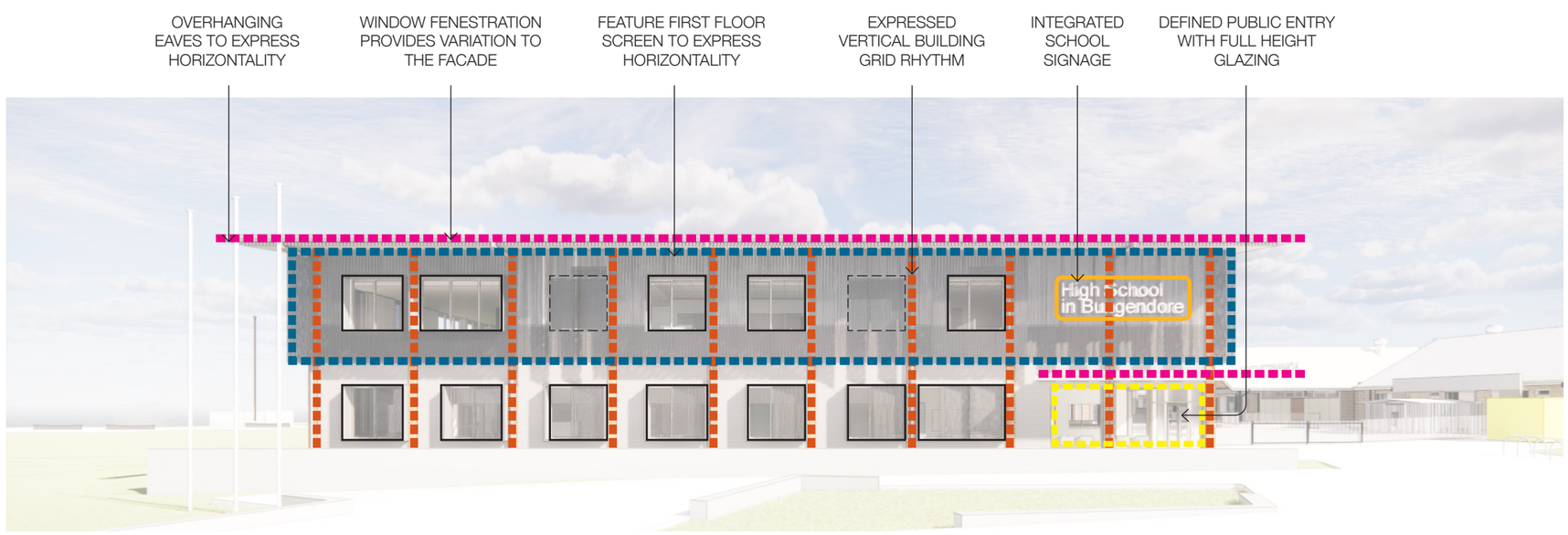
2.1 Building A

Building A is sited in its own orientation from the other proposed buildings. The orientation formally addresses Gibraltar Street which has an urban character acting as one of the town's main commercial streets. The building has been treated as a pavilion due to its orientation and need to also address Mick Sherd Oval.

The scale of the façade has been broken down into vertical bays through expressed cladding defining the building's planning and structural grid.

At ground floor level the building textured fibre cement cladding provides the building with a solid, rough base, responding to the rusticated historic façades typical of the town.

A perforated, angled screen at first floor provides shading to windows and the facade, reflecting verandah's, typical of the town. The perforated screen combined with defined overhanging eaves express the horizontality of the building.



Building A - Southern Elevation Facade Composition
Source: TKD Architects

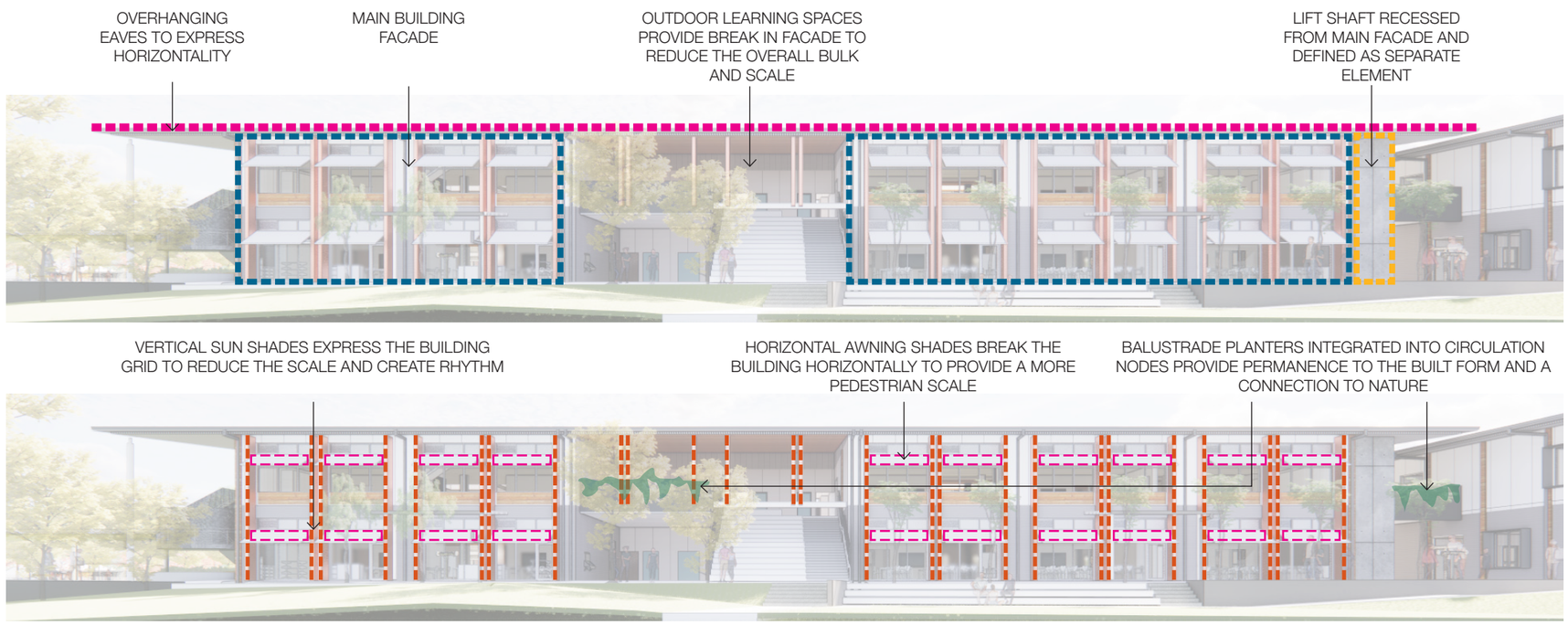
Building A - Southern Elevation
Source: TKD Architects

2.2 *Building B*

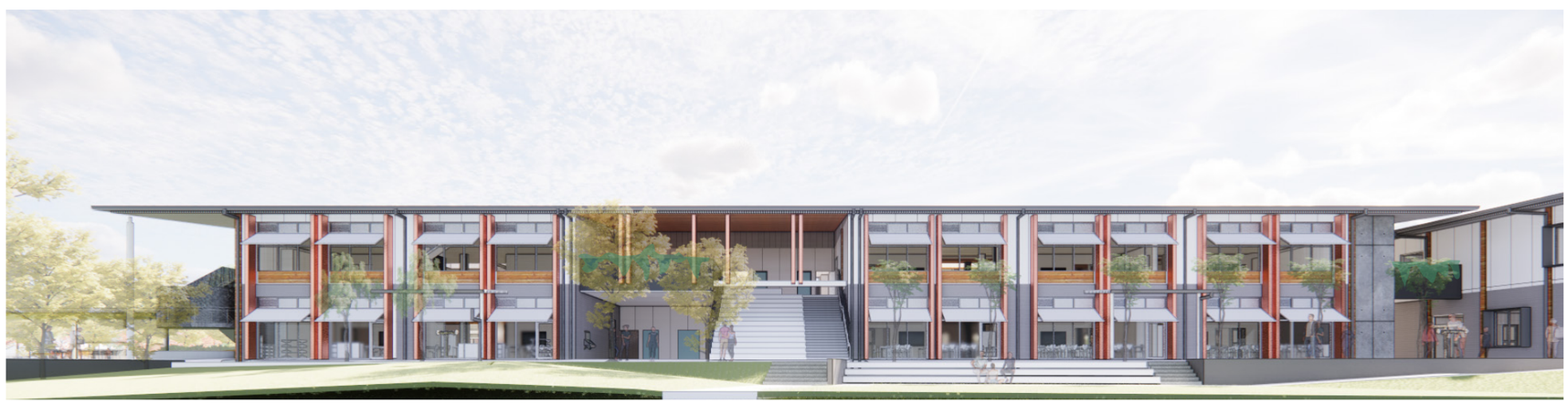
Building B again has a linear expression, reflecting its orientation which addresses the existing urban grain, the new school plaza and Mick Sherd Oval and the existing Council Building. The linear form is expressed via rhythm and repetition of windows, vertical and horizontal sun shades, and a single linear roof form which extends beyond the building to provide shelter and shade to covered walkways and stairs. Each of these contribute to drawing users through the campus. Horizontal sun shades over learning space openings provide a pedestrian scale to the facade.

Through facade composition and materiality the building takes influence from the region's pastoral heritage and reference to wool sheds.

Integration of planting within the building through planted balustrades to key circulation nodes and a green wall to the eastern facade provides permanence to the building and responds to biophilic design principles.



Building B - Western Elevation Facade Composition
Source: TKD Architects



Building B - Western Elevation
Source: TKD Architects

2.3 *Building C (existing)*

The existing Council Chambers building, Building C is constructed of bagged finish brickwork, earthy coloured fibre cement cladding and corrugated metal walling and roofing and is a good example of contemporary architecture in keeping with the historical village character of Bungendore.

Building C - Existing Council Chambers Building
Source: TKD Architects

Western facade - High level timber cladding

Western Facade

Northern Facade - Corrugated metal walling

Eastern Facade

Eastern Facade - Bagged brickwork and fibre cement

Southern Facade - Fibre cement cladding

Building C - Existing Council Chambers Building
Source: TKD Architects

2.4 *Building D + E*

Building D&E is larger in size, accommodating the school's key facilities which consider shared use with the community as well as the community facilities. Its fenestration is more informal, but functional, responding to its varied internal spaces and reflective of the agricultural character of the northern portion of the site and beyond.

Through materiality it is agricultural in character, expressing its barn like scale.

Perforated screening and an extension of the hall roof provide shelter over the main covered outdoor space to the southwestern corner. The library entrance to the south is recessed and double height glazing provides views from the tiered learning setting to outside. At first floor to the north, the full height glazing is mirrored to provide views towards the agricultural plot, Turallo Creek and Country beyond.

To the north and southern elevations, screened egress stairs are expressed, contributing to the overall expression of the façades.

Large glazed windows extending down to ground level provide a defined public entry to the community facilities. At first floor level, picture windows with projecting sun shades frame views from the Community Health Hub to the creek and country beyond to the north. Angular perforated screening shades the eastern facade and creates the sense of rhythm and movement to the new school plaza.

Building D+E Western Elevation
Source: TKD Architects

Building D+E Northern Elevation
Source: TKD Architects

2.5 Building F

Building F is smaller in footprint and scale and has a simple skillion roof form rising to the south addressing the agricultural plot and views of the rural country beyond. The facade is designed to be robust and utilitarian, typical of an agricultural building.

2.6 Scout Storage Shed

The Scout Storage Shed, similar to Building F is simple in form and facade composition, reflecting its utilitarian use.

Building F Southern Elevation
Source: TKD Architects

Building F Northern Perspective
Source: TKD Architects

3 Materials and Finishes

Materials and finishes have been selected for their aesthetic, low maintenance and durable qualities. The MMoC methodology adopted for the project has also been a key driver to the material selection, requiring materials to be lightweight and easily transportable.

Through coloured fire cement cladding forms the primary cladding material and is selected to meet the above characteristics and low embodied energy. It's earthy quality and colours provide a Connection with Country, responding to the natural surrounding landscape, as well as reflecting material tonality of the existing Council Chambers building.

Metal roofing is proposed to each of the buildings to remain in keeping with the materiality and character of the town.

Towards the north of the site, Building D+E, Building F and to scout facilities, high level corrugated walling is proposed to respond to the agricultural, rural character and adjacent existing scout facility.

Prefinished vertical metal blades and timber look aluminium panels are used to break up the façades to more closely reflect the smaller proportions of buildings within the town.

Perforated screening, metal awning roofs and projecting metal window surrounds provide solar shading, privacy, variation, depth and interest to the façades.


SOLID FIBRE CEMENT


TEXTURED FIBRE CEMENT


CORRUGATED METAL WALLING


PERFORATED METAL SCREENING


PERFORATED FIBRE CEMENT


CORRUGATED METAL ROOFING + SOFFIT LINING


PREFINISHED METAL CLADDING - TIMBER-LOOK


PREFINISHED METAL CLADDING/ SUNSHADES


METAL AWNINGS


METAL SUSHADES


BALUSTRADE PLANTERS


PLANTED STAINLESS STEEL TRELIS

Materials and Colours
Source: TKD Architects

BUILDING A


BUILDING B


BUILDING C


BUILDING D

BUILDING E


BUILDING F

Materials Elevation Vignettes
Source: TKD Architects

TEXTURE

TREES GEOLOGY

COLOURS

Natural and Built Inspiration
Source: TKD Architects

TKDArchitects
Tanner Kibble Denton

4 Services Integration

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

4.1 Waste Management

A bulk waste pad is proposed to be located to the northern end of the proposed staff car park, away from the street façades and adjacent to the turning circle to enable ease of collection without the need for vehicle reversing on site. The waste pad is proposed to be screened.

Refer to Section J within this report for the Site Servicing Strategy.

4.2 Integration of Mechanical Plant

Mechanical plant has been located at 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.

4.3 Substation

The existing substation adjacent to the southern end of the existing Council Chambers building is to be upgraded to serve the new school.

4.4 On-site Detention Tank (OSD) + Rainwater Tank

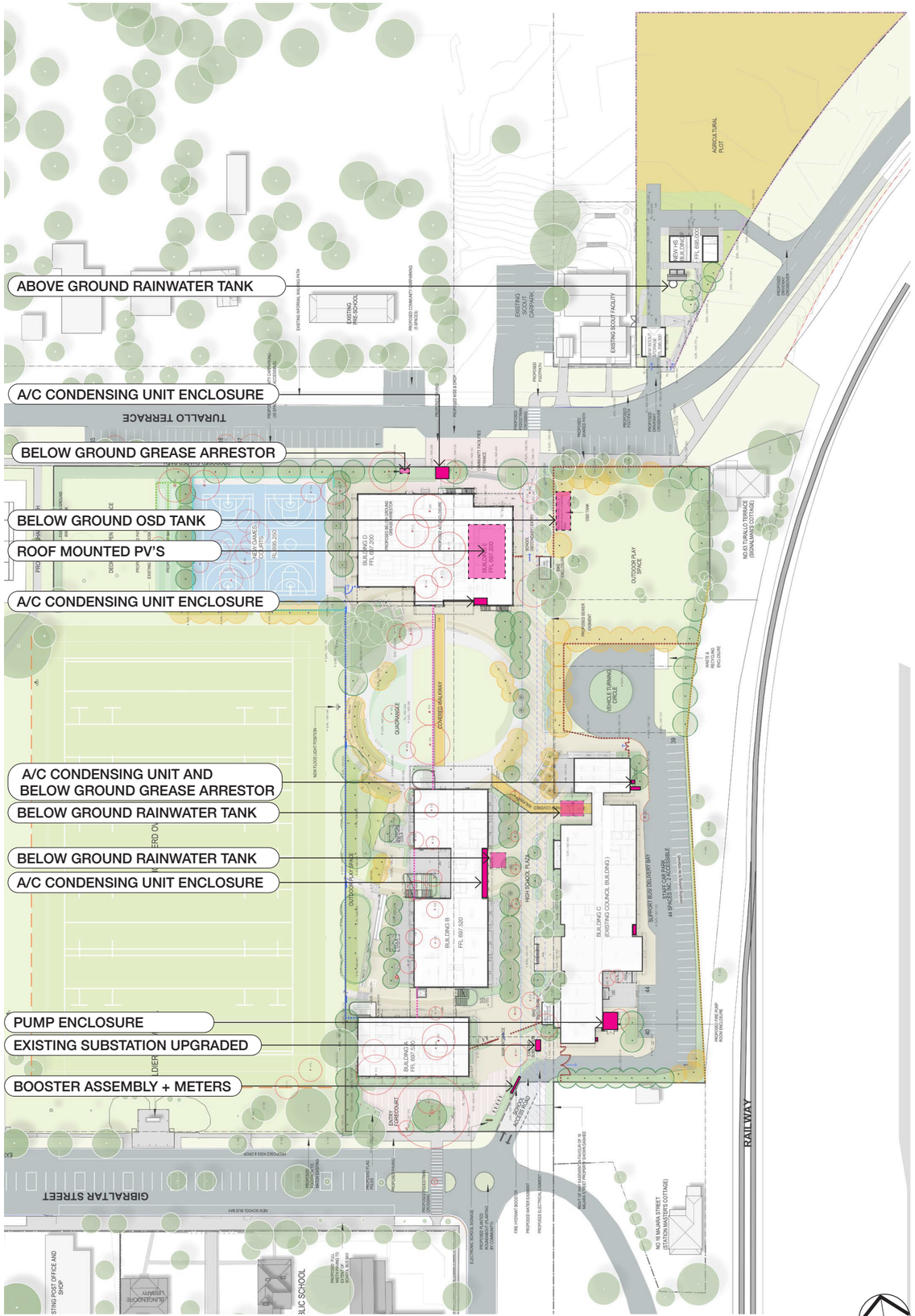
The OSD tank and rainwater tank are located below-ground, with pits and edges coordinated with the landscape design.

4.5 Hydrant Booster + Gas Meter

The hydrant booster is required to be visible from the main school entrance. The visual impact has been mitigated by setting it in from the boundary and co-locating it within low height planting along the new access way to the staff car park. The same strategy has been employed for the gas meter, which has a specific distance requirement away from the booster.

4.6 Solar PV

Solar panels are to be provided on the roof of Building D+E to be in close proximity to the main switch room which will house the intervers.



Services Integration Diagram
Source: TKD Architects

N Response to GANSW Discussion and Comments

N Response to GANSW Discussion and Comments

GANSW Summary of Advice 01

Connection with Country

A deeper understanding of Country can inform richer and more responsive design solutions. The project is well positioned to respond to the Draft Connecting with Country Framework. The following recommendations apply:

1. *Demonstrate how engagement with Traditional Custodians and appropriately qualified consultants has informed a meaningful approach to Country. Consider opportunities for participatory design.*
2. *Bringing forward engagement with the Ngunawal, Walgalu and Ngarigo Communities so that knowledge and lessons learnt can underpin the design.*
3. *Develop a strategy for embedding what is learnt, including how to manage knowledge that is shared, how to demonstrate a response to that knowledge through the project and how to 'report back' – a continuing relationship. The following areas could be explored to inform the CwC response:*

- *Cultural practices, including cultural land management and living culture*
- *Place names and language*
- *The stories of the Ngunawal, Walgalu and Ngarigo nations and the neighbours – both of and beyond the site*
- *Repair of the site from its previous use*
- *Use of local materials and colours in the architecture and landscape*
- *Relationship of the built form and landscape considerations to key significant views*

In addition to the above, it is strongly recommended to take the opportunity of walking Country with local knowledge holders.

Assessment of Proposed Development

Engagement with Traditional Custodians

Since presenting the design to GANSW on 31.03.2021, the design team have met with representatives of the Aboriginal Educational Consultative Group (AECG) and Ngambri Elder Woman, Dr Matilda House on site to Walk on Country on 07.04.2021 and 18.06.2021.

Key outcomes from the consultations are listed below:

General

> The importance of consultation with the indigenous community was noted by AECG representatives and gratitude expressed that it was being undertaken during the design process.
> An overview of the proposed design was given, including concepts and proposals for 'Connecting with Country'. These were positively received.
> There is concern about cultural inclusivity in the area. The provision of a high school in the town was seen as a positive initiative which will offer the potential for local youth development and cultural inclusivity.
> Strong support was also expressed for the incorporation of facilities to be shared with the community, for the location of the new school adjacent to the existing primary school, and for the scheme's connection to the adjacent sports oval. These are seen as further means of fostering social connections and inclusivity within the community.
> Further consultation with AECG representatives and traditional land custodians is to continue to be held as the project develops.

Comment and Recommendations from AECG Representatives

> The landscape design and planting material selection will be key in providing connection to country/site. Expertise on local plant species to be sought as recommended.
> The Black Crow, Black Cockatoo and the Wedge Tail Eagle are species of significance to the area and offered an opportunity for naming of school's buildings as a means of promoting a cultural connection/ awareness of local fauna and the opportunity for Integration of motif on glazing was identified.
> Use of pavement materials in the design to reference the natural land-form, colours and textures was supported.
> Support was received for the removal of exotic trees and replacement with new trees, particularly native species.
> The iron bark tree (Tirriwirri) has significance to the site, wood from the tree should be reused for making artefacts or other features for the school or community.
> The Radiata Pine tree on the corner of Gibraltar and Majara Streets was seen as important, although it is in a compromised condition and has considerable dieback.
> The agricultural plot site should have a connection to the existing Scouts building to forge further social links within the community.
> Relocation of the existing sandstone rotunda was supported so its potential for social interaction is preserved.
> A smoking ceremony is to be held prior to construction commencing and consideration of fire pit location to be considered.
> An aboriginal artist should be engaged to collaborate on graphics and signage around the school.

Connection with Country Strategy

The design for proposed High School in Bungendore has been developed to consider the key outcomes and the Draft Connecting to Country Framework, to create a strong, place driven identity that will help instill pride in the school and community.

The siting of the school in the midst of an open space provides an inherent connection with the exterior expanse, sky, creek, landscape, which would not otherwise be easily achieved from a more urban site.

Country has been embedded within the campus design and explored within the landscape through the concept of water, responding to the adjacent creek and flood prone lands to the north. Spatially, this concept has been developed to provide gathering spaces which lend the opportunity for indigenous learning, the ability to gain nourishment from the land and to learn to manage the land. Endemic planting, indigenous foods and medicinal plants further strengthen these opportunities.

Architecturally, Connection with Country has been explored and integrated through connections to sky, internal planning, materials, colours and providing visual and physical connections to the land. Large skylights over shared learning areas to the centre of Building B provide high levels of daylight and views to the sky. Where possible views of the creek and of the country beyond are framed by windows across the campus; facade materials have been selected to be tactile and natural in finish and colours reflective of the surrounding natural landscape and architectural vernacular. Learning spaces at ground floor level are provided large sliding doors allowing for learning opportunities to spill outside.

The project seeks to further connect with Traditional Custodian's through a number of opportunities which include further collaboration to develop the integration of interpretive signage, artwork and place names; provide opportunity for shared use agreements of school facilities; the holding of a smoking ceremony; and possibilities to learn from cultural practices and cultural land management.

GANSW Summary of Advice 01

Masterplan and Landscape

As articulated by the design team, the new high school provides a unique opportunity to contribute to the future development of the town. Yet, this is not fully realized. The project has the potential to respond to the specificity of place and the unique qualities of the town. The following is recommended:

4. *Reinstate the alignment of Majara Street to ensure that the existing street grid is retained and views towards the river are enhanced.*
5. *Ensure the masterplan delivers many, visual, legible and pragmatic connections into the adjacent sports campus and surrounding suburbs.*
6. *Provide a clear strategy which outlines how the facilities will be shared with the community including after-hours access.*
7. *Indicate the extent of fencing and limit fencing to only where required, using edge of buildings, landscape elements and low-rise fencing.*
8. *Use the landscape design to create a range of large and small spaces for student learning and respite.*
9. *Demonstrate how maximum retention of trees is achieved. Further documentation to be informed by an arborist report and landscape plan indicating the potential areas for future planting.*
10. *Ensure the specification of local species for landscaping is used across the campus.*
11. *Review the car parking strategy and determine the number of spaces required with variations of surface material of the car park and the provision of shade.*
12. *Indicate how the proposed active transport routes will operate across the day eg. when the school is open / closed / at night etc.*
13. *Interrogate the circulation strategy on, across and beyond the campus.*
14. *Provide plans, sections and 3d sketches of key areas to explain the relationship of built forms to adjacent spaces and the landscape /topography.*

Assessment of Proposed Development

4. Majara Street Street Grid

The location of the new buildings have been reviewed in response to the GANSW comments. The buildings are proposed to be retained in their current position.

The new buildings have been located to provide a large setback from the Mick Sherd Oval to the built form, to provide a functional space for the school which reponds to the adjacent Mick Sherd Oval. The setback is key to providing sufficient outdoor play space for the school within the western portion of the site. The ability to contain the majority of outdoor play space to the western portion of the site enables good opportunity for visual surveillance and supervision during recess and lunch.

The alignment of the new school plaza between the new buildings and existing Council Chambers building generally follows the alignment of the existing street grid, retaining it as a thoroughfare and visual connection, connecting Gibraltar Street to Turallo Terrace and to the creek beyond. The landscape design has been amended to strengthen the reference to the existing street alignment through the use of trees, planting and linear planter beds along the new school plaza.

5. Visual, legible and pragmatic connections

The school plaza is to act as the central spine of the campus, connecting the two school entrances and connecting all buildings. Its location, which reflects the existing thoroughfare and street grid provides legibility to the campus. The entrances to either end of the plaza, connect the campus to the suburbs beyond.

Community facilities and shared facilities for community use are located to the northern end of the campus, with a dedicated public entrance space from Turallo Terrace.

The siting and massing of the new buildings are designed to allow permeability throughout the campus, connecting the new school plaza with the western campus and Mick Sherd Oval beyond. Sheltered breaks in the building line provide both visual and physical connections, drawing users through the site.

A second circulation spine is also provided within Building B, connecting the administration and staff function with the main general learning spaces, support spaces and extend beyond to the library and gym via a covered walkway. The circulation spine has been designed to extend through the library via the creation of a double height space and tiered learning setting connecting the ground floor with the first floor level. Large glazed windows to either end connect the campus to the to Country beyond.

A covered walkway, located centrally within the campus provides a connection to the northern end of building B to the new technology facilities within building C via the new entry courtyard.

Landscaping to the ‘western campus’ is designed to respond to the general learning spaces and the Mick Sherd Oval. Sliding doors provide level access external learning areas adjacent to the building, creating a raised plaza area. Tiered turfed embankments to the west provide a response to the oval providing seating opportunities which overlook the sporting field.

Shared staff and administration facilities for the public school are located adjacent to the primary school and campus entry and accessed via the main campus gate and student entry to the northern side of Building A. A new pedestrian crossing located to the eastern end of Gibraltar street is proposed to connect the two sites.

Access to the Agricultural Plot is proposed via a new pedestrian crossing located to the northern end of the new school plaza. Entry to the agricultural plot is located in close proximity to the crossing.

6. Clear strategy for out of hours shared use of school facilities

Community facilities, as well as school facilities which consider community use are located to the northern end of the campus.

Entries to the community facilities which include the Community Library, Community Health Hub and QPRC Shop front are accessed from the new Community Forecourt and oriented to the north, providing legible and visible public access from the street without entering the school campus.

The design of the school gymnasium/ hall and school library consider shared community use outside of school hours. Community access to the school hall is proposed via a separate entrance door to the northern facade of the hall. The door is visible from the street and accessed from Community Forecourt. The community library has been co-located adjacent to the school library to provide direct access from one another via an internal sliding door. The door is to be access controlled and locked during school hours.

7. Fencing

SINSW have conducted significant stakeholder consultation to develop a site security strategy that is both safe and welcoming to the school and wider community.

Fencing lines to the northern and southern street facing façades have been setback behind the main building line to create welcoming, inclusive spaces to the two forecourts.

The Mick Sherd Oval sport field is to remain accessible by the community outside of school hours, however during school hours it is to be used by the school for curriculum activities. A new intermittent timber post and top rail fence with large openings between, and new removable timber bollards adjacent to the soldiers memorial are proposed around the sport field to communicate the delineation to the public and students. A section of the northern portion of the park is also to be dedicated for high school play space during school hours. This area has a similar delineation via landscaped planters.

A low level fence is proposed along the western boundary of the school site adjoining the oval, providing an integrated approach to the communty, while responding to the CPTED principle of ‘territorial reinforcement’ and maximising visual surveillance. Fencing to the railway line is to be in accordance with Transport NSW guidelines and the DoE’s EFSG to provide a secure and safe barrier. A new palisade fence is proposed adjacent to the neighbouring residential plots.

8. Diverse Landscape Spaces

The landscape design has been developed with the landscape design principles of Identity, Access, Green Amenity and Diverse Spaces.

The provision of diverse spaces for the new high school are designed to encourage a range of activities for students and provide areas of respite and foster moments of curiosity. These are provided through a variety of spaces designated for individual study, small groups and large classes as well as passive and active recreation.

Outdoor learning spaces, defined by native planting and shade trees have been provided adjacent to the general learning spaces of Building B. The school plaza is defined by hard landscape features, raised planters and trees. Programmed breakout spaces along the school plaza include the opportunity for a VET (Vocational education and training) cafe, outdoor learning spaces and informal quiet passive seating spaces under trees. The main quadrangle space is located in centrally within the main site between building B and Building D. It provides a variety of different seating spaces and a large active space. The library and hall have direct connections to it. To the western side of the campus, soft landscaping provides a connection to the Mick Sherd Oval. Seating steps, tiered seating and turfed embankments navigate the level change and enable formal and informal class and school activities and provide spectator areas that connect to the

sporting facilities of the games court and oval. A raised covered outdoor area adjacent to the hall and canteen provides outlook opportunities across the oval and seating opportunities for lunch.

Refer to section F for a detailed description of these spaces.

9. Retention of Trees

The new high school has been developed from a detailed site analysis, extensive community engagement and engagement with Queanbeyan Palerang Regional Council to develop an endorsed masterplan.

Buildings have been sited to provide significant setbacks from the adjacent boundaries to retain the open character of the town and provide new high quality landscape, streetscapes and public spaces.

The landscape design looks to retain existing trees where possible and minimise the number of trees being removed. The assessment of these trees has been completed with reference to the Aboricultural Impact Assessment Report and assessment of the amenity and safety of the school users.

Refer to the Aboricultural Impact Assessment report and the Landscape Design Report which illustrates all existing trees to be removed and retained and the reasons for doing so.

The landscape principle of Green Amenity has been developed to create spaces that are soft, greener and have a strong connection to nature, through the use of educational gardens, native grassland perimeters, canopy cover and active green spaces. The considered approach proposes a much larger number of new trees to offset those required to be required to be removed to provide additional shade and reduce the heat island effect. The landscape plan proposes to use predominantly native grasses and plants.

10. Local Planting Species

Endemic, local and native planting is proposed to be used to highlight native species and provide learning opportunities. The majority of the proposed plant species is native and local and also features the cultural significant Eucalyptus sideroxylon (Mugga Ironbark). Proposed trees on the site have been chosen to reflect the character of the surrounding suburb, streetscapes and tree species. Endemic grassland species to the peripheries of the site will help reconnect the landscape to its natural state and provide a buffer planting for the school grounds.

11. Car parking Strategy

The proposed carparking strategy has been redesigned to utilise the the existing Council Chambers car park and surface material to the eastern side of the existing building for staff parking. A total of 44 spaces including 2 accessible spaces are provided. Community carparking has been provided along Turallo Terrace adjacent to the Mick Sherd Oval.

The community car parking on the existing section of Majara Street which becomes the school plaza has been relocated to the southern edge of Turallo Terrace, as well as a smaller number to the northern side of the street to serve the Scout Facility.

12. Active Transport Routes

A Transport Plan has been prepared and included within this EIS which identifies existing and recommended improvements to the existing Bungendore Active Transport Network to improve pedestrian amenity and provide safe walking, bicycle and scooter routes for the school and community.

School Use
The new high school is located centrally within the town. Two proposed entries to the school campus provide good, legible, direct connections to the northern, southern and eastern residential areas. Bike parking enclosures are provided at either end of the campus, in visible and easily accessible locations.

Staff bicycle spaces are provided adjacent to end of trip facilities including showers and lockers to encourage active transport modes.

Community Use
The new community facilities connected with the high school replace existing facilities within or adjacent to the site and will utilise the same active transport routes as the high school. A new public shared path is proposed to the western edge of the Mick Sherd Oval, replacing the existing path on the eastern side, connecting Gibraltar Street, the existing community amenities and Turallo Terrace. The shared path to the southern side of Turallo Terrace adjacent to the existing tennis courts is to be extended along Turallo Terrace to the east to connect with new community facilities.

Outside of School Hours
Opportunity for access to school facilities by the community outside of school hours has been considered to work in unison with the community facilities, each being accessed by the new Community Forecourt from Turallo Terrace.

13. Circulation Strategy

The Circulation Strategy is discussed within section J of this report.

The circulation strategy for the campus is further summarised in Item 5. Visual, legible and pragmatic connections of the GANSW comments.

14. Relationship of Built Forms to Adjacent Spaces and the Landscape Beyond

The landscape design has been developed to provide diverse spaces that respond and relate to the adjacent internal spaces, providing landscape buffers, outdoor learning areas, public spaces and high quality streetscape, large and small gathering spaces, spaces for growing and spaces for respite.

The relationship of built form to the adjacent landscape spaces and the landscape beyond has been described further within Section F of this report.

GANSW Summary of Advice 01

Buildings

The scale, location and bulk of the proposed buildings should be reviewed and reduced as much as possible. Relocating the buildings off the Majara Street axis will enable the original street grid and visual connections to be maintained. The following is recommended:

15. *Review the siting of the proposed buildings and respond to the local character of the town.*
16. *Reduce the volumes / massing of the proposed school buildings in keeping with local character.*
17. *Demonstrate the potential for indoor / outdoor learning and harness the special qualities of the site.*
18. *Demonstrate a unified architectural language across the site including the covered walkways, treatment of the windows and stairwells.*
19. *Provide further detail for the proposed architectural approach including materiality and response to ESD principles.*
20. *Illustrate using 3D sketches, the scale and materiality of the architecture and the different entries to the campus.*

Assessment of Proposed Development

15. Siting of the Proposed Buildings and Response to Local Character

The siting of the buildings have been developed from a detailed site analysis, investigation of functional relationships and outdoor play space requirements.

To the southern and northern boundaries, large setbacks have been provided from the street to the built form, creating new public spaces and high quality landscaped streetscape in keeping with the town's open character.

Building A has been orientated to address Gibraltar Street and the Mick Sherd Oval. Its setback provides a welcoming and inclusive entry forecourt to the new high school and retains the Soldiers Memorial as the dominant structure on the eastern end of Gibraltar Street. The location of the building which accommodates the shared high school and public school administration and staff facilities is also critical in functionality, being proximate to the main entrance and public school.

Building B has been sited to maximise the adjacent parkland to the west, provide sufficient open playspace for the school and provide a landscaped connection to the oval which sets back the built form, retaining the open character of the town and reducing the overall mass of the building. To the east the building has been positioned to generally maintain the alignment of the existing Majara Street which is to form the new school plaza, retaining the exising physical and visual connection between Gibraltar Street, Turallo Terrace and the creek beyond, in addition to being sited to address the proposed easements.

Building D contains the school's hall and library, which are to be shared with the community and is directly connected to Building E which contains the new community facilities. Its location to the northern end of the site provides direct access from the street, allowing for community use and out of hours shared use of facilities to operate indepenently to the shcool. Siting of the building has been developed to provide a setback from the street to form a new Community Forecourt and landscaped streetscape, while providing sufficient space to the south for a potential future phase. On a east west axis, the building is positioned to provide good connections from the hall to the outdoor sporting facilities to the west and accommodate the proposed easements to the east.

Building F has been sited to the north of the agricultural plot, retaining the existing open character of the Bungendore Common, while being located in close proximitiy to the school plaza for convienient access, as well as being outside of flood prone land.

16. Reduction of Volumes + Massing

The high school site is generally isolated from the town and neighbouring buildings due to its location adjacent to the Mick Sherd Oval to the west, agricultural plot to the north and railway to the east.

The new high school buildings are of one and two storey scale and are driven by the facilities required to cater for predicted student numbers and forecasted population growth of the town, as well as the incorporation of new community facilities within the campus and retention of the existing Mick Sherd Oval football pitch.

The volumes and massing of the new buildings have been reviewed in response to the GANSW comments.

The overall height of the buildings have been reduced by approximately 400mm to set the building eaves below the portion of site which is subject to a 8.5m LEP height limit.

A number of urban design and architectural strategies have also been developed to reduce the volume and massing of the proposed buildings.

Large setbacks from the street and from Mick Sherd Oval provide a landscaped buffer to the new buildings. These setbacks provide open space between the street and oval, and the built form, which is in keeping with the existing character of the town. Existing and proposed trees will provide significant canopy cover and a further buffer to the buildings.

Large open play space between Building B and D and covered walkthroughs to either end of Building B are designed to provide permeability through the campus and breakdown the overall built form, seperating each of the buildings.

The linear form of Building B is further broken down into two elements through the creation of the central outdoor covered learning area at both floors and a tiered learning setting which connects the building to the oval. To the eastern facade a recessed greenwall and plant space define the two elements.

Building A and B are designed to express their linear form. Overhanging eaves express the buildings horizontality and provide shading to the facade and key circulation nodes. Vertical sunshades and expression of the vertical building grid breakdown the overall building form further. Horizontal awning sunshades to Building B provide shelter to glazed doorways and windows and are designed to provide a pedestrian scale.

To the north of the site, Building D+E utilises setbacks in the building form at ground level to create covered entries, walkways and covered outdoor areas for the school and community use, while reducing the overall scale of the buildings. The western facade has been broken down into a series of bays via overhead doors which connect the hall to the landscape beyond. The rhythm of doors, downpipes and the recessed void of the outdoor covered area to the south, and the first floor screening breakdown the building mass. To the northern facade, the building is articulated to be more informal. Expression of stairs, picture windows and recessed entries respond to their use as required.

Each building is articulated individually, each responding to their slightly different context, but with a shared use of a restrained palette of materials which express a unified architectural response to the new campus while responding to the contextual aesthetic.

17. Indoor/ Outdoor Learning

The project has been developed with the Project Development Guidelines and Development Parameters to provide learning neighbourhoods and hubs which align to the educational rationale developed for the project.

Internal learning spaces have been designed to be able to support future focused learning, enabling learning to be facilitated via a range of delivery methods, and engage students in different learning styles, each fostered by emerging technologies and social changes to furnish students with lifelong learning skills of creativity, critical thinking, collaboriation, communication and problem solving.

Internal learning spaces have been designed to comply with the DoE EFSG and DfMA guidelines.

General learning spaces are designed around a central shared learning space with large glazed doors connecting one to another and to the central space to provide flexible learning settings with good connections and visual surveillance. At first floor level, skylights act as windows to the sky and provide additional daylight to the central space.

Ground floor spaces are provided with large glazed doors connecting them to the outside, where defined landscaped areas create opportunities for the classrooms to spill outside.

The school hall has been designed to maximise its connection to the existing Mick Sherd Oval, new games courts and the school play space to the south through use of large overhead doors and a large covered verandah.

The library is designed as an extension of the campus circulation spine. A double height space rises over a tiered learning setting to the first floor space. Full height windows

to the north and south connect the school campus to the creek and the country beyond.

The landscape design has been developed with principle of diverse spaces. These include areas outdoor learning spaces, breakout space, gathering spaces and spaces for spectating and respite. These are further described under item 8.

Indoor and outdoor learning spaces are discussed in Section F and K of this report.

18. Architectural Language

The architectural language has been designed to be considerate and to positively contribute to the historic, rural village context and provide a Connection with Country, creating a contemporary facility which responds to the vernacular and varying character of the site.

The architectural language has been described further in section M of this report.

19. Architectural Approach, Materiality and ESD principles

The architectural siting and expression has generally been desribed above, but also takes influence from the region's pastoral heritage through aethetic and materiality of agricultural architecture. Spatially, the design has been developed to address the site parameters and comply with the functional and educational requirements of the various development guidelines and Educational Rational.

Textured and solid fibre cement cladding of neutral, earthy tones, provide a sence of permanence to the buildings, while hinting at the weathered historic buildings of the town. Corrugated walling and roofing has been used to mirror the adjacent context. Timber lookalike cladding and warm tonal metal cladding provide features to the building which reflect seasonal tones of the surroundings.

The architectural approach and materiality have been discussed throughout Sections F-M in this report.

The project is expected to achieve a high level of environmental sustainability and is targeting a 4 Star rating, representing Australian Best Practice development.

The project ESD strategy and proposal is discussed in section G of this report and within the ESD report submitted as part of the EIS.

20. Scale, Materiality and Entries

Scale is discussed in section F of this report. Materiality is discussed in section M. Entries are descibed in section F and M.

The items are further summarised under item 16, 18 and 19 above.

GANSW Summary of Advice 02

Connection with Country

1. *Use the stories learnt during the Connecting with Country consultation to move beyond the application of pattern onto surfaces and integrate the learnings into a wholisitic and embedded approach to the design development of the landscape and built form, open spaces, circulation, nodes and meeting places.*
2. *Seek opportunities to enrich the landscape and details within the built form with Aboriginal knowledge and embed the Stories of the Ngunnawal and Ngarigo communities.*
3. *Consult with Aboriginal Communities throughout the development of the built forms and garden areas. Consider the introduction of a yarning circle as a teaching space for the Bungendore community and people from Aboriginal nations to share and use.*

Assessment of Proposed Development

Connection with Country

The design team have met with representatives of the Aboriginal Educational Consultative Group (AECG) and Ngambri Elder Woman, Dr Matilda House on site to Walk on Country on 07.04.2021 and 18.06.2021.

The design for the proposed High School in Bungendore has been developed to consider the key outcomes of these Walks on Country and the Draft Connecting to Country Framework, to create a strong, place driven identity that will help instill pride in the school and community.

Country has been embedded within the campus design, both in the landscape and built form. The approach goes beyond the application of pattern onto surfaces, forming diverse, programmed spaces that meet the needs of the school and connect the campus to its wider context. The approach also considers the wider community, supporting cultural and community opportunities. The provision of spaces within the development which consider the potential for shared use, vocational education and training, the sharing and nourishment of indigenous foods, learning from endemic planting and the opportunity to learn from cultural land management techniques.

The detail of the spaces and the built form, both externally and internally, will be developed in the design development phase of the project, to explore and develop a wholistic approach throughout all elements of the design. Stories of native bird and tree species have been identified within the Walks on Country.

The project seeks to further connect with Traditional Custodian's through a number of opportunities which include further collaboration to develop the integration of interpretive signage, artwork and place names; provide opportunity for shared use agreements of school facilities; the holding of a smoking ceremony; and possibilities to learn from cultural practices and cultural land management.

The project team will seek to consult a specialist consultant over the next phases of the project to continue to develop the Connection with Country approach and current and future opportunities to create a deeper Connection with Country and improve the users experience, understanding and knowledge of Country. The Consultant will integrate with the design team and will help to support the team in developing and realising the early concepts.

GANSW Summary of Advice 02

Masterplan

4. *Align the plaza 'spine' with Majara St to ensure continued visual connection to the street grid. Review the built form massing and consider the relocation of Buildings B, D and E adjacent to the spine to achieve this.*
5. *Explore a reduction in the mass of all built form to a scale in keeping with the local character.*
6. *Review the circulation and covered walkways around and through the site. Circulation should attempt to follow the natural contours of the site and respond to the proposed landscape design rather than bisect open space in areas such as the quadrangle.*
7. *Provide strong connections for community access between the oval and the proposed open spaces of the campus.*
8. *Provide 3d sketches of key locations across the campus indicating the character and materiality of the green, walkway, gathering and play spaces at the next SDRP.*

Assessment of Proposed Development

4. Align the plaza spine with Majara Street. Built form Massing, relocation of Buildings B, D and E.

The alignment of the school plaza has been a key consideration in the design. The alignment of the existing street is defined by the existing Council Chambers building to the eastern side and the Mick Sherd Oval on the western side. The new buildings are positioned to respond to this street grid, aligned in a north south orientation. They are also positioned to allow for the full size rugby football field on Mick Sherd Oval to be retained, while providing high quality open space within the school boundary that responds to the internal planning of buildings, and that respects the open character of the oval and the town.

The width of the school plaza provides adequate circulation space for school users as a main circulation spine for the campus and allows for gathering spaces either side for outdoor learning, reflection and retreat. The alignment of the circulation spine generally retains the existing location of Majara Street, ajacent to the Council Chambers Building, however does not require the full width of a 30 meter road reserve.

This response prioritises the human experience of the public park and the campus, rather than prioritising the rigid alignment and width of the existing street which is designed for vehicular circulation and parking.

The alignment of the school plaza circulation route retains the existing connection, providing a pedestrian thoroughfare and visual connection between Majara Street to Turallo Terrace, which is to be used by school users. The plaza will not be open to the general public except on special occasions and the character of the road will be inherently different.

The siting of the buildings is further explained in Section F of this report.

The location of Buildings B, D and E were subject to consultation with the local council, Queanbeyan Plaerang Regional Council (QPRC) during the masterplan phase of the project. In December 2020 the proposal for the new high school and the masterplan design was endorsed by the QPRC. Refer to Section D within this report for the endorsed masterplan.

The built form massing is a response to the required accommodation for a high school of 450 students, the provision of additional community facilities and in response to site constraints. Internal planning of the buildings have been developed in response to regional educational planning principles, locating a centralised shared learning zone between learning spaces, in addition to compliance with SINSW DfMA planning grid requirements.

5. Explore a reduction in mass and built form to a scale in keeping with the exisitng Character.

The proposed massing and built form have been developed to meet the below requirements:

> Accommodation and areas to provide spaces that are equitable with other schools of a similar size in accordance with SINSW Educational Facilities Standards and Guidelines (EFSG)
> To meet regional educational planning requirements for a centralised shared learning spaces.
> Compliance with SINSW Design for Manufacturer and Assembly (DfMA) Guidelines for a standard planning grid
> To maximise open play space and the open character on the site and its context.
> To accommodate community facilities that fully integrate the development within the community.

The floor plate configuration is generated from conceptual models developed by SINSW educational planners in response to high school pedagogy across the state. The model is developed from the principle that schools should no longer comprise of individual cellular classrooms and that learning areas must simulate the future work environment by providing spaces that foster a range of activities from smaller to large group collaboration. Spaces are grouped into learning commons and must have the flexibility to connect, to join together to form large spaces and the ability to facilitate breakout opportunities for smaller groups.

These concepts and models formed the basis for the Education Rationale for the project which was developed by Queanbeyan Principal Network. The Queanbeyan Principal Network consists of 20 government schools. The Network engaged in a consultation process involving a 'Discovery Workshop' which included Directors, Educational Leadership, school executive, and teaching staff from the Queanbeyan principal network. From this process a series of network values were determined. These values were considered alongside the EFSG General Education Principles to Develop the educational Rationale specific for the Monaro Schools including consideration of the local climatic conditions. The Educational Rationale is one of the key briefing documents providing the foundation for the design concept.

The above mentioned conceptual models integrated with SINSW Design for Manufacturer and Assembly (DfMA) Guidelines, which is being rolled out for new state schools. This document provides standard grid dimensions and layouts which determine the floor plate dimensions. Although the project may no longer pursue a strict volumetric approach, as a 'kit of parts' design it will still incorporate a significant component of off-site manufacture, utilising modular building components.

The bulk and scale is therefore typical of a state school of its size, designed to accommodate the required facilities for projected enrolments.

Bungendore is a small regional town. The proposed high school is to be the town's first high school. The school is to cater for 450 students from years 7-12.

The project also looks to support community needs through addressing the shortage of large meeting facilities or internal spaces large enough for large community functions, performances or sports practice.

The proposed development is of two storey character and is generally in keeping with the scale and character of the larger, but limited, public, retail and commercial facilities within the town, such as the adjacent public school, Council Chambers building and super market.

Siting of buildings and architectural articulation have been developed to be respectful and complement the developments contextual setting.

Refer to section F within this report which further describes the massing and built form.

A Heritage Impact and Archeological Assessment has also been prepared by Ecological for this EIS, which provides further comment on the proposed development with reference to the site's historical context. The report comments that the proposed development is generally in keeping with its context.

6. Review the Circulation and covered walkways around and through the site. Circulation should attempt to follow the contours and repond to the landscape design.

Two covered walkways are proposed within the campus. The first, which connects Building B (general learning spaces, science and support learning spaces) with Building D (library and gym) in a north south axis provides a robust, pragmatic, paved connection between the two buildings that will be utilised as an important circulation route across the campus. The alignment of the covered walkway also forms part of the school's security strategy, combining the site's secure line into the covered walkway structure, creating an integrated architectural approach. The walkway will also help create two zones to the space, and active area and passive area.

The second covered walkway connects the existing Council Chambers building, which is to become the school's technology hub, with the other buildings in an east west axis. The location of the covered walkway is central to the campus and is again designed to provide a pragmatic, legible covered connection, linking each of the buildings.

The orientation of the campus's circulation routes in a north south, east west axis respond to the urban street grid and building orientation, which have been identified as important contextual responses.

The site has a subtle fall from South East to North West and most of the campus can be navigated without the need for ramps. Alignment of the circulation routes with the site's contours is therefore not a priority or necessitiy for the development.

7. Provide strong connections for community access between the oval and the proposed open spaces of the campus.

The siting of buildings has been developed to provide strong connections between the proposed open spaces of the campus and the oval. Critical to this is the large setback of built form to the western campus boundary to provide high quality, usable open learning and play space which physically and visually connects to the oval.

This connection is strengthend through the navigation of the site's subtle level difference in the form of grass embankments and tiered seating which allow for outlook over the oval. Low height fencing provides a delineation between site ownership of the two open spaces.

Physcial connections are provided at intervals along the western boundary connecting the school campus with the oval, predominantly for school curriculum use.

There is an increasing awareness that schools are subject to a heightened security risk and the requirement to meet child protection measures. The security strategy for the school has undergone extensive consultation with the SINSW Schools Security Unit to develop an appropriate strategy for the campus. The school campus will not be accessible by the community with the exception of special occasions or future shared use agreements.

The school administration, school facilities that consider the opportunity for shared use by the community, and community facilities which do not form part of the school campus, are positioned to facilate controlled access to the school site.

8. Provide 3d sketches of key locations across the campus indicating the character and materiality of the green, walkway, gathering and play spaces at the next SDRP.

Additional drawings were presented at the second SDRP consultation. These drawings are included throughout this report.

GANSW Summary of Advice 02

Landscape

9. *Ensure the landscape design combines the stories learnt from the Aboriginal consultation, and contributes to a sense of discovery across the site.*
10. *Reconsider the specification of extensive Ironbark trees for the campus with a eucalypt suitable for the Bungendore climate.*
11. *Maximise habitat provision to support native fauna to thrive and contribute to the learning experience for students.*
12. *Ensure minimal biodiversity loss across the site and list the extent of retained /repaired landscape at the next SDRP.*
13. *Provide additional shade trees along the eastern side of the campus.*

Assessment of Proposed Development

9. Ensure the landscape design combines the stories learnt from the Aboriginal Consultation and contributes to a sense of discovery across the site.

The project seeks to further connect with Traditional Custodian's through a number of opportunities.

The project team will seek to consult a specialist consultant over the next phases of the project to continue to develop the Connection with Country approach and current and future opportunities to create a deeper Connection with Country and improve the users experience, understanding and knowledge of Country. The Consultant will integrate with the design team and will help to support the team in developing and realising the early concepts.

10. Reconsider the specification of extensive ironbark trees for the campus with a eucalypt suitable for the bungendore climate.

The iron bark tree species has been identified as one culturally important species to the site, however is not proposed to be extensively planted across the site.
The tree final species selection shall be developed over the next stages of the project with input from local knowledge holders.

11. Maximise habitat provision to support native fauna to thrive and contribute to the learning experience for students.

The project team will seek to engage a specialist ecological consultant over the next phases of the project to develop an approach which supports native fauna habitat across the campus while providing a safe environment for school users.

12. Ensure minimal biodiversity loss across the site and list the extent of retained/ repaired landscape at the next SDRP.

A Biodiversity Assessment Report has been prepared by Kleinfieder for this EIS. The report states:

'The existing development site is subject to significant disturbance by their regular use by the public (i.e. high pedestrian traffic, use of sporting fields and open space), and continual maintenance of the vegetated areas (i.e. mowing of lawns and garden maintenance).'

'An assessment of fauna habitat within the Subject Site determined that the site contained no hollow-bearing trees, bird nests or other important habitat features (i.e. water bodies, leaf litter, fallen timber/hollow logs). The site is also characterised by limited vegetative structural complexity with a small number of mature planted exotic and native trees, a reduced shrub layer and managed exotic groundcover.

'Impacts on vegetation as a result of the proposed development is confined to removal of planted native vegetation in the form of street trees and removal of exotic grassland (managed). Removal of such vegetation is not expected to be important to the movement of threatened species through the locality, nor are these habitats presumed to be necessary to maintain their life cycle.'

The landscape design proposed to significantly increase the the number of trees and plants on the site to offset those required to be removed. Endemic grassland species to the peripheries of the site will help reconnect the landscape to its natural state. The proposed landscape design will improve the existing biodiversity across the site with the establishment of a significant number of additional endemic and native trees, shrubs and grasses. Where possible and feasible these will be from the local plant communities. The plant species palette will be finalised in the next design stages.

13. Provide additional shade trees along the eastern side of the campus.

Shade trees have been provided at the eastern side of the campus, particularly at the eastern side of the High School Plaza opposite the main quadrangle open space. The landscape design has also retained existing trees along the eastern side of Building E to maximise the tree canopy within the site constraints, such as utility easements along the eastern side of the High School Plaza.

GANSW Summary of Advice 02

Architecture

14. *Reconsider the deep footprints of the learning space to allow for improved air circulation, light access to lower floors and visual connection to the landscape.*
15. *Expand the use and width of the verandahs to be practical learning spaces and provide shaded spaces where possible.*
16. *Ensure all spaces are considered as learning spaces with a suitable scale for students of all ages.*
17. *Review the footprint of the buildings to include spaces or bends that breakdown massing, contribute to façade articulation and provide potential for new learning spaces.*
18. *Provide drawings, including 3D sketches and schematic sections, to show the scale and materiality of the architecture, and the spatial qualities of internal and external spaces, including the entry, walkways, undercrofts and roofscapes. A sketch model might also be used to illustrate the architecture and its response to the site.*
19. *Provide a comprehensive explanation of the active and passive approaches to ESD, including details on water use/harvesting, renewable energy, and sun shading. It is recommended that the design team go further than a 4-star green rating and aim for net zero carbon emissions.*

Assessment of Proposed Development

14. Reconsider the deep footprints of the learning space to allow for improved air circulation, light access to lower floors and visual connection to the landscape.

The proposed floorplates have been developed to meet the regional educational rationale and planning requirements for a centralised shared learning space and through consultation with SINSW DfMA team to achieve requirements setout in SINSW Design for Manufacturer and Assembly (DfMA) Guidelines for a standardised planning grid, which is being rolled out for new state schools.

This floor plate model has been developed by SINSW and educational planning specialits to deliver facilities that are able to support 'future focused learning', rather than a secular model. "Hubs" and "Neighbourhoods" are designed to provide "zones" that can be shared across classes in order to create the diverse offering of spaces that best support contemporary learning and teaching practices.

In addition to facilitating future focused teaching pedagogy, the internal circulation space design responds to the climate of the area to reduce students and staff having to brave the cold winter and hot summer climate when moving between classes.

General learning spaces are positioned to the perimeter of the building. Large full height and width external and internal glazed windows and doors are provided to general learning spaces, which maximise on natural light, high quality views and a connection to outside throughout the floor plan. At first floor level, large glazed skylights over the central shared learning zones draw light into these spaces and provide a connection to sky.

The general learning spaces are approximately 7m deep and are suited to single sided ventilation when doors are closed. In situations when these doors are open, doors to either end of the building will assist, as well as provide ventilation to the central learning space. Reliance on cross ventilation across the width of the plan results in acoustic issues and so a balance has been struck.

A statement from SINSW has been provided below.

The design for the new high school in Bungendore has undergone a thorough engagement process with various stakeholders within the Department of Education and SINSW. The functional requirements of the school and its geographical location have influenced the internal circulation and 'learning street' that is featured in the design. The internal circulation spaces align with the future focused teaching pedagogy by facilitating greater opportunities for agile and collaborative teaching practices that extends the opportunity for learning outside of the classroom. The proposed design maxi mises daylight penetration whilst accommodating the functional needs of the school and has been endorsed by SINSW executive and DoE School Performance.

15. Expand the use and width of the verandahs to be practical where possible

As described above, a centralised shared learning space and ciruclation strategy for Building B has been adopted in response to the educational planning requirements outlined within the project business case.

Perforated mesh has been used as a facade treatment throughout the development to provide articulation and shading to the building, while acknowledging the architectural metal verandahs throughout the town.

The addition of covered verandahs or the increase in width of verandahs would have a negative impact on daylighting levels to internal spaces and would not positively contribute to user comfort or experience.

16. Ensure all spaces are considered as learning spaces with suitable scale for students of all ages.

The project has been developed to provide spaces in accordance with SINSW Educational Facilities Standards and Guidelines (EFSG), which sets mandatory requirements for design intent and technical data for each space. Where practical, and in accordance with the EFSG, all spaces are treated as learning spaces, and are able to support 'future focused learning' to furnish students with lifelong learning skills (e.g. creative and critical thinking, collaboration and communication, and problem solving) as well as literacy and numeracy proficiency. Spaces will be suitable high school students at the appropriate age.

17. Review the footprint of the buildings to include spaces or bends that breakdown massing, contribute to facade articulation and provide potential for new learning spaces.

The masterplan for the campus has been developed to provide an appropriate response to the unique context of the site, responding to the orthagonal urban planning grid, and provide fortages that formally address to the adjacent streets and oval.

The orthagonal built form also reflects SINSW Design for Manufacture and Assembly (DfMA) guideline requirements, which set a standardised planning grid for new schools. The approach is designed to maximise on adaptability and flexibility to provide a range of spaces that are future proofed for the ability to steer education and pedagogy towards cross disciplinary learning methods.

Arbitrary bends in the building are therefore not seen as an appropriate response to the site context.

Another key response to the site context is to provide permeability between the school plaza and western campus and to the oval beyond. This permability is provided through breaks in the built form that create physical and visual connections. Centrally to Building B, external covered areas and a tiered seating, create opportunities for external learning spaces that overlook the oval and break down the built form. Setbacks, planted balustrades, a green wall and selection of external materials are designed to articulate these key nodes and breaks in the built form, recessing them from the main facade.

Building D + E to the northern end of the site is sized to suit the larger functional requirements of the hall, library and community facilities. Articulation of the building through covered entries, walkways and learning areas has been used to breakdown the building foot print at ground level to form usable spaces which contribute to the facade articulation.

Refer to sections F, K and M within this report.

18. Provide drawings, including 3D sketches and schematic sections, to show the scale and materiality of the architecture, and the spatial qualities of internal and external spaces, including entry, walkways, undercrofts and roofscapes.

A series of schematic 3D sections were provided at the SDRP and are included within this report. The sections express the relationship between internal and external spaces and their spatial qualities. Additional drawings are also provided within this report which express materiality.

Refer to sections K and M within this report.

19. Provide a comprehensive explanation of the active and passive approaches to ESD, including details on water use, harvesting, renewable energy, and sun shading. It is recommended that the design team go further than a 4-star green rating and aim for net zero carbon emissions.

An ESD Statement has been prepared by NDY in support of this EIS. The statement provides a full explanation of the active and passive approaches to ESD which are being considered for this project.

A further summary is provided within Section G of this report.

A number of rainwater tanks are provided for the development which will store water collected from the building roofs for resuse for landscape irrigation across the site.

The rainwater tanks consist of a new underground tank for the main campus which will collect rainwater from the new roofs. A second series of existing underground tanks store rainwater from the exisitng building. Due to the size of these tanks, these are best located below ground to avoid issues of impacting on visual surveillance. A third, above ground rainwater tank is provided on the agricultural pllot which provides a learning mechanism for students.

A new photovoltaic system is proposed to be located on the roof of building D + E, to be in close proximity with the main switch room and with capacity in accordance with EFSG requirements. The developement also proposes to utilise the existing photovoltaic system on the Council Chambers Building.

The extent of glazing has been developed with SINSW DfMA guidelines which set window to wall ratios, as well as solar shading dependent on their climatic zone and orientation. The extent and type of glazing and shading is a compromise between multiple factors, including, daylight, glare, energy consumption and thermal comfort.

Passive design principles have been implemented in the design to reduce the energy demand of the buildings, such as:

- High performance building fabric and glazing, exceeding the minimum requirements of the NCC 2019
- Large operable natural ventilation openings
- Effective sun shading has been provided across the project to relate to the orientation of the facades

It is noted that the project is located in a relatively cool climate, and therefore heating energy will make up a larger proportion of total energy consumption in comparison to a typical Australian building. Furthermore, it is expected that a significant portion peak summer cooling periods will coincide with school holidays, further decreasing cooling energy contribution to the overall consumption. Glazing on the western façade may increase summer cooling load, but will benefit the project during winter heating operation

Building fabric performance will be verified by energy modelling for all buildings. By this means, the proposed development is targeting a minimum 10% reduction in energy consumption against a minimum NCC 2019 DtS compliant building excluding any solar PV contribution, in accordance with EFSG Section DG02.03.

The project is positioned to achieve a certified 4-star Green Star Design & As-Built rating. The project is aiming to satisfy all relevant EFSG requirements, many of which go above and beyond the Green Star requirements. Refer to the NDY ESD Statement for more details, including the current Green Star pathway, EFSG ESD Register and Climate Change Adaptation Plan for the project.

A statement from SINSW has been provided below.

The NSW Net Zero Plan, Stage 1: 2020-2030 sets the target of 35% emissions reduction in NSW by 2030. NSW Education have committed to take a leading role as a government agency to become net zero emissions in operation by 2030. We are in the process of developing a roadmap to achieve this.

To support the net zero plan, and minimise carbon emissions within the boundaries of current policies and guidelines, the project has implemented the following initiatives:

> *Energy use reduction target at least 10% above a NCC 2019 Deemed to Satisfy compliant building, excluding any solar PV contribution*
> *Electrification of all air conditioning / gas use reduction activities*
> *Passive design elements to reduce reliance on mechanical HVAC*
> *Energy efficient building services*
> *Onsite renewable electricity generation*
> *Water efficient fixtures and fittings, and rainwater collection to reduce potable water consumption*
> *Waste management initiatives for operation, construction, and demolition waste*

P Conclusion

P Conclusion

1 Conclusion

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 4 of the Education SEPP.

The new High School in Bungendore is to provide the town's first high school, designed to cater for the projected enrolment.

The proposed new High School in Bungendore has undergone a rigorous design process and the Department of Education and Schools Infrastructure NSW are committed to a quality outcome.

Design excellence has been established through the detailed analysis of the site, community consultation and the application of the Design Guidelines and Development Parameters to create high quality internal and external spaces which respond to their unique context.