TAFE NSW
Institute of Applied Technology for Construction

STATE SIGNIFICANT DEVELOPMENT APPLICATION

ARCHITECTURAL DESIGN STATEMENT

NSW GOVERNMENT | TAFE NSW

GRAY PUKSAND

ISSUE STATUS

PROJECT

TAFE NSW Construction Centre of Excellence

CLIENT

TAFE NSW

Report prepared by:

COMPANY	ADDRESS	CONTACT
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Revision History:

ISSUE	DATE	STATUS
A	10 February 2021	Test of Adequacy
B	4 March 2021	SSDA Submission
C	11 March 2021	SSDA Submission
D	18 May 2021	Response to submissions update

We respectfully acknowledge the traditional owners of the lands throughout Australia on which we work. We pay our respects to their elders past, present and emerging and continue to expand our understanding of place and culture and our impact on climate, resources and communities.

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1.0 Executive Summary

1.1 Introduction

On the 19th June 2020 the NSW Government announced the new Construction Centre of Excellence would be constructed at the TAFE NSW Kingswood Campus.

Describing the facility as a “dedicated centre of excellence for construction trades,” The Minister for Skills and Tertiary Education, the Hon Dr Geoff Lee MP, outlined the vision for the facility.

With a move to significantly enhance education and training for the region and showcase the best of what TAFE NSW has to offer, the new facility will help meet the demand for a strong pipeline of skilled workers.

“With its world-class facilities, expert teachers and on-site industry engagement, the Construction Centre of Excellence will help to deliver the skilled workers needed for major construction projects such as the Western Sydney Airport and Aerotropolis, and the Sydney Metro Western Sydney Airport,”

Gray Puksand were appointed as Head Design Consultant for the TAFE NSW, Construction Centre of Excellence in October 2020.

1.2 Previous Studies and definition of Project Scope

Hassell Studio were engaged to develop initial conceptual options for the facility at various locations across the site, with the view to establish a preferred siting option and inform cost for the submission of an initial business case to Government.

A high level functional and operational brief was developed to inform the business case, outlining the project objectives, requirements, design principles and a reference design.

This brief requires further development as Gray Puksand embark on the design process and further consultation with the key stakeholders to ensure the outcomes will meet the needs of TAFE NSW now and into the future.

1.3 Purpose of this report

This report has been prepared to accompany a detailed State Significant Development Application (SSDA) SSD_ 8571481 for the development of an educational facility at the TAFE NSW Kingswood Campus, located at 2-44 O’Connell Street, Kingswood (the site). The legal description of the site is Lot 1 in DP 866081. The site comprises a rectangular lot with an area of approximately 23 hectares.

The purpose of this report is to provide an analysis of the Architectural Design and enable the reader to appreciate the conceptual design approach and design development process undertaken to date.

The SSDA seeks development consent for the construction and operation of the TAFE NSW Construction Centre of Excellence (TAFE NSW CCoE) a multi-level, integrated educational facility designed to accommodate specialised training and education for construction-related TAFE NSW courses (the project).

The TAFE NSW CCoE will be a new learning environment with an emphasis on flexibility and adaptability, to encourage cross-disciplinary collaboration, industry engagement and educational excellence. On 27 February 2019, the NSW Government announced the delivery and associated funding for the CCoE.

The proposed development is classified as State Significant Development (SSD) on the basis that it falls within the requirements of Schedule 1, Clause 15(3) of the State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP), being ‘development for the purpose of a tertiary institution… that has a capital investment value of more than $30 million’.

The Minister for Planning, or their delegate, is the consent authority for the SSDA and this application is lodged with the NSW Department of Planning, Industry and Environment (NSW DPIE) for assessment.

This report has been prepared in response to the requirements contained within the Secretary’s Environmental Assessment Requirements (SEARs) issued for the project. Specifically, this report has been prepared to respond to the following SEARs: 4. Built Form and Urban Density 5. Environmental Amenity 6. Ecologically Sustainable Development (Supported by additional reporting)

1.4 The Project Team

Gray Puksand have been engaged as Head Design Consultant for the TAFE NSW Construction Centre of Excellence and are supported by a team of highly experienced sub consultants and engineers.

TAFE NSW has also engaged various consultants to facilitate the delivery of the project.

PROJECT MANAGER — CADENCE AUSTRALIA
1/10 Mallet Street, Camperdown, NSW 2050

HEAD DESIGN CONSULTANT — GRAY PUKSAND
Level 1, 156 Clarence Street, Sydney, NSW 2000

HEAD DESIGN CONSULTANT — SUB CONSULTANT TEAM

Educational Consultant — New Learning Environments

Structural & Civil Engineering Services — Northrop Consulting Engineers

Multi-Disciplinary Building Services — Jones Nicholson Consulting Engineers

Landscape Architecture — 360 Degrees Landscape Architects

Acoustic and Audio Visual — NDY Consulting Engineers

Ecologically Sustainable Design & Green Star — Northrop Consulting Engineers

Building Surveyor — Metro Building Consultancy

Access Consultant — ABE Consulting

Crime Prevention Through Environmental Design — Mecone

Waste Management Consultant — Waste Audit

Façade Engineering — Prism Consulting Engineers

Specialist Lighting Designer — Haron Robson

Urban Planning Consultant — Urbis

Cost Consultant - Rider Levett Bucknall

2.0 TAFE NSW Kingswood Campus Context

2.1 TAFE NSW Kingswood Campus Context — Strategic Context

GOVERNMENT POLICY

In 2018 the Premier of New South Wales announced a new focus for the Greater Sydney Commission, with a vision for Sydney as three integrated and connected cities.

Providing independent advice, strategic oversite and coordination across government agencies, the commission was tasked with creating a more liveable Sydney through the planning process of the Western Sydney area and the Aerotropolis region around the new Western Sydney Airport.

The Commission has published various strategic planning documents relating to the Kingswood area with direction and vision at measured points of engagement, to Include:

The Greater Sydney Region Plan, A Metropolis of Three Cities is built on a vision of three cities where most residents live within 30 minutes of their jobs, education and health facilities, services and great places.

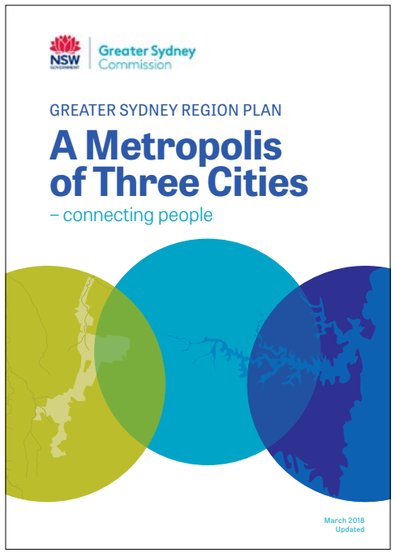
To meet the needs of a growing and changing population the vision seeks to transform Greater Sydney into a metropolis of three cities:

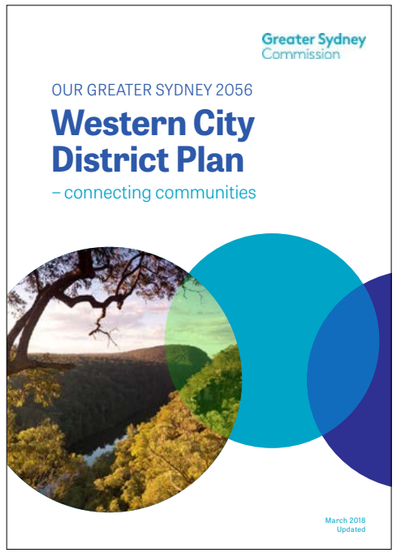
- the Western Parkland City
- the Central River City
- the Eastern Harbour City

The Western City District Plan is a 20-year plan to manage growth in the context of economic, social and environmental matters to achieve the 40-year vision for Greater Sydney. It is a guide for implementing the Greater Sydney Region Plan, A Metropolis of Three Cities, at a district level and is a bridge between regional and local planning.

The Greater Penrith Collaboration Area Place Strategy will inform public and private policy and investment decisions by identifying and recognising the complex, place-specific issues inhibiting growth and change, bringing together multiple and diverse stakeholders and identifying priorities for growth.

The underlying messaging in all three documents aligns with the Premier for New South Wales Priorities in her commitment to making a significant difference to enhance the quality of life of the people of New South Wales.

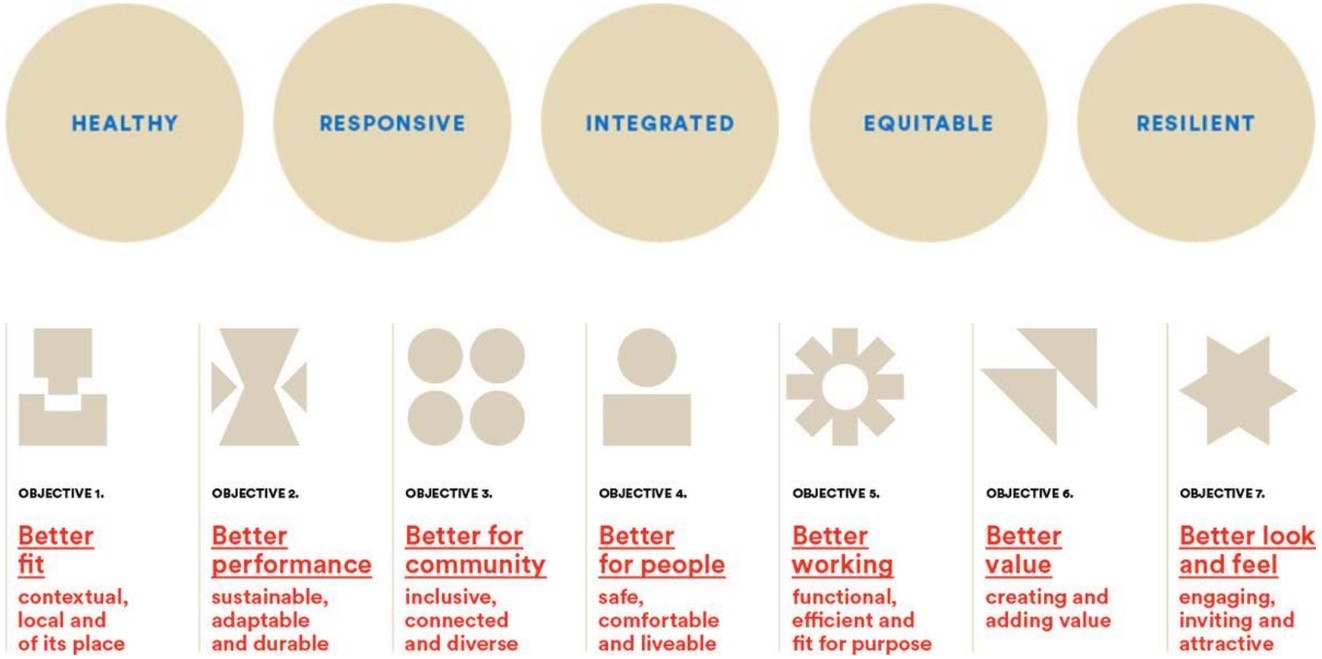




The priority of Greener Public Spaces including parks, greens space, plazas, libraries, streets, landscapes, museums and public transport seeks to create walkable, connected and accessible public spaces, promoting healthier lifestyles and bringing people together.

An identified priority of increasing the tree canopy and green cover across the Greater Sydney Region by planting one million trees by 2022 will enhance the local amenity in parks and streets and will play a crucial part in creating shade, reducing ambient temperatures and mitigating the urban heat island effect.

These strategies have been embraced by the NSW Government Architect, who has created a series of policy and framework documents to support Architects and Designers in creating a new urban fabric for our cities.



2.2 The Quarter Health and Education Precinct – Draft Structure Plan

The Quarter Draft Structure Plan – 7 November 2019

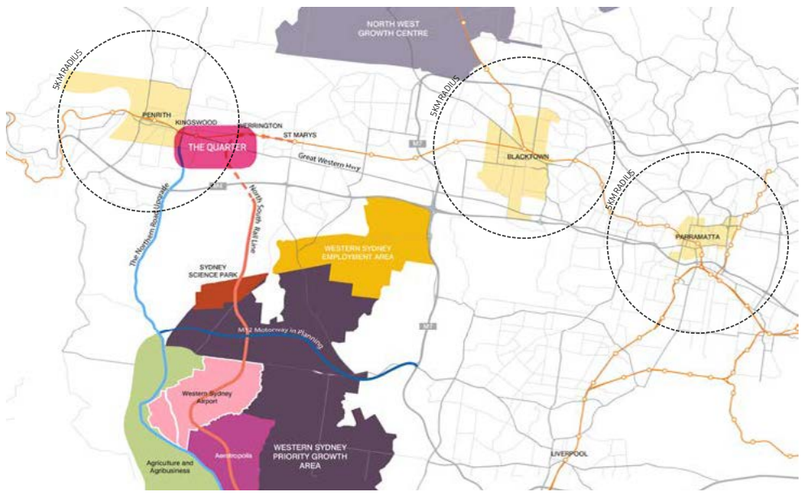
The TAFE NSW Kingswood Campus falls within the area that has become known as the Quarter, a region of Western Sydney associated with Penrith City, and Penrith City Council, in liaison with the NSW Government have created a masterplan with the view of realising a Health and Education Precinct.

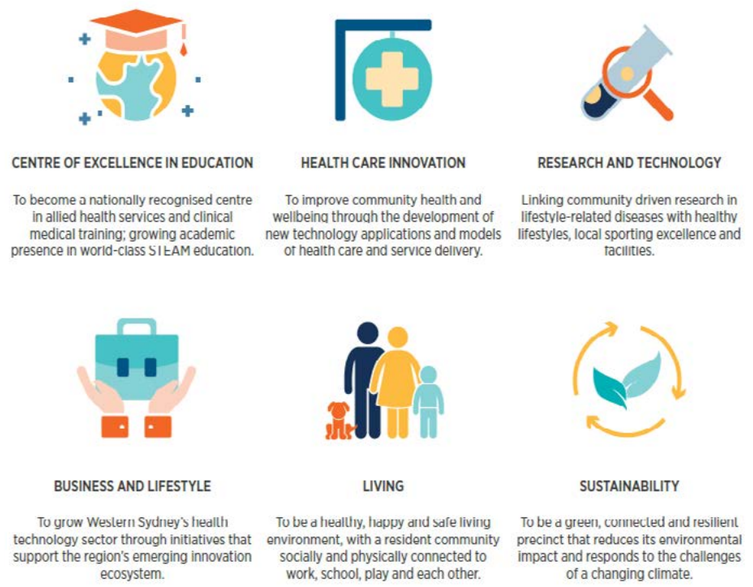
The plan has been established to set out a framework of how the quarter will support jobs growth, provide opportunities for improved transport connection, infrastructure updates and how the region will connect to Western Sydney.

Precinct Themes, that largely support the project proposed at the TAFE NSW Campus, include:

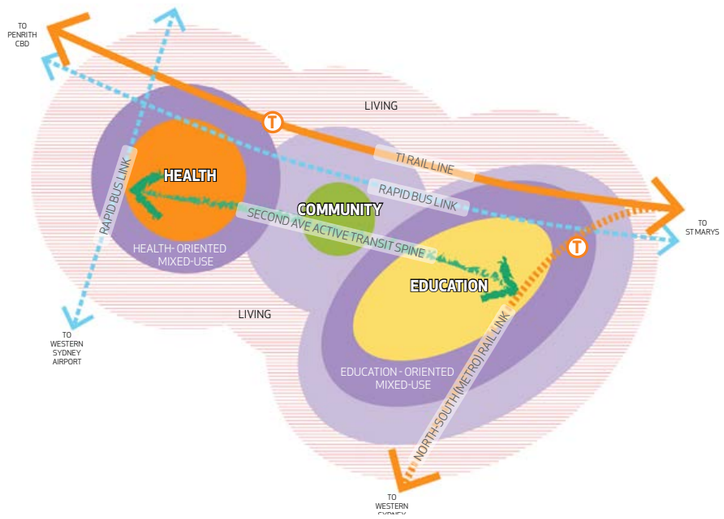
The Quarter's draft structure plan outlines the aspiration for the area to become a nationally recognised centre in education, growing from the existing presence of

- A significant regional teaching hospital
- Significant University and TAFE NSW Teaching Presence
- Nationally significant Allied Health Training Facility at TAFE NSW
- Allied Health training presences
- Strong career pathway programs into local industry
- Strong local demand for training
- Multiple complementary educational research offerings in areas such as engineering, health sciences, communication, arts and design

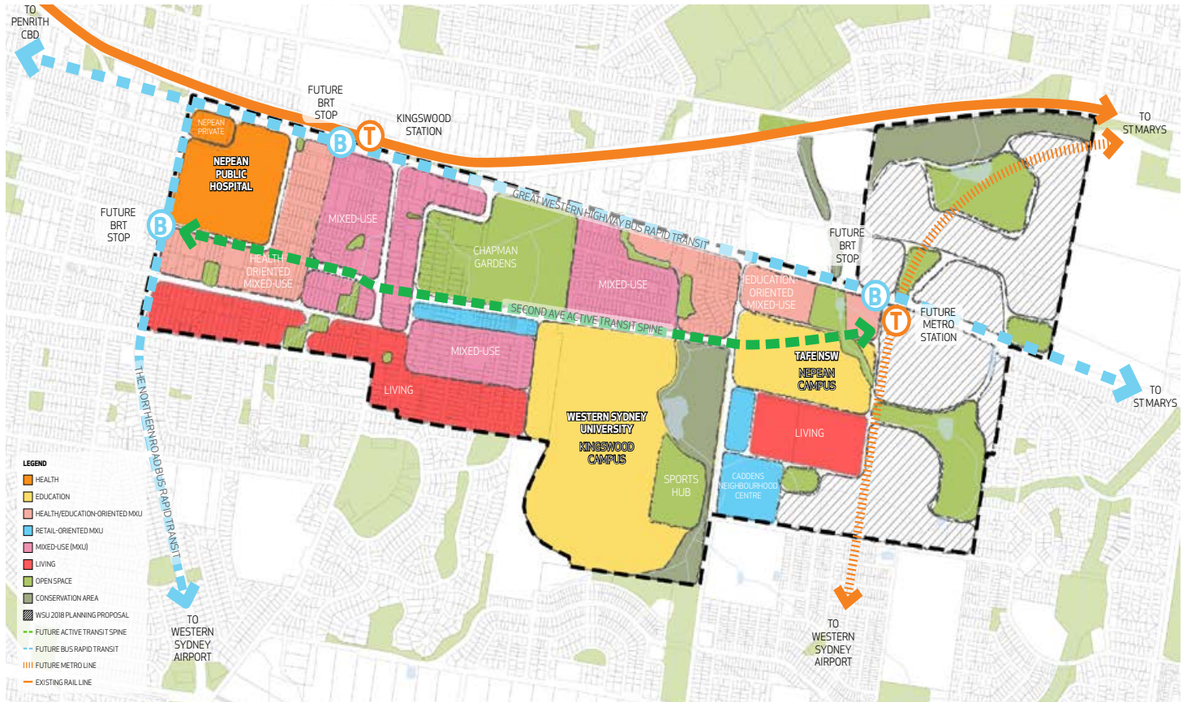




CORE PRINCIPLES:



THE QUARTER PRECINCT STRUCTURE PLAN:



CORE EDUCATION USES:

2.3 The Western Sydney University

Western Sydney University South Werrington Campus shares the Eastern boundary of the TAFE NSW Kingswood campus and will have a direct relationship to the new Construction Centre of Excellence facility in the preferred site location selected by the Minister.

Western Sydney University has in place a draft masterplan encapsulating its Kingswood, Werrington North and South Campus. This masterplan is currently being revisited and will be further developed in the coming months.

In the interests of aligning common interests, a design working group has been established between TAFE NSW and the University so the boundary condition can be reviewed with respect to the development plans and all the possible synergies between the two organisations realised.

1 COMMUNITY, FUNCTION AND FOOD & BEVERAGE SPACES

2 APARTMENTS

3 TOWNHOUSES

4 SENIORS LIVING

5 PRIMARY SCHOOL

6 MIX OF APARTMENT TYPES & SMALL COMMERCIAL TENANCIES

7 TOWN CENTRE: RETAIL, HEALTH & EDUCATION JOBS, TRAIN STATION, APARTMENTS

8 NEIGHBOURHOOD CENTRE

9 ACTIVE SPORTS PRECINCT

10 CONSOLIDATED & EXPANDED WSU CAMPUS

11 PUBLIC OPEN SPACE

12 GREEN SPINE

2.4 Sydney Green Grid + Active Transport Network

The TAFE NSW Kingswood campus falls under the Sydney Green Grid West Area as identified by the Government Architect of New South Wales Sydney Green Grid Document – 2017.

The Sydney Green Grid was envisaged to promote the creation of a network of high quality open spaces that support recreation, biodiversity and waterway health. The green grid aims to create a network that connects strategic, district and local centre, public transport hubs and residential areas.

The Sydney Green Grid document describes the system as being composed of a combination of four of the fundamental landscape layers [or grids] which underpin the geographic and urban structure of Sydney.

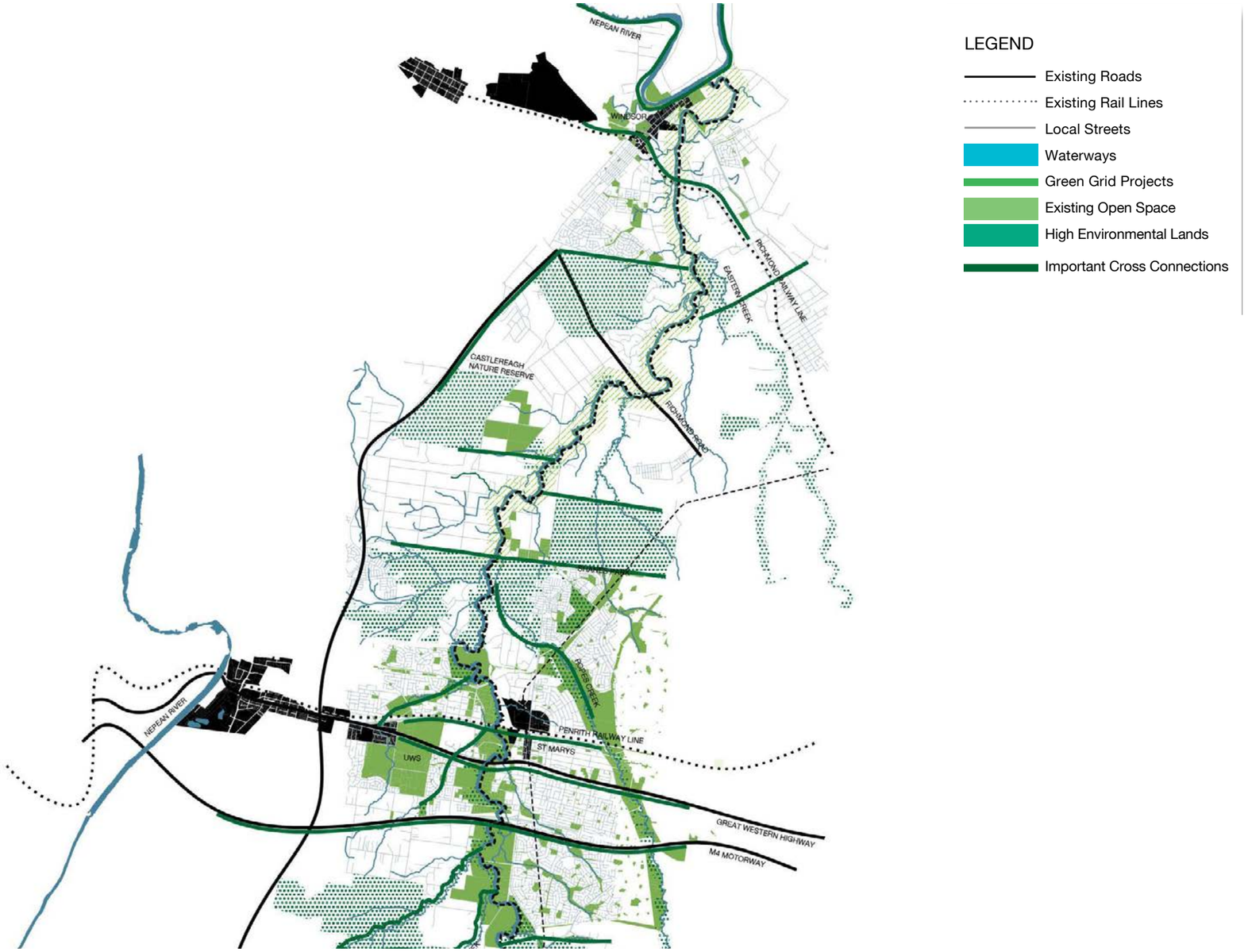
They are:

- The Hydrological Grid including natural and man-made manipulated water systems of the city.
- The Ecological Grid, including geomorphology, biodiversity, ecological communities.
- The Recreational Grid, including open space provision for active and passive recreation, walking and cycling networks, urban open space, public domain and streetscapes.
- The Agricultural Grid including rural and peri-urban landscapes, food and productive landscapes as well as those with scenic rural landscape values

TAFE NSW's Kingswood campus has a strong relationship to the Great Western Highway, sharing its entire northern boundary with the road, which has been identified as a key active transport corridor linking Penrith to Blackheath.

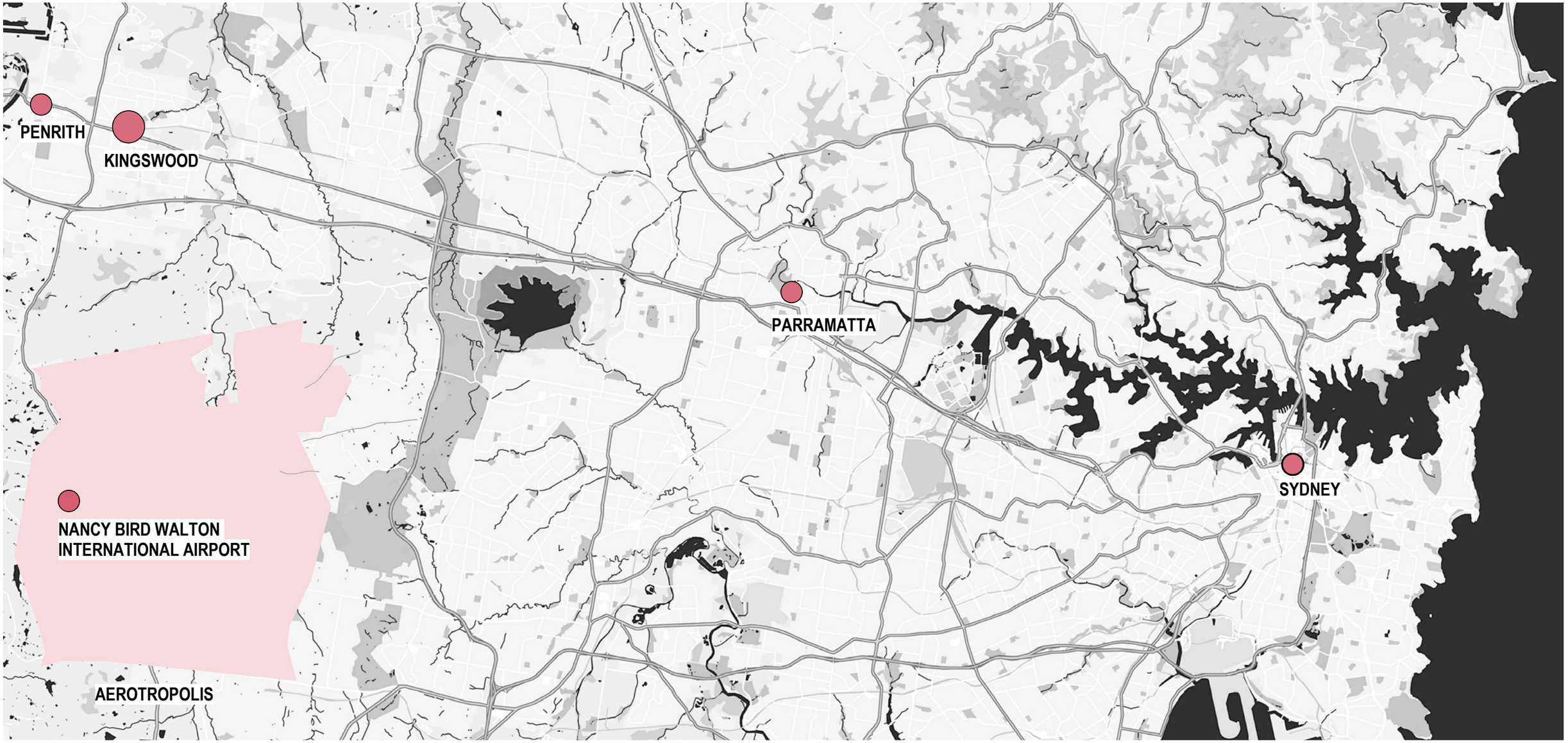
An active transport strategy for the area will be an important factor in the longevity of the TAFE NSW Campus and surrounding university establishments.

A potential transport corridor project would provide a major east west active transport corridor, from Penrith to Blackheath. The corridor would connect to the major centres along the route, including Penrith, Glenbrook, Blaxland, Springwood, Lawson, Woodford, Wentworth Falls, Katoomba and Blackheath. This project will provide a safe and separated walking and cycling trail along the corridor the takes in views along the mountain escarpments.



3.0 Site Context

3.1 Site Context



3.2 TAFE NSW – Kingswood Campus – An Introduction

OVERVIEW

The TAFE NSW Kingswood Campus is located approximately 50 kilometres from Sydney CBD as the crow flies, 6 kilometres from Penrith and is on the outskirts of the Blue Mountains National Park. Kingswood is one of the thirty seven suburbs that form the City of Penrith local government area.

The site occupies part of the traditional lands of the Darug people, with the area first incorporated as a municipality in May 1871.

HISTORY OF THE SUBURB

Kingswood was named after the family of Governor Phillip Gidley King, the third Governor of New South Wales. King owned the land that was originally heavily forested and became established as the intersection of the Great Western Highway and The Northern Road, now known as Parker Street, linking Richmond in the north to Cow Pastures in the south near Camden.

The Railway came through the suburb in 1862, with a temporary platform established and later closed. A permanent platform and ticket office were later established in 1887.

The area, upon clearing, was primarily farm land, with the NSW Government aerial imagery from 1943 showing the site remaining in agricultural use.

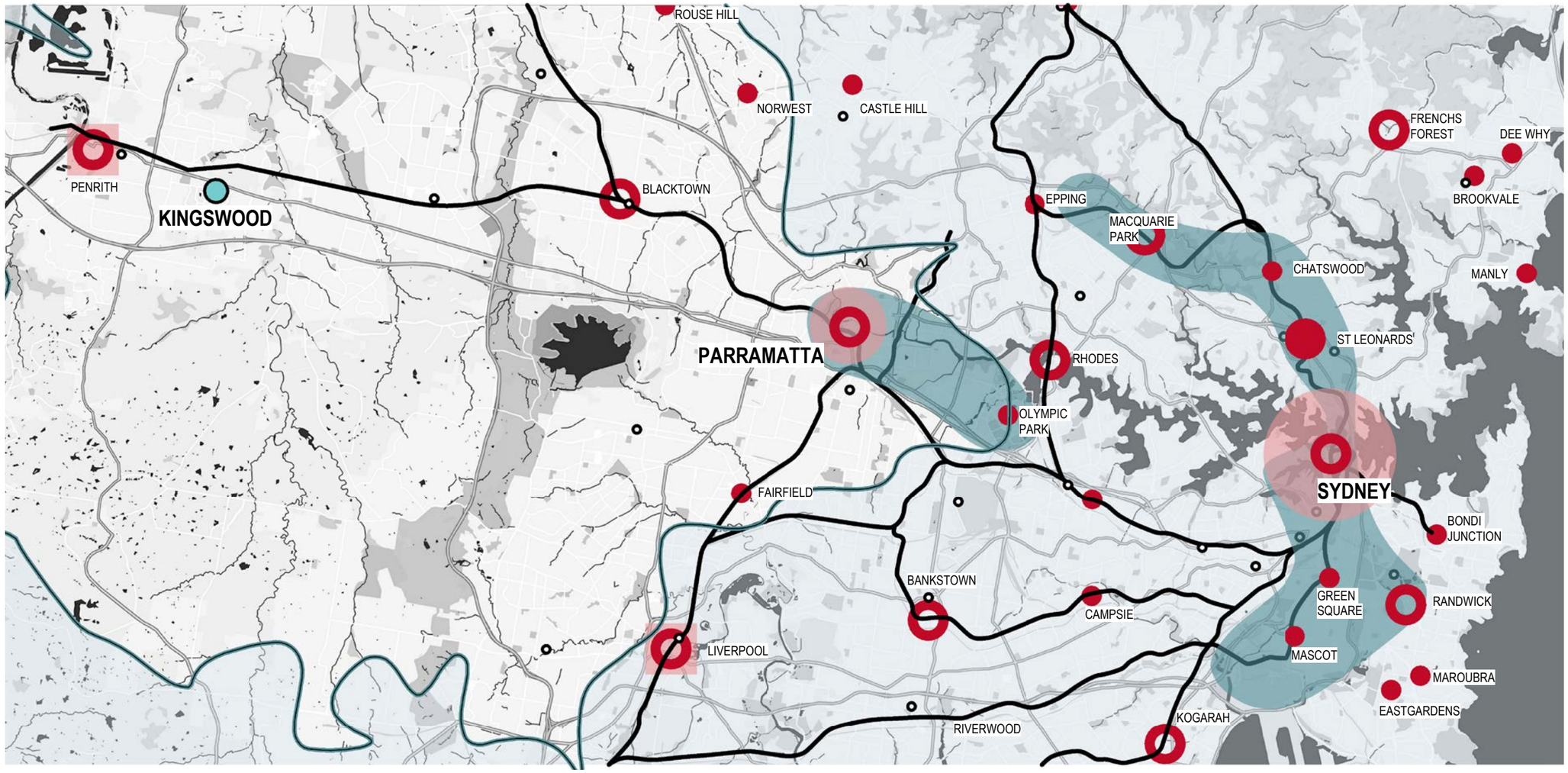
The TAFE NSW Campus was established in the early 1980's with the primary activity on the site orientated towards its O'Connell Street Boundary.

Archivial aerial image form 1943. Source: Sixmaps

GREATER SYDNEY REGION STRATEGIC TOWNSHIPS

Kingswood is positioned in the Western Suburbs of the Greater Sydney Region, with a strong adjacency to the City of Penrith. Located within the Western Sydney Parkland City Area, the site falls within the NSW Governments strategic Greater Sydney Region Plan, that outlines a commitment by the Government to:

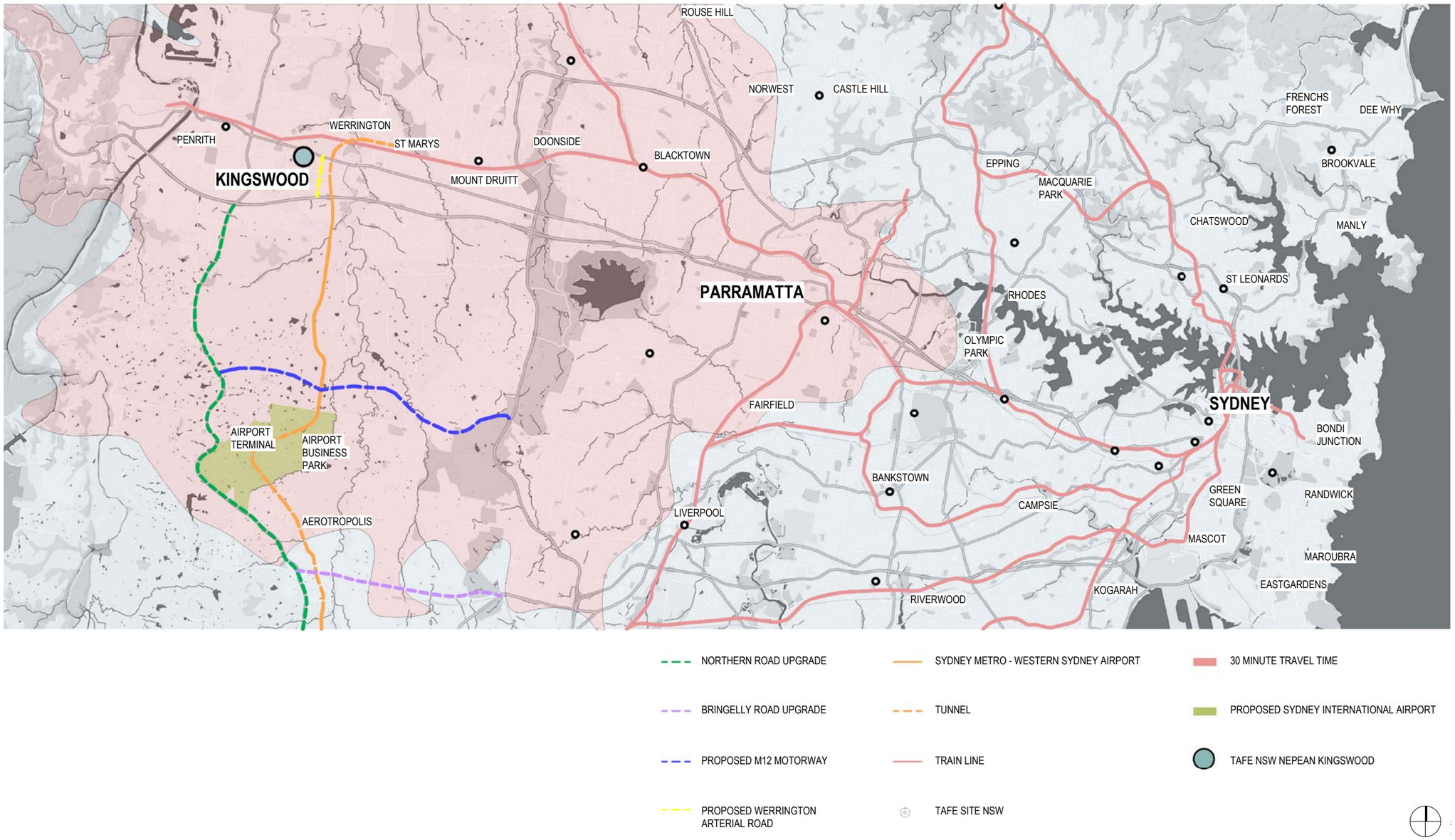
- provide connectivity
- generate jobs for the future
- provide skills and education
- be conducive to liveability and environment
- encourage planning and housing
- ensure responsible implementation and governance



RELATIONSHIP TO WESTERN SYDNEY AIRPORT

The development of the Western Sydney Airport will realise a once in a lifetime development boom in the Western Suburbs of Sydney.

The location of the campus, coupled with the strong North — South connectivity with the Western Sydney Airport and Aerotropolis Region enables a strong contribution to the economic corridor, utilising the centres of Penrith, Liverpool and Campbelltown to provide the foundation for growing Health and Education precincts.

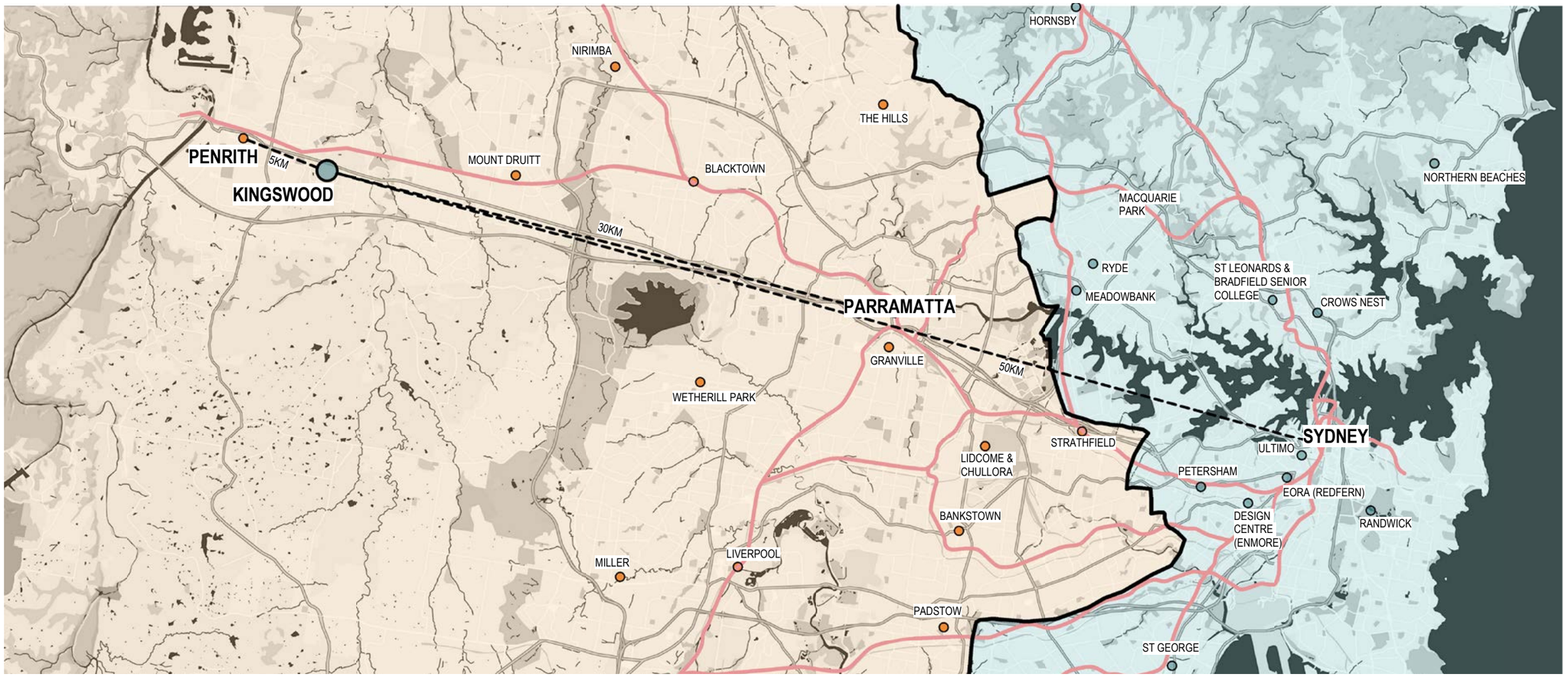


TAFE NSW IN THE GREATER SYDNEY REGION

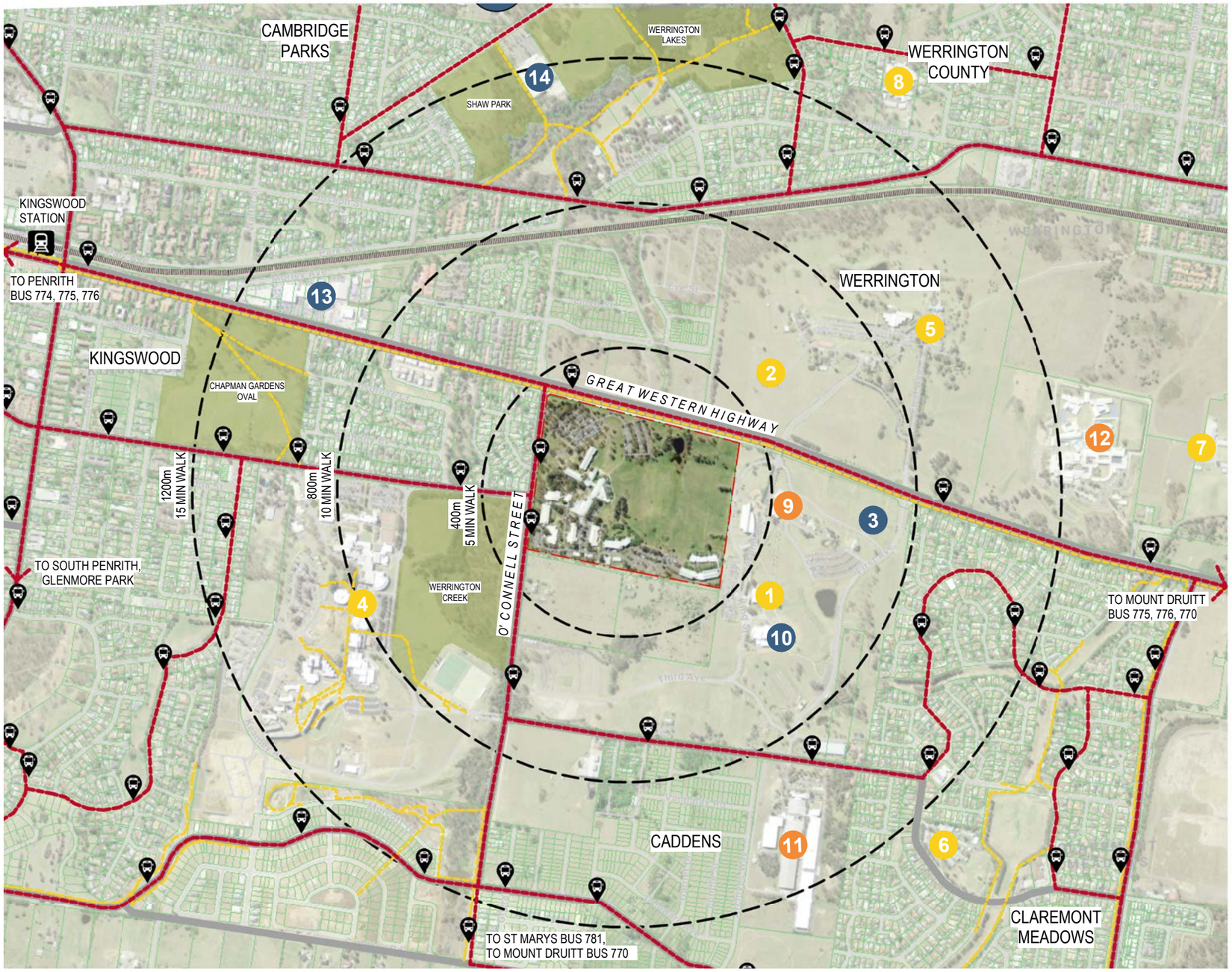
TAFE NSW is the leading provider of vocational educational training in Australia with over 130 years of history and internationally renowned courses and facilities.

With over 130 locations, 32 campuses in metropolitan Sydney and 98 campus in cities and towns around New South Wales TAFE NSW offer a wide variety of both classroom and online based study options.

TAFE NSW's Construction Centre of Excellence at the Kingswood Campus will have a strong relationship with the surrounding Campus at Mount Druitt, Blacktown, Nirimba and Wetherill Park.



3.3 TAFE NSW Kingswood Campus Site Context



LEGEND

- TRANSPORT - TRAIN
- TRANSPORT - BUS
- RAILWAY LINE
- PRIMARY TRANSIT ROAD
- BUS LINK
- CYCLE LINK
- SITE BOUNDARY
- GREEN SPACES

1. WESTERN SYDNEY UNIVERSITY WERRINGTOWN SOUTH CAMPUS
2. WESTERN SYDNEY UNIVERSITY PENRITH OBSERVATORY
3. PROGRAMMED SKILLED WORKFORCE
4. WESTERN SYDNEY UNIVERSITY KINGSWOOD
5. WESTERN SYDNEY UNIVERSITY WERRINGTOWN NORTH
6. CLAREMONT MEADOWS PUBLIC SCHOOL
7. WOLLEMI COLLEGE
8. WERRINGTON PUBLIC SCHOOL
9. HILLSONG CHURCH SYDNEY GREATER WEST CAMPUS
10. WESTERN COMBATIVES TRAINING CENTRE
11. NSW STATE ARCHIVES
12. COBHAM JUVENILE DETENTION CENTRE
13. CAR DEALERSHIP COMMERCIAL PRECINCT
14. PENRITH & DISTRICTS BASKETBALL ASSOCIATION

TAFE NSW KINGSWOOD CAMPUS CONTEXT – LAND USE ZONES & PLANNING

The TAFE NSW Kingswood Campus is currently zoned SP2 –Infrastructure under Penrith Local Environment Plan 2010. The objectives of this zoning are to provide for infrastructure and related uses and prevent development that is not compatible with or that may detract from the provision of infrastructure.

SITE LOCALITY AND PLANNING INFORMATION

The site locality has a range of other Land Zone uses identified including Medium Density Residential (R3) to the South and West, Business Park (B7) to the East , Local Centres (B4) to the South and Environmental Conservation (E2) on the West, providing diverse development opportunity for the adjoining properties.

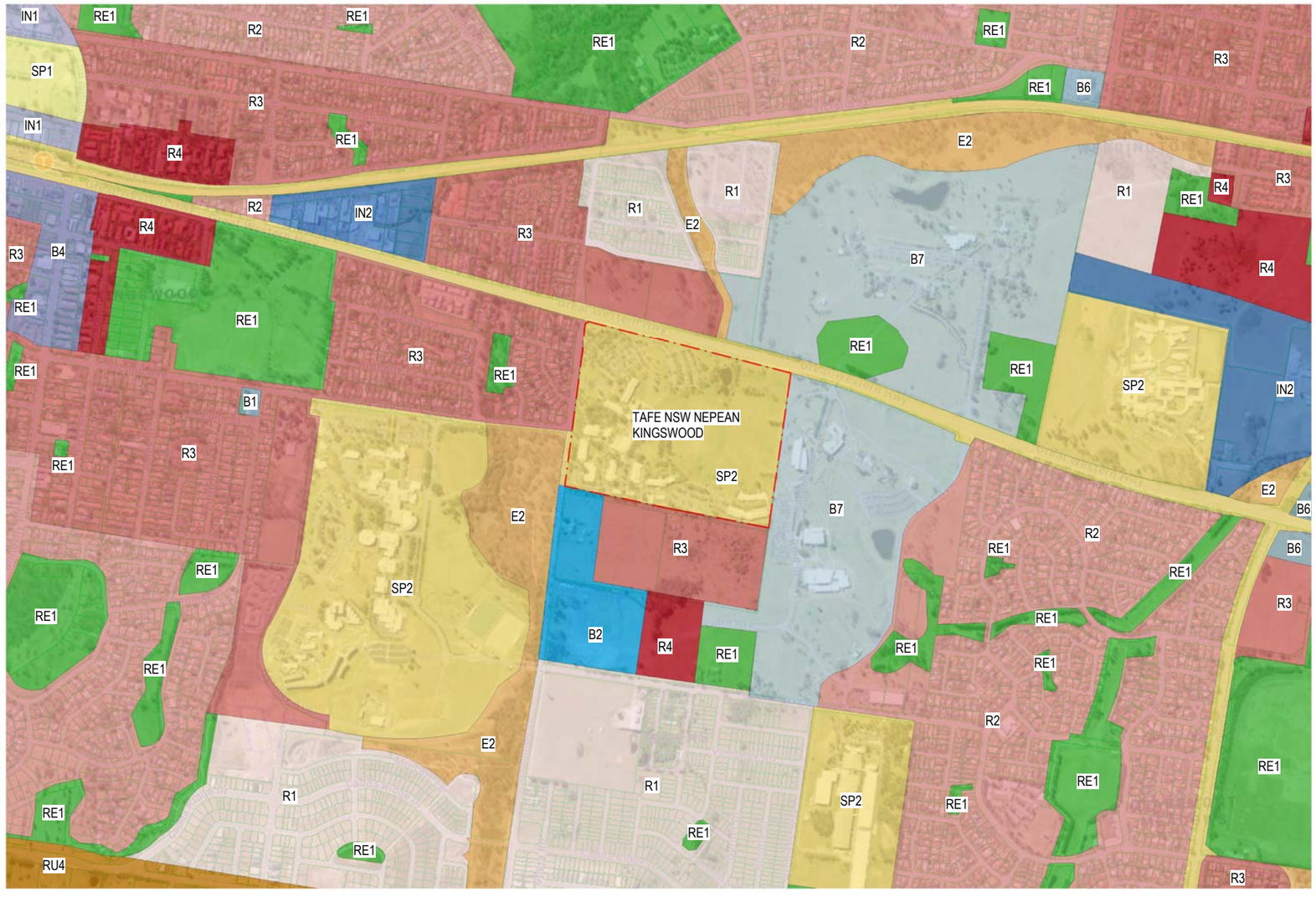
Based on the information available on the NSW Planning Portal Property Reporting Tool, the following planning information is presented for the campus

- Land Zoning — SP2 Infrastructure
- Height of Buildings — N/A
- Floor Space Ratio — N/A
- Minimum Lot Size – N/A
- Heritage — Milestone — Significance: Local
- Land Reservation Acquisition — N/A
- Foreshore Building Line — N/A
- Local Provisions– Wildlife Buffer Zone & Wind Turbine Buffer Zone

Other Matters Affecting the property:

- 1.5m Buffer Zone around Classified Roads
- Bushfire prone land — Vegetation Buffer
- Local Aboriginal Land Council– Deerubbin

Gray Puskand await the advice of TAFE NSW Planning Consultant to verify the information above and begin preparations for the submission of a State Significant Development Application for the project.



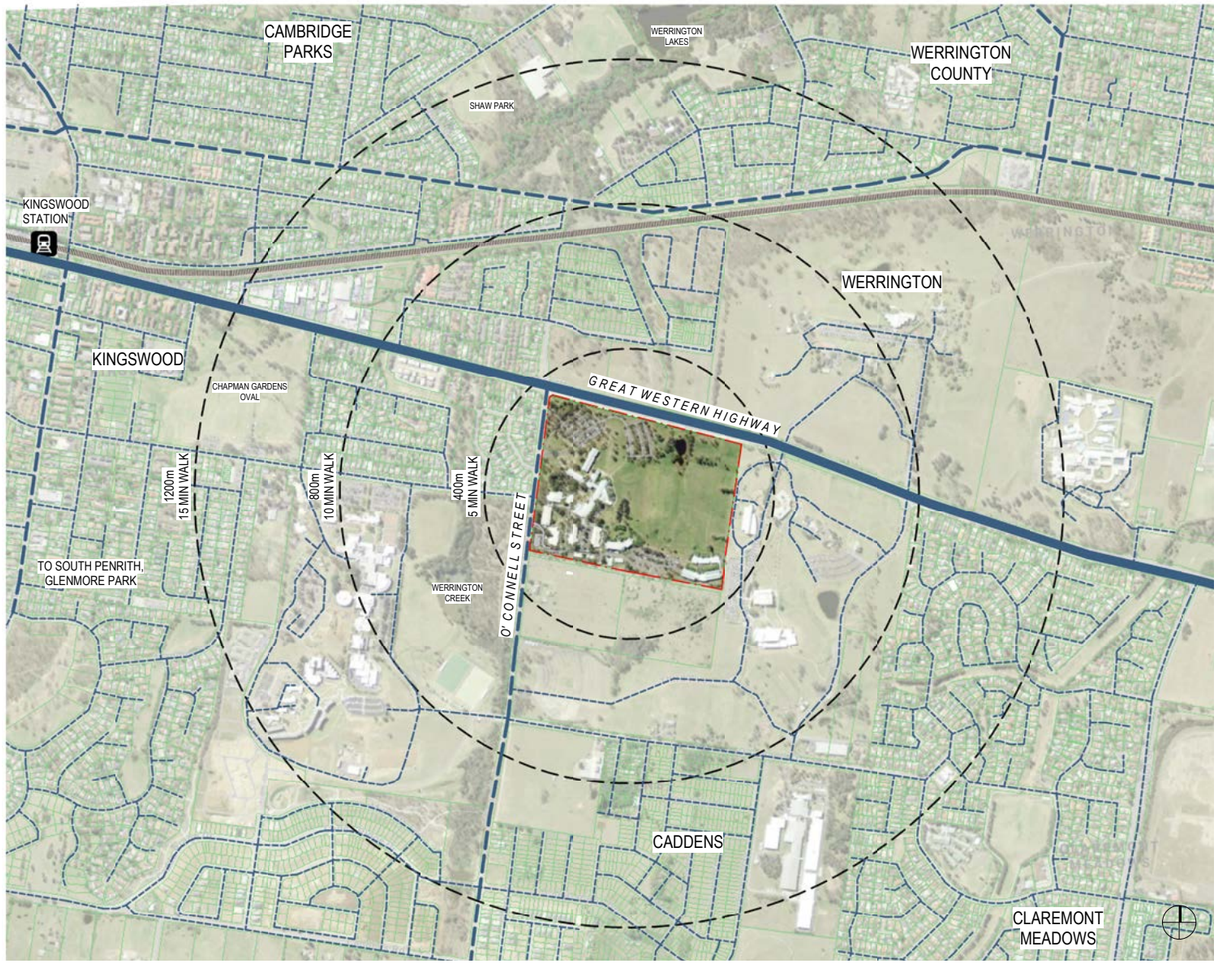
TAFE NSW KINGSWOOD CAMPUS CONTEXT – ROAD HIERARCHY

The TAFE NSW Kingswood Campus has its primary access from O'Connell Street, a distributor road linking local roads to the Great Western Highway at a signalised intersection.

There is a key opportunity identified in the Quarter Masterplan and Preliminary Design Business Case, utilising the Western Sydney University on site road network to connect the TAFE NSW Campus to the East of the site. This will be given strong consideration as Gray Puksand develop the site designs.

LEGEND

- TRANSPORT - TRAIN
- RAILWAY LINE
- PRIMARY TRANSIT ROAD
- ARTERIAL ROAD
- LOCAL ROAD
- SITE BOUNDARY



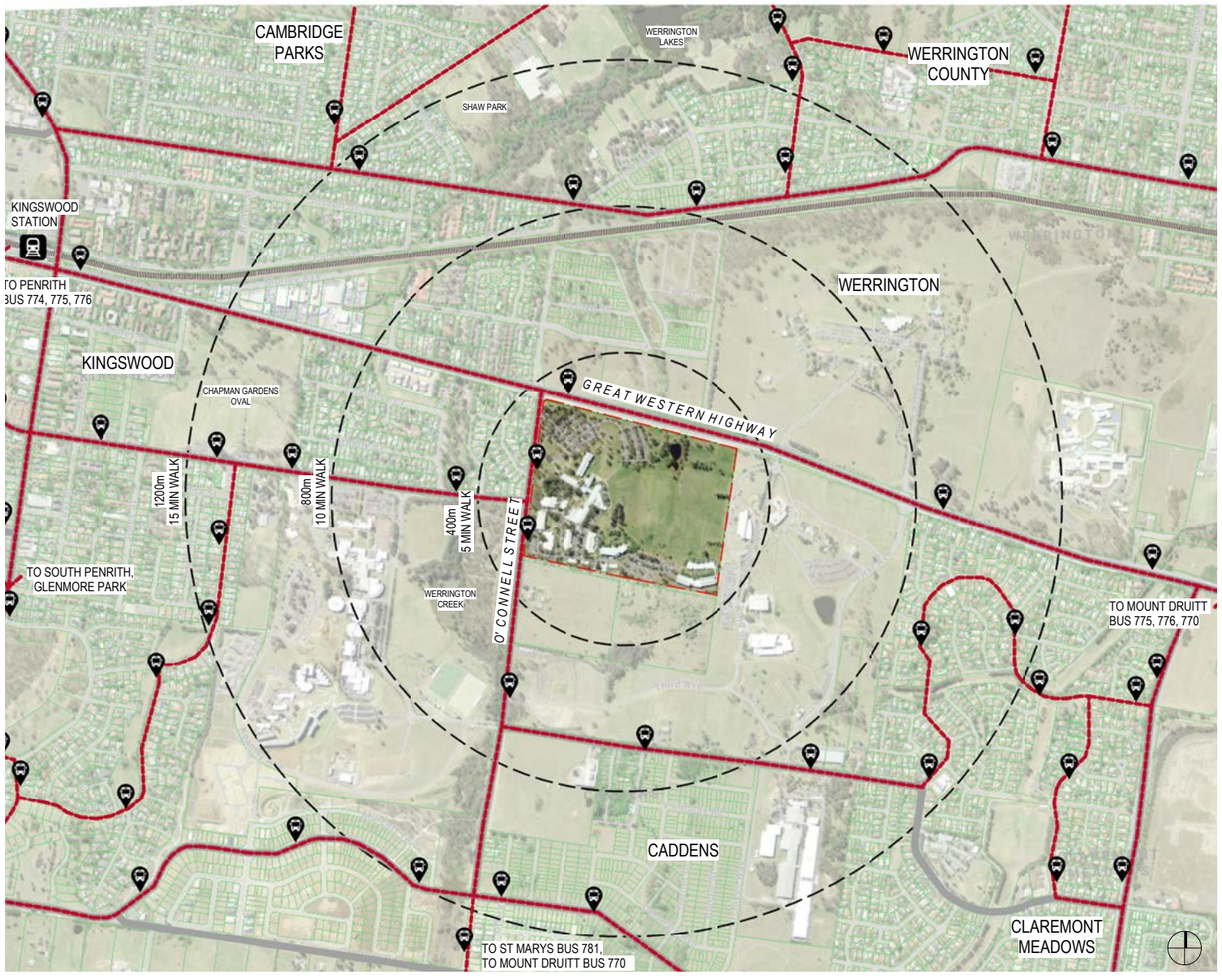
TAFE NSW KINGSWOOD PUBLIC TRANSPORT LINKS

The TAFE NSW Kingswood campus has access to the Transport for NSW bus routes both on O'Connell Street and on the Great Western Highway. Kingswood Station is approximately 2.5 kilometres to the West.

Bus Routes 770, 775, 776 and 835 link O'Connell Street back to Penrith with services running every 15 minutes at peak times. The buses provide access for Campus patrons to train services along the main T1 Western Line.

LEGEND

- TRANSPORT - TRAIN
- TRANSPORT - BUS
- RAILWAY LINE
- PRIMARY TRANSIT ROAD
- BUS LINK
- SITE BOUNDARY



TAFE NSW KINGSWOOD CAMPUS CONTEXT – CYCLE LINKS

The TAFE NSW KIngswood campus has direct access to the Cycle path located adjacent the Great Western Highway on the Northern Boundary.

LEGEND

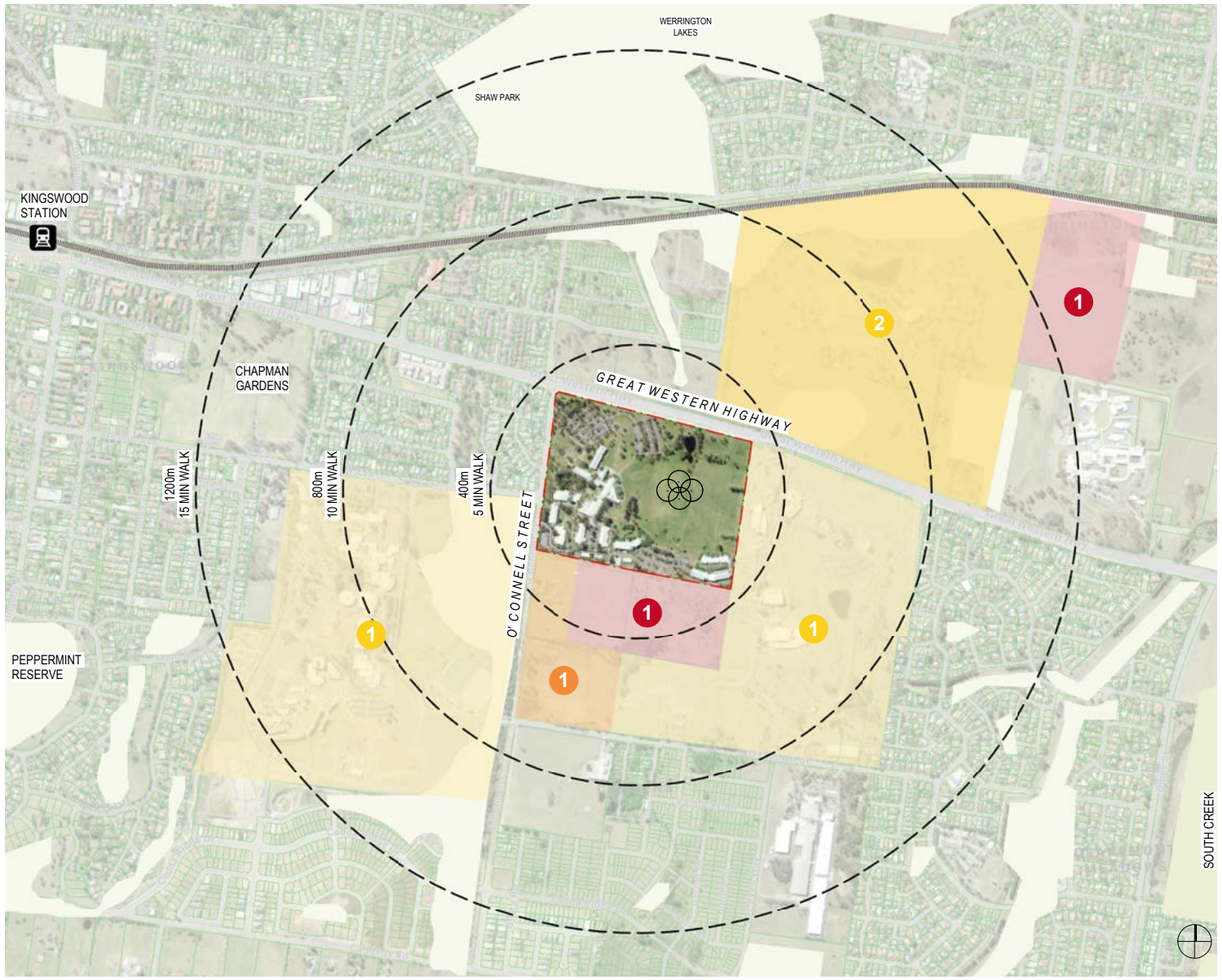
- TRANSPORT - TRAIN
- RAILWAY LINE
- PRIMARY TRANSIT ROAD
- CYCLE LINK
- SITE BOUNDARY

TAFE NSW KINGSWOOD CAMPUS CONTEXT — SURROUNDING FUTURE DEVELOPMENT

Various proposals have been put forward for developments in and around the TAFE NSW Kingswood Campus, the largest of which being the development of the Western Sydney University Campus to the east of the site, as outlined earlier in this report. A new residential development to the southern boundary of the TAFE NSW site has been lodged with Penrith Council for assessment and would see the construction of 160 residential lots and associated infrastructure works. A town centre development is currently under construction further south of the residential area, with a retail offering for the locality.

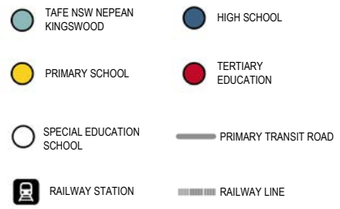
LEGEND

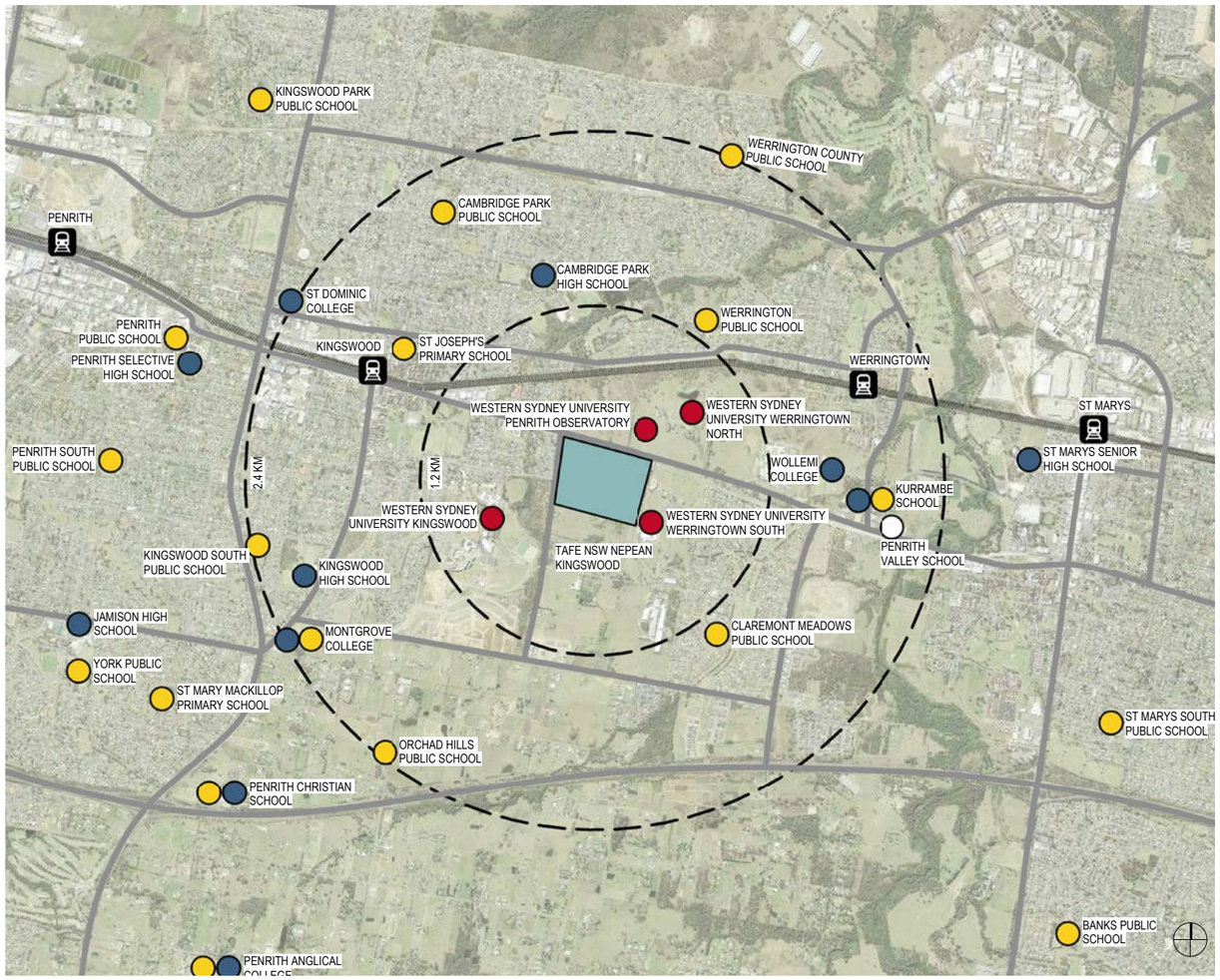
- TRANSPORT - TRAIN
- RAILWAY LINE
- 1 FUTURE RESIDENTIAL ZONE
- 1 FUTURE TOWN CENTRE
- 1 WSU WERRINGTON CAMPUS
- 2 WSU FUTURE DEVELOPMENT



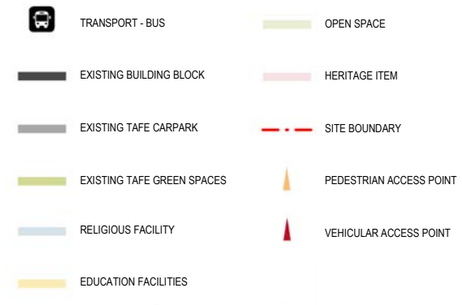
TAFE NSW KINGSWOOD CAMPUS CONTEXT – PROXIMITY TO EDUCATIONAL ESTABLISHMENTS

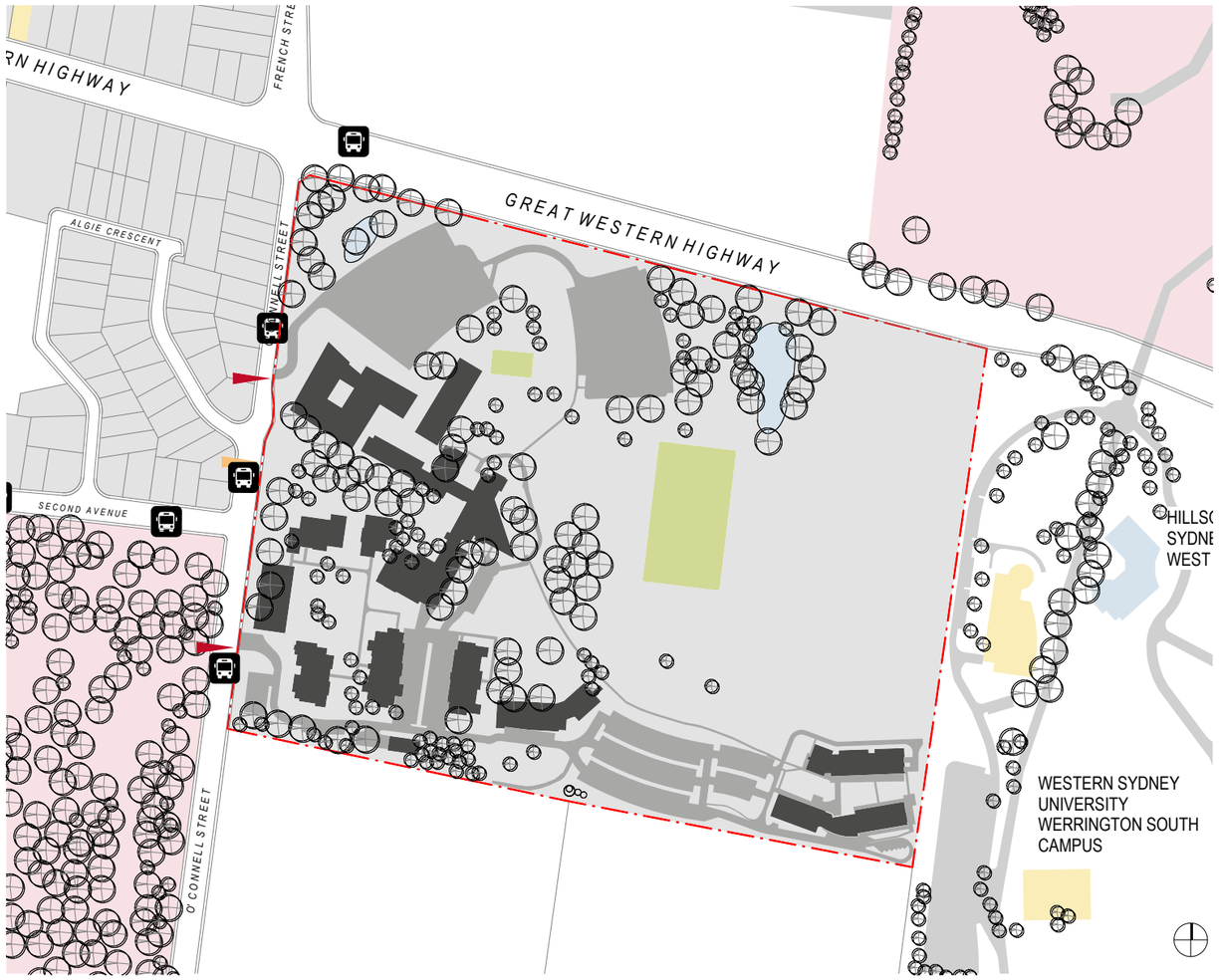
A range of educational establishments are located within a short distance form the TAFE NSW Kingswood Campus. These range from early childhood offering, public and primary schools, secondary schools, Tertiary institutions, teaching hospitals and special education centres.





TAFE NSW KINGSWOOD CAMPUS CONTEXT — PRECINCT PLAN





TAFE NSW KINGSWOOD CAMPUS CONTEXT — CAMPUS PLAN AND EXISTING BUILDING USE

The existing campus has a range of buildings of varying ages and condition. All buildings on campus are used for TAFE NSW purposes The Health Services Building “U” presents as the front door to the campus, acting as the gateway to the inner sanctums from the main carparking areas on the north west corner of the site.

- **Building A** dates from the late 80s to early 90s and is currently utilised as the TAFE NSW Western Sydney Regional Office
- **Building B** dates form the late 70s to mid 80s and contains aged care teaching facilities.
- **Building C** dates from a similar period to Building B and houses teaching accommodation for Ceramics and Drawings
- **Building D** is a utility building
- **Building E** also dates from the late 70s to early 80s period and is currently unused
- **Building G** contains the campus canteen and shower facilities and dates from the late 70s to early 80s
- **Building H** Contains Tourism and Hospitality teaching facilities incorporating a simulated restaurant. The building structure date from the late 80s to mid 90s period.
- **Building I** accommodates Early Childhood Education and was constructed in the late 80s to mid-90s period
- **Building J** houses Barbering, Hairdressing and Beauty skills training facilities. The building dates from the late 80s to mid-90s period
- **Building K** accommodates Career Pathways, Educational Pathways and Employability skills and was constructed in the late 80s to mid-90s period
- **Building L** contains the teaching gymnasium, sport and fitness facilities and was constructed in the late 1970s to mid-80’s
- **Building M** was constructed in late 1970s to mid-80’s and is currently unused
- **Building N** provides teaching accommodation for Business studies, Finance and Accounting and Information Technology and was built in the late 1980s to mid-1990 period
- **Building P** to the south east corner of the site accommodates Design, Nepean Arts and Design Centre, Photography, Screen & Media and Visual Arts teaching facilities and was built in the late 1980s to mid-1990 period
- **Building T** contains an auditorium and printmaking workshop and was constructed in the late 80s to mid-90s period
- Lastly, **Building U**, the most recent addition to the site, having been constructed in 2015, accommodates Allied Health, Café U, Campus Services, Library, Counselling and Careers Development Services, Dental, Disability Services, Nursing and a Service Centre.

3.4 TAFE NSW Kingswood Campus Context – Site Analysis

WEATHER

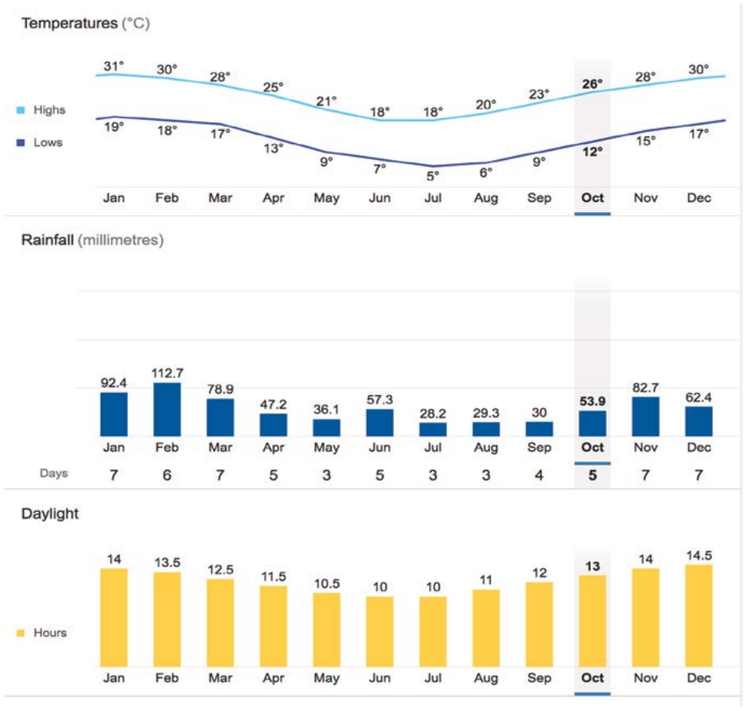
Local Climate - Penrith & Surrounds

TEMPERATURE EXTREMES & AVERAGES

- Summer Maximum Extreme: 48.9 °C (Jan 2020)
- Summer Average Maximum Temperature = 31 Degrees
- Winter Minimum Extreme: -1.8 °C (July 2018)
- Winter Average Minimum Temperature = 5 Degrees

WINDS

- Summer = Primarily Southerly Winds
- Autumn = Some Southerly Winds
- Winter = Primarily Westerly & South Westerly Winds
- Spring = Primarily Southerly Winds & Westerly Winds



SUMMER

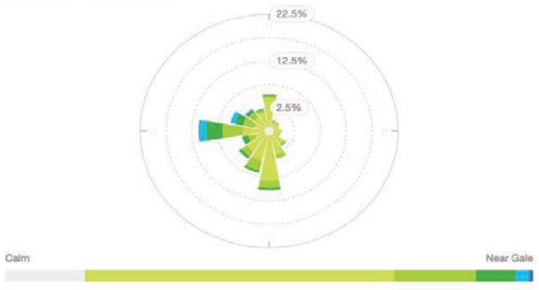
FEBRUARY (5 YEAR WIND ROSE)

AUTUMN

APRIL (5 YEAR WIND ROSE)

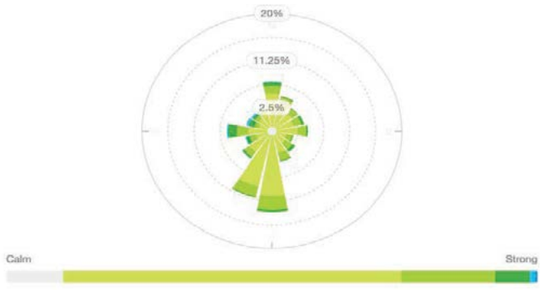
WINTER

AUGUST (5 YEAR WIND ROSE)



SPRING

OCTOBER (5 YEAR WIND ROSE)



SOURCE : Bureau of Meteorology via Willy weather (https://www.willyweather.com.au/climate/weather-stations/nsw/greater-western-sydney/penrith-lakes)

AERIAL PHOTO

This recent Ortho Photographic view provides a succinct overview of the current site local context. The north eastern portion of the site offers a green field opportunity for the development of the new Kingswood facility. This portion of the site is bordered by the Great Western Highway to the north, the UWS campus to the east and the existing campus link road running to the south of the site.

OPEN SPACE ANALYSIS

- The TAFE NSW Kingswood Campus has to-date primarily been developed along its western boundary to O'Connell Street and to a lesser extent along its Southern boundary, leaving most of the site to the north and east as undeveloped green open space.
- This open space is mostly gently sloping green field land with a natural water course running to a tree lined pond located within the northern central portion of the site.
- There are some tree lined boundaries to the northeast and east of the site.
- The existing development to the west of the site has pockets of green space providing accessible outdoor landscaping to the existing buildings

LEGEND

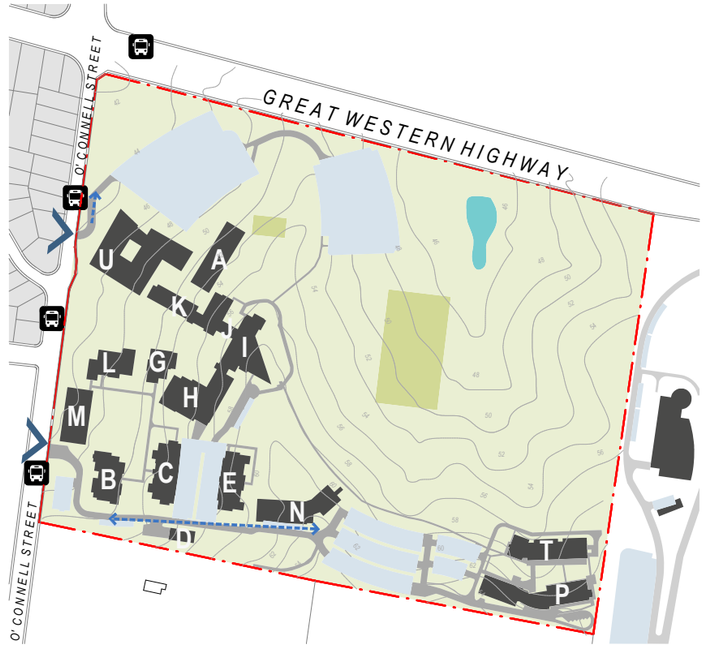
- TRANSPORT - BUS
- EXISTING BUILDING BLOCK
- EXISTING PAVED AREA
- EXISTING POND
- EXISTING TAFE GREEN SPACES
- SITE BOUNDARY

SITE PEDESTRIAN ACCESS

- The primary pedestrian access into TAFE NSW Kingswood Campus is from O'Connell Street to the West of the site. Connections to public transport can be made from here. On site there are several pedestrian links mostly between the existing buildings located along the western and southern portions of the site.
- There is a cycle way that runs along the northern boundary of the site, parallel to the Great Western Highway, providing possible pedestrian access points onto the Campus.
- The eastern boundary of the site is shared with the UWS campus and offers possible pedestrian links via the University Campus.
- There are no pedestrian links via the southern boundary of the site.

LEGEND

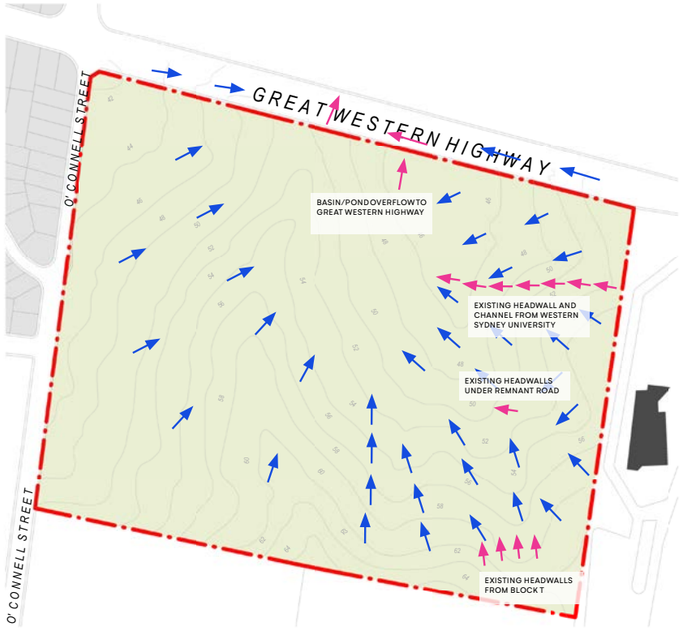
- TRANSPORT - BUS
- EXISTING BUILDING BLOCK
- EXISTING TAFE GREEN SPACES
- PEDESTRIAN CIRCULATION / MOVEMENT
- SITE BOUNDARY
- PEDESTRIAN ACCESS POINT



VEHICULAR ACCESS

- The TAFE NSW Kingswood Campus currently has vehicular access from two entrances located on O'Connell Street to the west of the site. The northern of these two entrances provides access to the existing north-western carpark and buildings. The southern of these two entrances provides vehicular access to the buildings and parking along the west and southern portions of the site. There is currently no existing link on site between the existing northern and southern on-site vehicle circulation routes.
- The Great Western Highway to the north and private land to the south of the site prevent vehicle access from these frontages.
- There is the possibility of vehicle access from the East of the site via the UWS roadways.

- TRANSPORT - BUS
- EXISTING BUILDING BLOCK
- EXISTING CARPARK
- PRIMARY VEHICLE MOVEMENT
- SITE BOUNDARY
- VEHICLE ENTRY POINT



SITE EASEMENTS

- Preliminary investigations suggest that there is an existing stormwater drainage system running in an East-West direction across the north eastern portion of the site, connecting the UWS Campus to the existing natural water course/ pond located to the north of the site.

DIRECTION OF SURFACE FLOW

EXISTING HEADWALL/ CHANNEL

SITE FLOOD ZONE

- The TAFE NSW Kingswood Campus site is located on gently sloping land which flows down into a natural catchment low point located along the northern boundary of the site. This forms part of a larger catchment area that links across the Great Western Highway to the north. Most of the campus site is located above the 100-year flood planning level. Only a small portion of the site, which flanks the existing low-lying pond, is within the 100-year flood planning level.
- A more detailed flood study will examine the natural water courses that flow across the site to this existing low-lying catchment area.

EXISTING BUILDING BLOCK

PMF FLOOD PLAIN

100YR FLOOD PLAIN

SITE BOUNDARY

3.5 TAFE NSW Kingswood Campus – Site Photos

CAMPUS KEY PLAN

A few key vantage points of the existing site have been taken to show the existing context and settings, to which the new proposed building relates. The views also include the Southern existing buildings and road network that form part of the access route to the proposed building from the Southern entry from O'Çonnell Street.

TAFE NSW Kingswood Campus – Site Photos

SOUTHERN DRIVEWAY

A – LOOKING EAST TOWARDS O'CONNEL STREET

B – BLOCK D LOOKING SOUTH EAST

C – BLOCK C LOOKING NORTH

D – LOOKING EAST TOWARDS BLOCK E

E – LOOKING EAST TOWARDS BUILDING T + UWS

F – LOOKING EAST TOWARDS BLOCK N

THE SITE

G – THE SITE LOOKING SOUTH TOWARDS BLOCK T, WITH THE UWS BUILDING ON THE LEFT

H – THE SITE LOOKING WEST TOWARDS THE TAFE NSW BUILDINGS

THE SITE

I – THE SITE LOOKING NORTH TOWARDS THE UWS BUILDING

J – THE SITE LOOKING NORTH TOWARDS THE GREAT WESTERN HIGHWAY

K – THE SITE LOOKING WEST ALONG THE GREAT WESTERN HIGHWAY FENCE LINE

4.0 Project Brief

4.1 Project Context

The ongoing development of Western Sydney Airport and the associated Aerotropolis developments, supporting transport infrastructure and Central Business District regeneration of Campbelltown, Liverpool, Penrith, Mount Druitt and St Marys have realised a once in a generation construction boom in the Western Sydney Locality.

TAFE NSW and the Minister for Skills and Tertiary Education, The Honourable Dr. Geoff Lee, are now moving to fulfill an election promise to increase the current TAFE NSW capacity within the current network to train the apprentices and construction workers that will shape the future of the Western Parkland City.

The NSW government has committed to build an $80 million construction hub that will disrupt traditional skills training by educating the next generation of trades persons with construction and digital skills that will excel the development of our future smart cities.

GOVERNMENT POLICY ALIGNMENT

The NSW Government's 2019 State election commitment identified funding of $80 million to "...construct a new TAFE NSW campus in the high-growth Western Sydney region to deliver specialised training in fields like construction, carpentry, electrical and plumbing".

The related election commitment for the new TAFE NSW campus included:

- capacity to train up to 700 apprentices per year;
- a campus close to the new Airport, with locations under consideration including Greater Penrith, Leppington or Bringelly;

The CCoE policy commitment was reflected in the 2019-20 State Budget, with $79.6 million allocated over four years from 2019-20 to 2022-23.

4.2 Project Objectives

The project preliminary business case outlines how an investment logic mapping (ILM) workshop convened for the Strategic Business Case developed three project objectives to guide decision-making, reflect the NSW Government's policy objectives and align with TAFE NSW's Vision and Strategic Plan 2016-22:

- Objective 1: Train up to 700 new apprentices each year in construction trades experiencing the most growth
- Objective 2: Create more jobs, a stronger economy, world-class infrastructure, and better opportunities for young people
- Objective 3: Increase capacity to support more students in those qualifications that lead to jobs.
- Objective 4: Support Industry Convergence and address the acute skills shortage

The documentation provided to the design team continues to outline the project supporting the following TAFE NSW strategic objectives:

- Offer greater flexibility and convenience in course delivery without compromising on the quality of training
- Skill the State's workforce of the future as the provider of choice
- Develop a customer-driven, proud and productive TAFE NSW team
- Be a contemporary, commercial and sustainable business.

The decisions have also been reviewed, and deemed supportive of, the TAFE NSW Operational Plan 2020-22 commitments:

- Responsive and connected to customers
  - Rapidly align its courses and services to the skill needs of the economy and society in NSW
  - Meet the needs of customers by helping them achieve their career goals
- A flexible and engaging place to learn and work
  - Support industries in NSW facing disruption and skills shortages prepare for the jobs of tomorrow
  - Embrace digital advancements and use technology to meet students' varied learning needs
- A strong and sustainable organisation
  - Adapt its operating model so that it is strong and sustainable into the future
  - Diversify its revenue and identify new ways to grow and in response to competition

4.3 Previous Studies

Hassell Studio was engaged by TAFE Infrastructure NSW to facilitate in the development of a preliminary business case.

As there is no master plan currently in place for the TAFE NSW Kingswood Campus, a two stage site structure planning approach was adopted to inform the optimal location for the new Construction Centre of Excellence on the Campus.

Stage 1 of the structure planning works investigated environmental and access considerations and identified possible locations for the hub. This process yielded six potential site locations and a possible site on the western edge of the campus to enable the commencement of preliminary reference design work to inform the business case analysis.

The Stage 2 structure planning works further analysed the development potential of the TAFE NSW Kingswood Campus and investigated the potential for better use and connectivity between the existing buildings and stronger links with the neighbouring Western Sydney University (WSU) Werrington Campus. The Stage 2 site structure plan identified a preferred location for the WSCH on the eastern side of the site, which was ultimately adopted for the preliminary business case.

4.4 Project Brief

TAFE NSW is undertaking a new capital investment at the Kingswood Campus to realise the TAFE NSW Construction Centre of Excellence on the site.The centre will deliver state-of-the art specialist education and training facilities in the form of a Construction and Building Trades Facility.

The Construction Centre of Excellence is an active learning environment co-locating disciplines under building and construction united by a focus on various technologies. Students will have access to state-of-the-art facilities, that can expand, contract and adapt to industry needs.

CENTRES OF EXCELLENCE

TAFE NSW have proposed a pioneering new strategy with respect to the development of "best in field" campus for each chosen discipline.

The draft Centre of Excellent Strategy and Implementation plan developed by TAFE NSW defines a Centre of Excellence as:

"A facility shared with Industry partners that has a role to improve its own expertse and knowledge resources so that in turn it can help other delivery centres throughout the TAFE NSW network to improve"

As the concept of TAFE NSW Centre's of Excellence has been developing, TAFE NSW have now released a Concept Briefing document supporting their vision in the development of these centres.

The Construction Centre of Excellence will be a signature training hub for digital infrastructure, with the ability to equip the next generation of trades workers with advanced and cross disciplinaryconstruction and digital skills.

The Centre will transform the current approach to education by establishing clear pathways between schools, VET and higher education, partnering across construction, manufacturing and technology industries, developing holistic skills sets.

The TAFE NSW Construction Centre of Excellence will be the flagship for the future of construction through agile and responsive training in emerging technologies and construction practices to support workers in up-skilling and re-skilling to transition to digitally augmented and technical roles.

Through these efforts, the TAFE NSW Construction Centre of Excellence will support growth and innovation in the infrastructure and construction industries and enable TAFE NSW to be at the forefront of innovative and industry-relevant training delivery.

TAFE NSW CONSTRUCTION CENTRE OF EXCELLENCE AT NEPEAN – KINGSWOOD

TAFE NSW Kingswood Campus has been selected due to its proximity to the pipeline of major infrastructure projects, civil construction works and residential developments set to transform Western Sydney including the Western Sydney Airport and Aerotropolis, the North South Rail Link, the Northern Gateway Precinct, as well as future projects to service Western Sydney's fast growing population.

Its proximity to university partners through the planned Multiversity at the nearby Western Sydney Aerotropolis (once operational by 2026), as well as Western Sydney University's Centre for Smart Modern Construction (c4SMC) which is a candidate for the Advanced Manufacturing Growth Centre's (AMGC) proposed Prefab Innovation Hub network of Innovation Labs.

INDUSTRY PARTNERS AND TAFE NSW

Supporting the Centre of Excellence strategic plan, in October 2020, The Minister for Skills and Tertiary Education launched an Expression of Interest process for industry and universities to partner with TAFE NSW in the design and delivery of the new Digital Technology Centre of Excellence at Meadowbank.

On the 3rd December 2020, the Minster for Skills and Tertiary Education, The Hon Dr Geof Lee MP, launched an expression of interest to market for industry and university partners to collaborate with TAFE NSW at the new Construction Centre of Excellence at Kingswood.

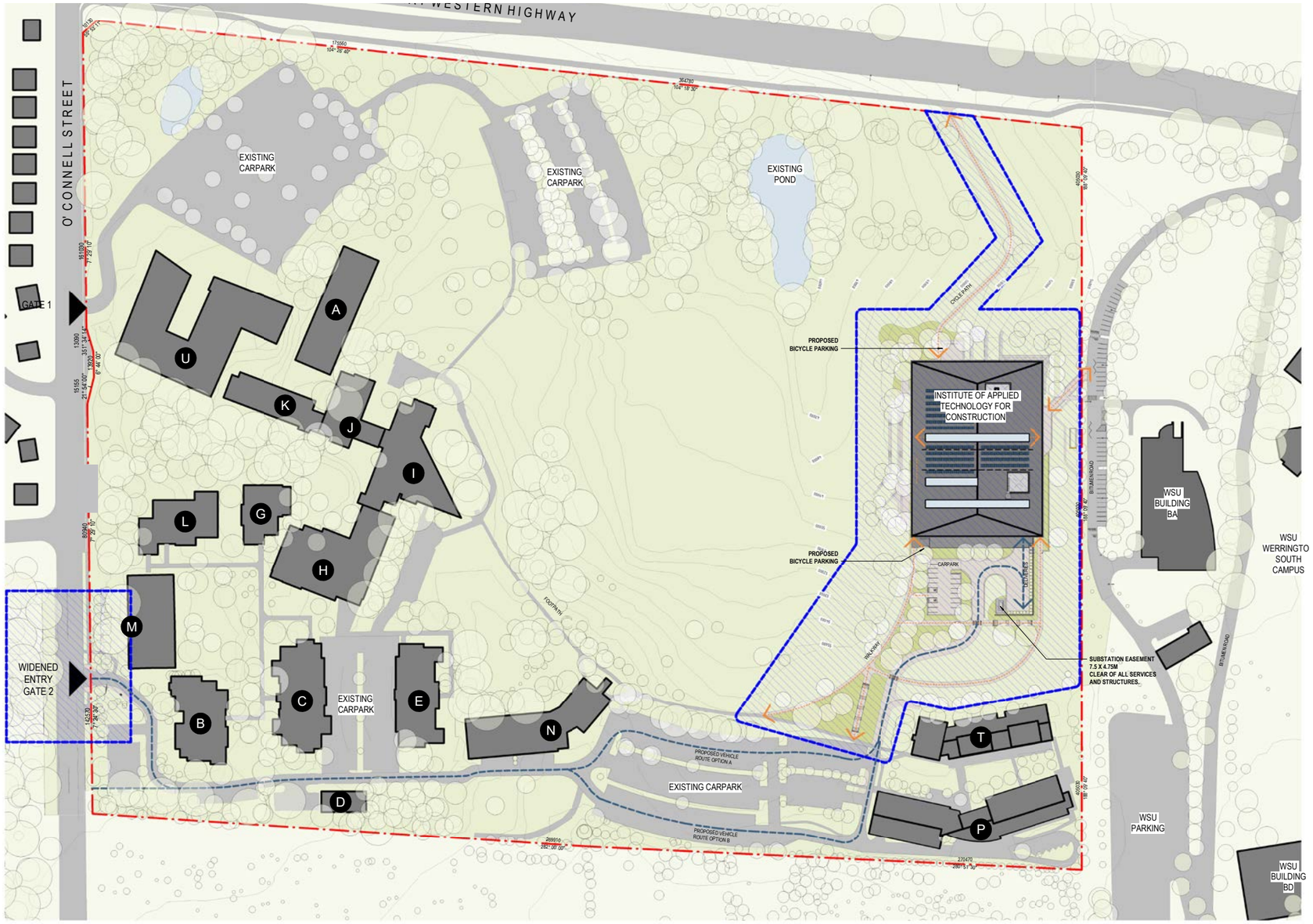
4.5 Scope of Works

An overarching site structure plan has been developed by TAFE NSW for the Nepean Kingswood Campus as the Various potential works culminating in the overall site master plan have been investigated by TAFE NSW.

The proposed new building for the CCoE in it's current siting to the east of Kingswood TAFE NSW campus forms the scope of work for this State Significant Development Application. The three storey rise in the proposed building, informed by the need for high height clearance functional spaces, comprises various teaching spaces, indoor /outdoor workshops, industry engagement and workspaces.

The scope of work extends to the existing infrastructure via 2 new connections:

1. Pedestrian link from the west entry of the CCoE tothe existing southern carparking facility.
2. Vehicular link from the south loading and external workshops to the existing southern carparking facility



SITE PLAN UPDATED FOR REVISION D ISSUE

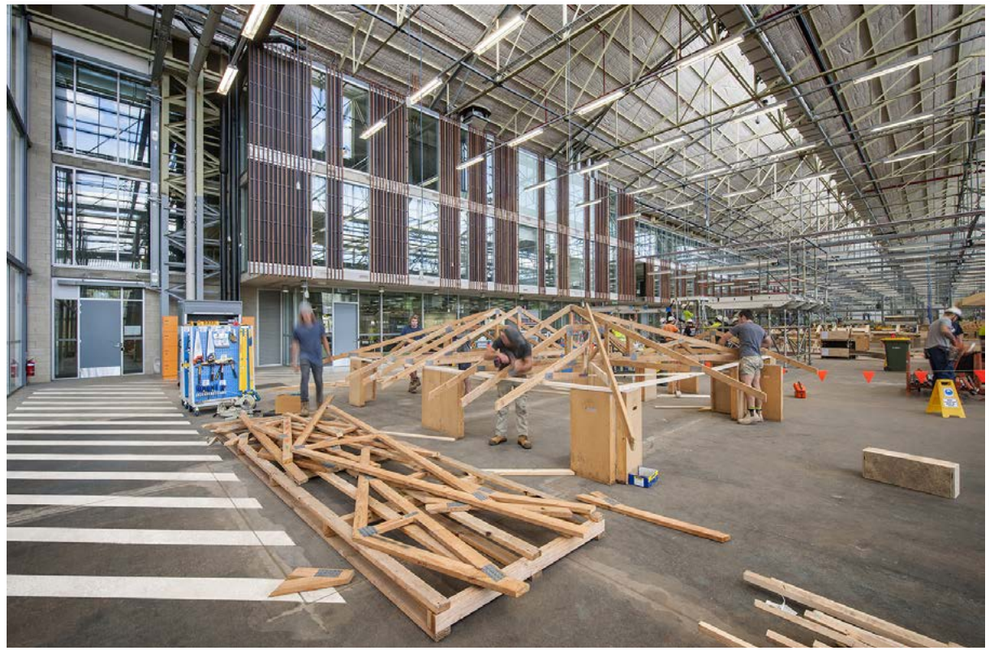
5.0 Bench Marking the Project

5.1 Precedent Studies – Benchmarking the Facility Standard

TAFE SOUTH AUSTRALIA – TONSLEY CAMPUS

The Facilities at the TAFE SA Tonsley are an exemplar of the building as learning tool in itself.

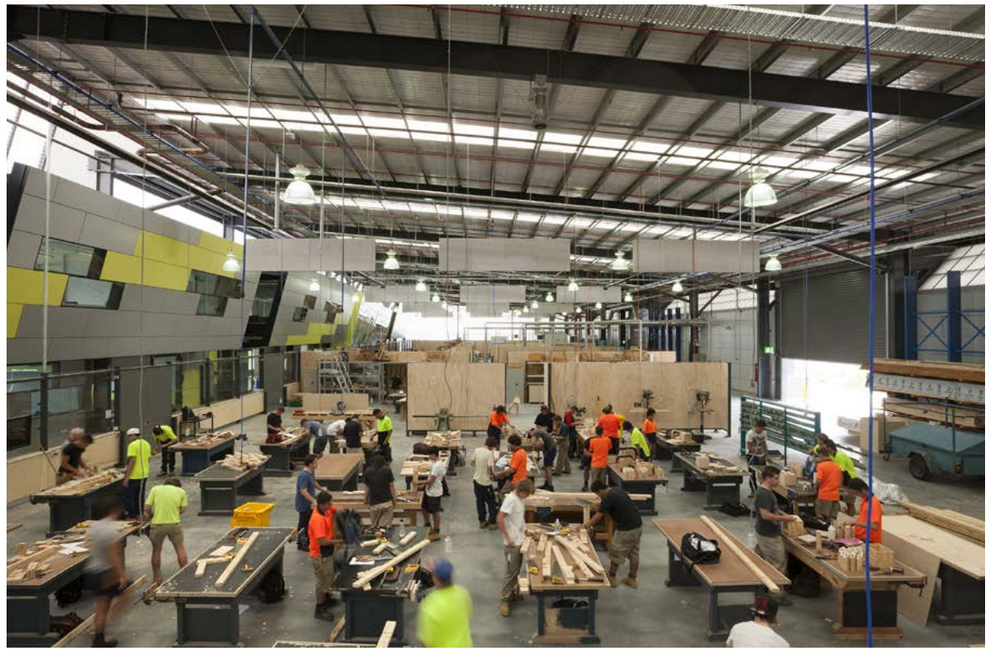
Building Services are exposed to inform the student of how systems work. The facility boasts a range of trade training facilities with a range of specialisations, featuring a four storey structure for training in ground and vertical installation of services such as plumbing electrical and air conditioning, various carpentry, electrical, masonry, air conditions, painting, plastering, oil and gas workshops supported by a suite of digitally enabled learning spaces.

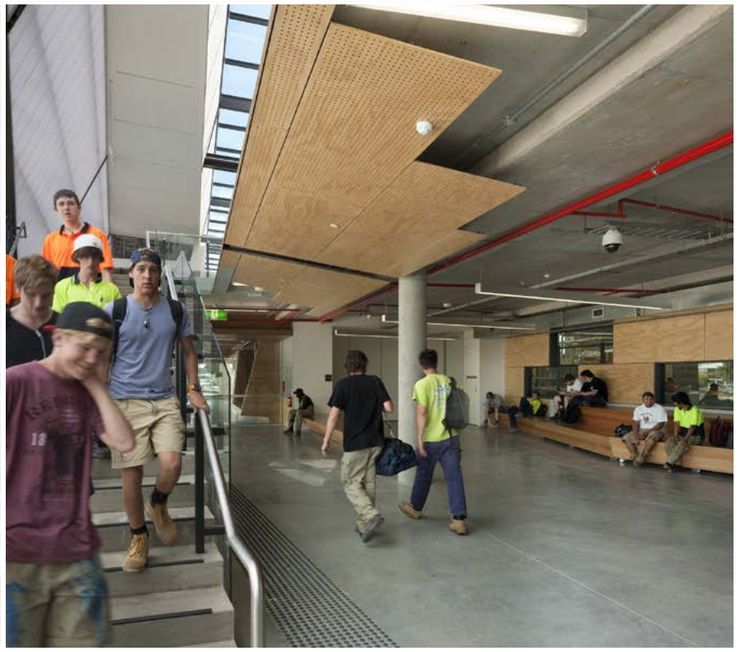


VICTORIA UNIVERSITY CONSTRUCTION HUB

A 6 Green Star rated building, the Victorian Universities Sunshine campus is home to a $44 Million dollar trade training centre that hosts the VU Polytechnic Building, Engineering and Construction Courses.

A range of trade training courses are delivered on campus in the skills and development hub within a building form that expresses the progressive nature of the building industry and development of new construction design technologies, encouraging industry engagement providing the students with invaluable experience and insight.





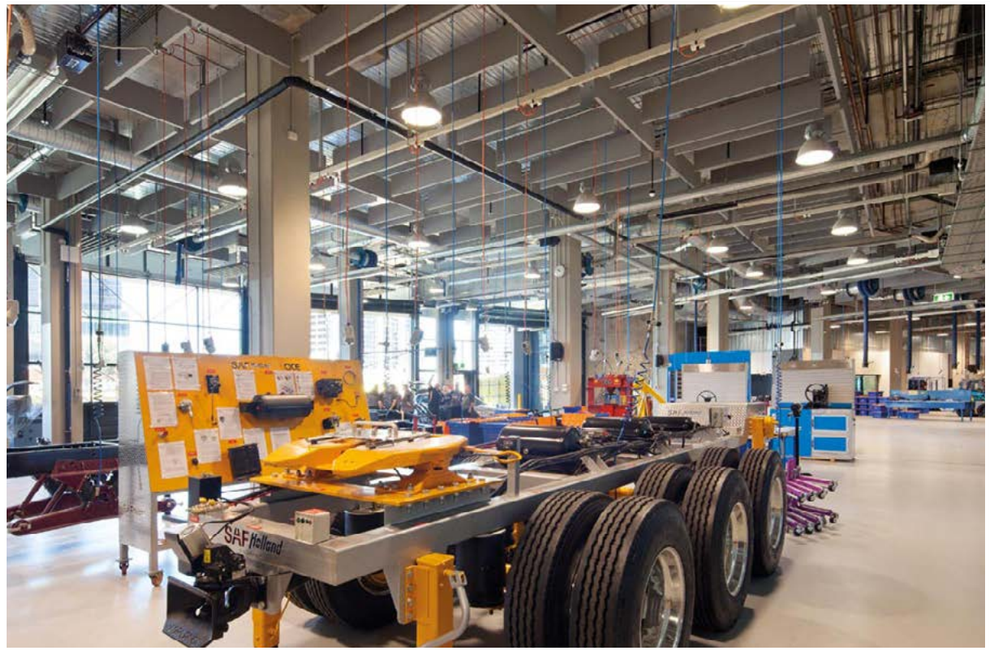
BENDIGO KANGAN INSTITUTE – AUTOMOTIVE CENTRE FOR EXCELLENCE STAGE 2

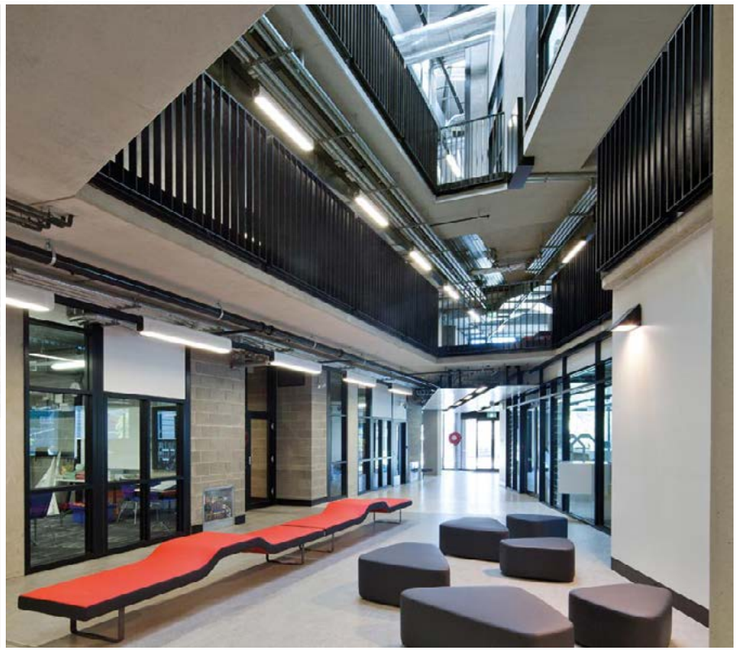
This project showcases the automotive industry through a world leading building that sets new benchmarks and environmental performance in a state of the art training facility.

Officially opened in 2011 this automotive trade training facility is a powerful contribution to contemporary tertiary education and a show case for the automotive industry.

The project brief required a replacement of the draconian notion of the ‘Grease Monkey’ with the respected and valued offer of professional skills training, technology and innovation.

The facility provides an opportunity to bring collaborative learning to the heart of the Docklands, serving as a central and iconic statement within it’s urban context. This is a building set in the public realm offering an enhanced sense of ‘soul’ to the extended south west corner of the Melbourne CBD.

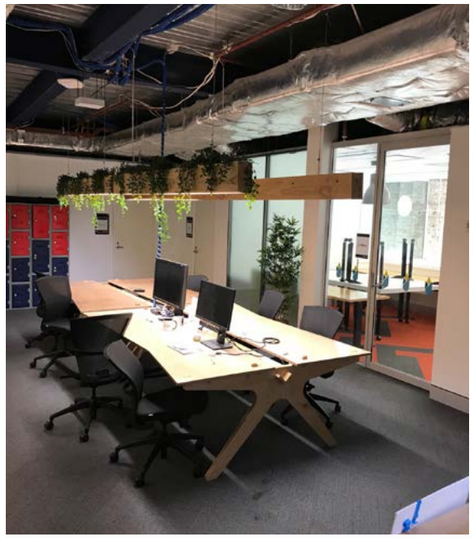


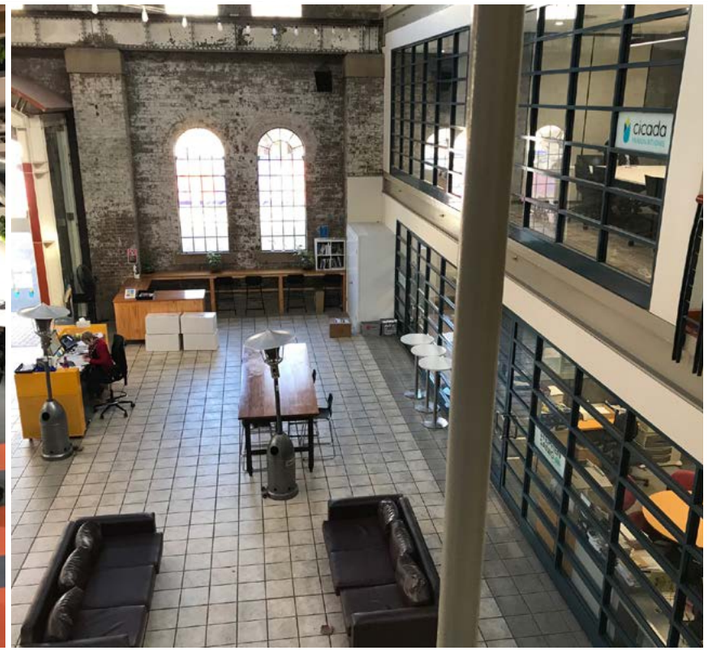


CICADA INNOVATIONS – NATIONAL INNOVATIONS CENTRE

Cicada Innovations Centre is a business incubator and startup hub that provides full fee-for-service facilities for early stage businesses operating in the deep tech and biotechnology fields (together with fintech). The centre runs a business accelerator program, where new companies can use a hotdesk space, and if they decide to stay on, can then apply to take on floor space within the building for setting up their own office and/or laboratory.

The centre contains a number of shared meeting rooms and conference facilities, a small maker space outfitted with 3D printers, and a shared lab space with laser cutter, fume hood, small kiln, sink space and trade waste. All of these facilities are accessible by all members of the centre, and meeting room bookings are managed through an iPad booking system that runs a cloud-based space management solution called Robin. There is also a café based in the main foyer that is well utilised by all patrons.





DEAKIN UNIVERSITY – CENTRE FOR ADVANCED DESIGN IN ENGINEERING TRAINING.

By placing key emphasis on research, design and collaboration at the centre of the new curriculum, the planning team was able to realise a series of new spaces and functional relationships which would support the cultural change necessary for students and staff transitioning from the traditional modes of learning and working.

With shared design studios, product realisation workshops, large studio based specialist laboratories, numerous informal spaces for interaction and collaboration and a unique academic staff workplace environment, CADET is well placed to become an outstanding example of possibilities for the next generation of engineering graduates in Australia.

Many of the internal areas have been positioned not only for functional, spatial and infrastructure requirements, but by their ability to be reconfigured, expanded or re-fitted for other uses.

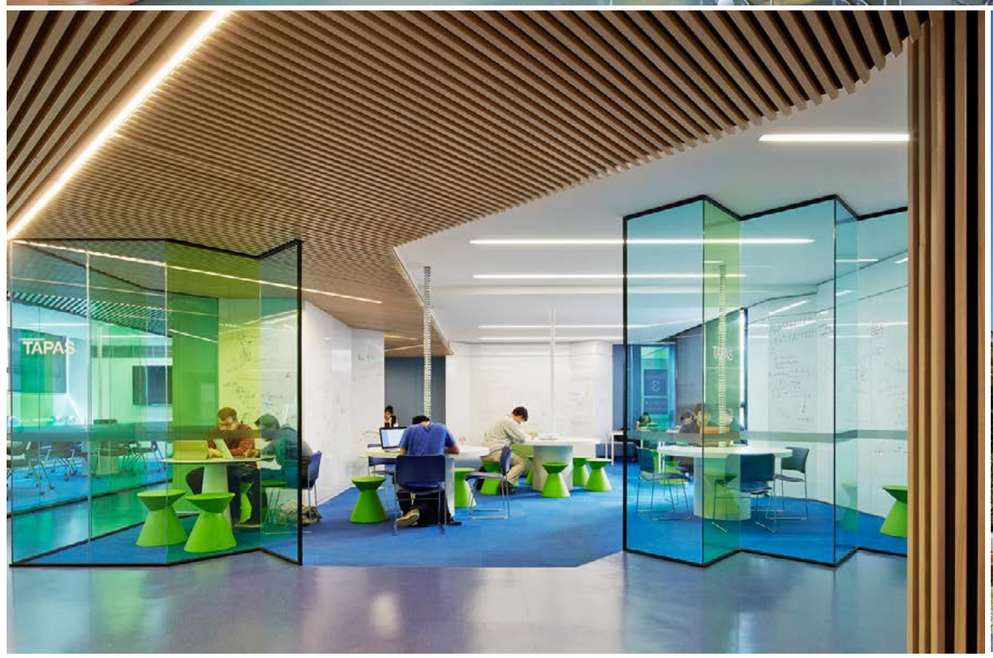
By exploring access and usage of strategic equipment and highly serviced technical areas, the planning teams were able to develop an understanding of “how to do things better”. This resulted in many of the originally briefed spaces being re-visioned as more flexible learning or specialist environments capable of supporting a diverse range of functions and curriculum models.

By ensuring a diverse mix of learning settings, open flexible workspace and easily reconfigured studio environments, many areas within CADET are able to adapt on a regular basis to the needs of the student, the project underway, the curriculum and industry requirements.

MONASH UNIVERSITY – NORTH WESTERN PRECINCT.

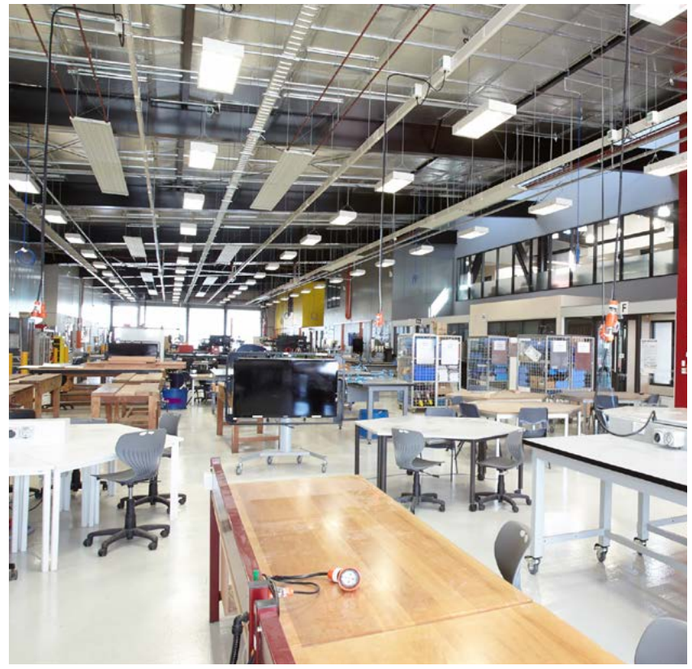
The North West Precinct is an exemplar of precinct based, masterplan–informed approaches to campus planning and design. Described by the Australian Institute of Architects as, “a matter of careful addition and subtraction, what one might call successful architectural surgery”, the precinct encompasses three revitalised buildings and a reinvigorated public realm.

Alterations to existing buildings opened up new landscapes, walkways and building forecourts delivering an open and accessible public realm. Vibrant informal learning hubs and an integrated forecourt to Green Chemical Futures accentuate one of the campus’s busiest intersections. The intersection is reinforced with a formal gesture of folding concrete canopies which offer access to upper levels while allowing for moments of congregation, observation and contemplation. Steel shades and coloured fins provide solar protection and enhance existing structural rhythms. Within upper levels, the traditional central corridor and perimeter office have been subverted to createa series of centrally located offices, meeting rooms and support spaces flanked by sunlit corridors.



WINTEC ENGINEERING AND TRADES FACILITY: ROTOKAURI CAMPUS, HAMILTON, NEW ZEALAND

One of new Zealand's leading trade training facilities, with close relationships with local industry partners to ensure students are trained in the fields and disciplines that are in demand. The facility includes 5000m2 total learning environment that caters for approximately 750 students across Construction, Plumbing, Electrical, Mechanical, Civil, Automotive and Architectural technology. The facility boasts a mix of learning workshops, studios, labs and break out spaces and acts as a tool for learning, with expressed structure and services and colour coded wayfinding.



6.0 Strategic Design Response

6.1 Strategic Design Reponse

DESIGN PROCESS – AN OVERVIEW

Gray Puksand have embarked on a process of design and brief development during the concept design phase of the project. There are several levels of engagement with the key stakeholders for the project from Ministerial Level, to the project steering committee through to the Project team. The main point of contact to date has been with the Technical Reference Groups that have been established for each element of the project.

The Project team and Stakeholders primary role is to inform the Head Design Consultant and provide feedback and information that will help shape the project as the design progresses.

DESIGNING FOR PLACE

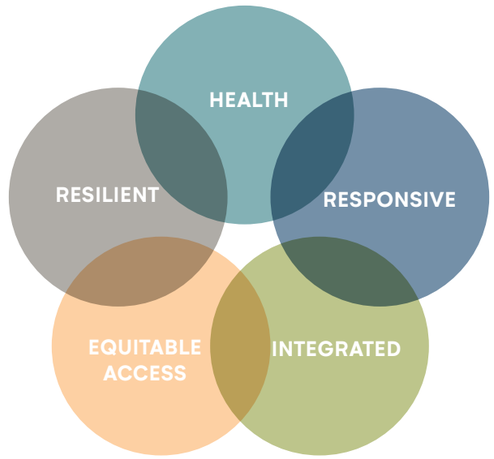
Utilisation of the Government Architects Document 'Better Placed, an integrated design policy for the built environment of New South Wales' has been an important part of progressing the design development for the project.

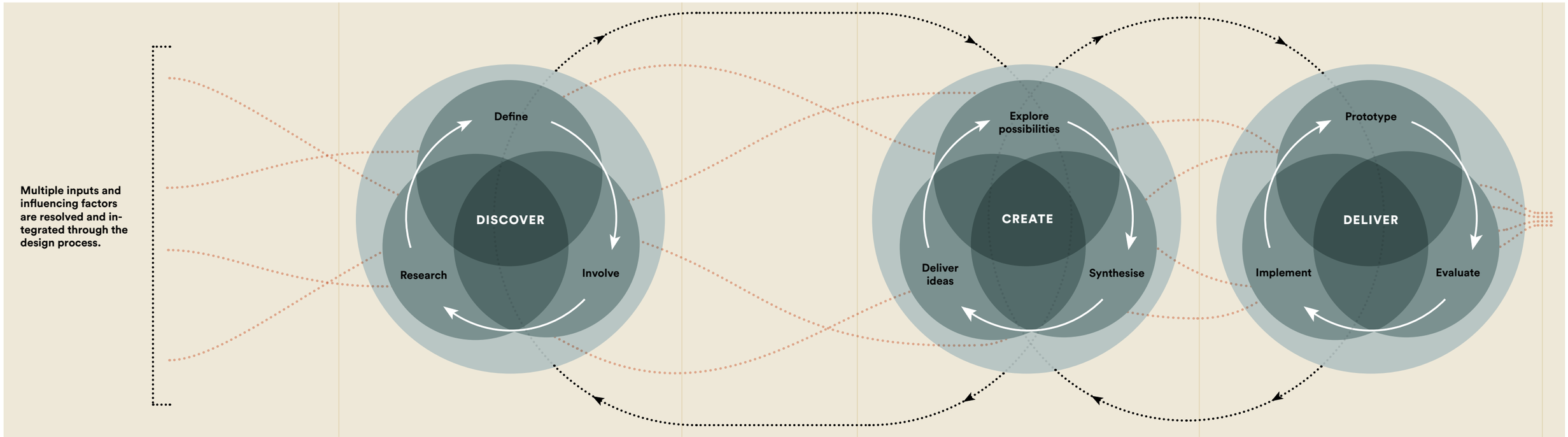
Reflection upon each of the key principles outlined in the document have provided an effective framework in the critical analysis of the design development. The five principles describing a well-designed built environment have proved fundamental to the success and vital in the development of the base brief for the new TAFE development.

THE DESIGN PROCESS

The over arching design process has been succinctly described in the 'Better Placed' document. The process undertaken in this journey to date has been no different.

The stages of discovery and creativity are ongoing throughout the documentation of the development application and will continue to evolve into the schematic and detailed design phases.





Source: Government Architect's Office, Better Placed– Designing Better Places

6.2 Better Placed – Design Objectives

The design is grounded in evidence based research, informed by international exemplars and developed through contemporary andragogy. An advisory group consisting of independent educationalist and on the ground educational professionals has informed a brief that anticipates the future. It is grounded in a deep knowledge of place, people and purpose. It provides an enduring asset facilitating a framework for buy-in from students, educators, community and industry, a prototype for skills training. The project is a direct result of a collaborative engagement with client, industry and the wider community.

1. BETTER FIT — CONTEXTUAL, LOCAL AND OF ITS PLACE

The siting and design of the proposed building is informed by its local topography and contextual relationship with the overall TAFE NSW site and Western Sydney University Werrington South Campus.

The design of the building reflects a true 'building in the round' concept. The homogeneous facade articulation, anchored by a common tectonic element in the form of pilotis, and the lack of 'back of house' facade treatment, reinforce this notion. The 'building in the round' concept adapts well with the 'green field' character of the site, given its vast undulating landscape and openness. Each of the four made facades resonates with its surroundings and provides relevant activation to all external spaces.

The contextual relevance is further demonstrated by the following key urban and architectural design initiatives:

- The building's two and three level rise on the East and West orientation respectively is a direct response to the sloping topography.
- The East facade provides a civic and welcoming interface with Western Sydney University , while the taller facade to the West maximises the viewing opportunity to the dividing ranges beyond, as well as extending the internal spaces and activities to the landscape.
- Noise control and mitigation: The loud workshop spaces located on the lowest floor present themselves as a subterranean level on the Eastern interface to the University. This naturally provides an acoustic buffer for current Western Sydney University Werrington South Campus, and more so for the future development of the Quarter Precinct.

- Location on the higher end of the topography: It increases visibility and presence, and contributes towards effective overland flow
- Vertical and lateral positioning in amongst the topography is carefully considered to achieve a balanced cut and fill ratio to the site.
- Alignment of the building to the East boundary presents an opportunity to future collaboration and shared facility with Western Sydney University. It also sets the parameters and direction for future development of a connected and cohesive TAFE NSW Kingswood Campus.
- Increased setback from the East boundary allows for future road and infrastructure connection to the North East portion of the campus, thus future-proofing the development potential of the campus. This also avoids any future access, should the need arise, from cutting through the connection to the campus landscape from the Western aspects of the proposed building.
- The positioning of the building also considers the proximity of access to existing road networks and car parking. This has a better value proposition and minimises civil and infrastructure works in the immediate term without compromising the implementation of the Structure Plan

2. BETTER PERFORMANCE — SUSTAINABLE, ADAPTABLE AND DURABLE

A number of fundamental passive design elements have been incorporated into the design to reflect and demonstrate environmental sustainability. The building's robust exterior predominantly features precast concrete like material that is contrasted with strategically placed punched windows and lightweight metal cladding to the top floor where susceptibility to impact is minimal. It will therefore be an enduring addition to the built environment requiring minimal maintenance and a timeless aesthetic.

The planning of the building has been driven by organising a grid arrangement that is inherently modular and adaptable, essentially future proofing the facility over it's life span. The building incorporates systems to create positive environmental benefits, which includes energy generation through a roof top photovoltaic array, measures to enhance energy efficiency, rainwater / greywater reuse and Water Sensitive Urban Design initiatives.

The design of the building acts as a live teaching tool to the trades industry apprentices through all its built elements. The main roof provides strategic overhang allowing implementation of extensive vision glass without sacrificing thermal comfort. Where the sun reaches the facade directly, a more solid facade element acts as a thermal mass that passively regulates the internal ambient temperature. Internally, the main spine of the build creates an atrium effect allowing controlled natural daylight through the roof while simultaneously providing a natural chimney effect for passive cooling and ventilation.

The selection of material is robust and reflects the industrial outlook that often exposes the construction methodology. This raw aesthetic further integrates the notion of building as a teaching tool for construction.

3. BETTER FOR COMMUNALITY — INCLUSIVE, CONNECTED AND DIVERSE

The design of this building is grounded in a deep knowledge of place, people and purpose. It provides an enduring asset for collaborative skill training and facilitating a framework for engagement between students, educators, the wider community and relevant industry.

It is more than just a building. In response to a wider structure plan, the design provides edges and adjacencies by establishing links with its surrounds and allowing students and visitors to move freely around and through the building. Multiple entry and access points to the building increases permeability to connect with future buildings, which will be increasingly important as the Kingswood site grows within the greater precinct context.

The public realm benefits from this facility through its visibility, transparency of educational activities and permeability. The civic forecourt in particular provides a shared domain for social engagement, events, interaction and invitation to further education.

The facility provides diverse opportunities in multi trades training, and is a valuable contribution to the social and cultural development of Kingswood and trades training for the future. It supports the vision of a consolidated educational precinct within the Quarter Masterplan that seeks to establish a diversified new town centre, supporting employment uses, with integrated transport and open space network. More importantly, it serves as a hub for training the local population in the relevant skillsets to support the projected growth in Western Sydney, with the International Airport and associated Aerotropolis being major catalysts.

4. BETTER FOR PEOPLE — SAFE, COMFORTABLE AND LIVEABLE

The building is designed with people at the centre it by connecting and creating great social spaces, both inside and across the adjacent landscaped spaces. A variety of student, educator and industry spaces will be devoted to promote social interactions. Food and beverage offerings and incidental workspace environments, in combination with extensive natural daylight and external views all work together to create a comfortable environment to promote health and wellbeing.

This approach acknowledges a built environment that supports and responds to contemporary learning and the notion of a 'sticky campus'. This new educational facility is designed to promote cross disciplinary interactions and ubiquitous access to educational opportunities. An enjoyable environment for all. It is a design that encourages lifelong learning in digitally enabled contemporary vocational settings.

All external edges have been considered to be aesthetically pleasing through integrated landscaping but also providing a community interface that is safe through passive surveillance and crime prevention through environemental design. Clear view lines, shaded, open, social and well lit external spaces, all combine to provide a considered urban response.

5. BETTER WORKING – FUNCTIONAL, EFFICIENT AND FIT FOR PURPOSE

The interior architecture is driven by a desire to create an accessible and legible building that adds value to a campus environment where curiosity is encouraged. Central to the success of a future proofed building is to establish the hard systems and built form with an inherent senses of transparency and permeability.

The architecture exposes the opportunities housed within and is an invitation to explore new skills and knowledge. The building demonstrates multidisciplinary collaboration, and enables teaching and learning skills training and digital technologies.

Core to the design is its rational layout – It is designed to be practical, purposeful and adaptable. The efficient grid arrangement allows the spaces to be reconfigurable and the services integration support this.

Fundamental design moves include:

- Axial movement through a central two to three level atrium for a concise way-finding and simplicity in accessibility, both physical and visual.
- Regular rectilinear structural grid arrangement providing unlimited reconfigurability, as course delivery structure evolves over time.
- Larger spans to better support obstruction free workshop spaces.
- Covered external spaces to all sides of the building perimeter to activate the fringes and be a show case to the educational precinct, industry and community, in particular the external workshop spaces.
- A singular rectilinear 'floating' roof acting as organisational plane to the various spatial program below. It is also a shelter that allows for ongoing change and effortless adaptation, with a particular view to solar control.
- These rules establish the architectural form and functional reconfigurability of the Centre. Importantly the organising plane of the roof provides substantial overhangs, allowing for strategic areas of glass. These sheltered facades support a high level transparency putting the internal activities on show.

6. BETTER VALUE — CREATING AND ADDING VALUE

Built over sloping topography, the design of CCoE is conscious of achieving a balanced volume of excavation and embankment – so the excavated material can be used for site fill and benching without resorting to importation or excessive removal of material.

Use of robust materials, occasional raw finish, coupled with exposed structures, uniform roof, project an image of a refined minimalist industrial design.A simple, consistent rectilinear grid system gives the building infinite reconfigurability to cater for an evolving andragogy. It is simple to expand by adding multiples of the grided structural module, without losing the essence and character of the original design intent.

The micro siting / positioning of the building also carefully considers expansion capability and future infrastructure integration.Sited adjacent to WSU Werrington South Campus, the new facility leverages the potential synergy between Western Sydney University and TAFE NSW.

The ability to forge collaboration through shared resources, amenity and recreational spaces increase social, economic and environmental benefits. TAFE NSW Kingswood Campus is a critical contribution to the City of Penrith's vision for the Quarter Health and Education Precinct. The building responds to the greater educational precinct concept, place-making, extensive landscaping and the creation of new public spaces. Combined, the social benefits of these new and enhanced public space result in an enduring and valuable contribution to the entire community.

7. BETTER LOOK AND FEEL — ENGAGING, INVITING AND ATTRACTIVE

The design responds in an informed way within an emerging campus structure plan and educational precinct context. The building design is sympathetic to its location, yet displays the quality of being an arbor and gateway to the future of construction education and training. As such, the overall composition, structure and material selection embody a degree of confidence and robustness. It is true to its form and materiality that speaks of rawness and industrialism. Contrasting that is the elegance of a parasol that floats above the weight of the building mass, framed by a series of perimeter pilotis. The framing effect, coupled by the regularity of the grid system, sits the building within the landscape in a neutral, timeless and visually engaging way.

The building draws people in and creates a welcoming and attractive arrival point for visitors and patrons alike. It is achieved through activated covered external spaces around the perimeter that embrace various entry points. These semi-outdoor settings add vibrancy in the round, with each of the interstitial spaces responding to adjacent functional program.

The internal plan informs external spaces, adding value and meaning to their function. Above all, the educational functions and activities can be seen and appreciated from any direction of approach. As a public building, it has the effect of being a gallery for educational opportunity. Industry engagement spaces have been created for exhibitions and events further enlivening and activating street scape and campus adjacencies.

6.3 Andragogy

The Construction Centre of Excellence at TAFE NSW Kingswood Campus will be developed as a construction trades Centre of Excellence providing a purpose-built active learning environment.

The facility will be designed to reinforce the changing face of Trade Training delivery in New South Wales and be instrumental in providing the trade skills industry will demand in the development of the Western Sydney Aerotropolis region.

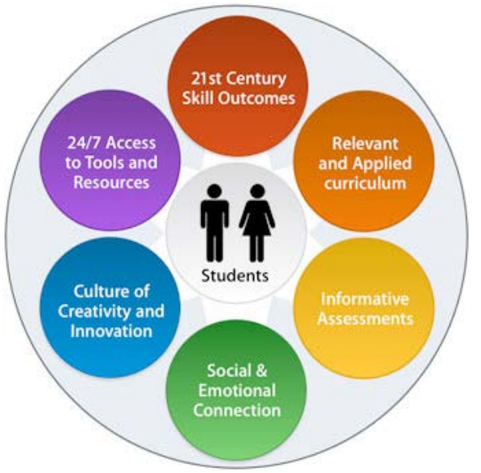
WORKING WITH OUR EDUCATIONAL CONSULTANTS

Gray Puksand are collaborating with New Learning Environments (NLE) on a number of vocational education projects across the State and have commissioned them to aid in the development of the Construction Centre of Excellence to ensure that it can become the centre of excellence required by TAFE NSW.

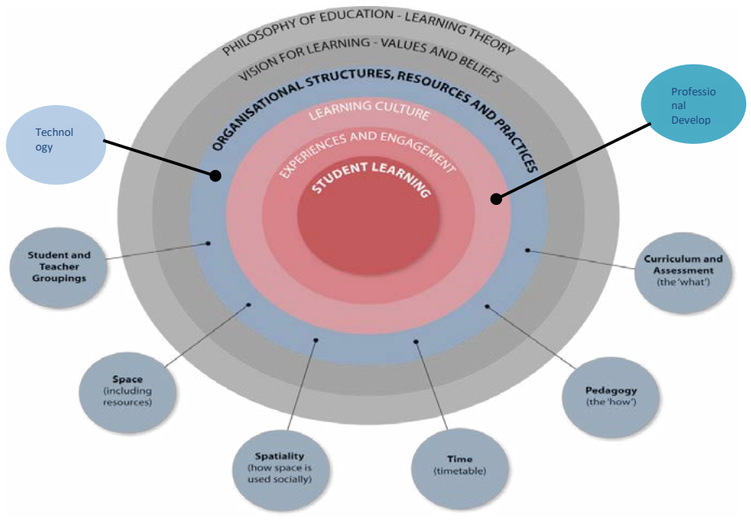
NLE focuses on educational planning at a higher level (e.g. schools within a community, learning cities etc.) at a middle level (e.g. feasibility studies, campus master planning); and also in the more detailed strategic and operational aspects of architectural briefing, space planning and professional development to support educators within new learning spaces. Such multi-level involvement gives NLE a broad view of the educational sector as well as in-depth knowledge and understanding of all aspects that can take effect within this sector.

Linking andragogy and space requires matching contemporary aspirations for teaching and learning with learning space design. The planners and designers of learning environments need to consider a wide range of new issues in order to present a learning community with a responsive and holistic design. When an educational facility is to be built, a team of educators, designers and technology support experts will work together to ensure the facility supports contemporary learners in the most effective way, underpins strategic objectives and reflects the desired educational philosophy. This is what we refer to as a collaborative design process and is essential to ensure a successful project.

In all recent projects, NLE has lauded the provision of highly accessible and inclusive learning environments, where learners (including researchers and academics) can operate in a manner that best suits the needs of their unique life and learning style. The 'new' learning space is one where students can access resources, technologies, mentors and each other in an immediate and flexible manner suited to synchronous and asynchronous; formal and informal; and face-to-face and online activity.



Range of uses of technology in teaching: http://www.stephenrahn.com/blog/archives/2745



Some of the many attributes that surround and influence student learning

To ensure that the Construction Centre of Excellence is a successful facility NLE and GP will work together with TAFE NSW to establish an approach to learning spaces that enables education delivery now and into the future. Interviews and workshops with a vast array of stakeholders will feed into a design that takes into account current and emerging teaching practices, world best practice and the strategic direction of TAFE NSW.

The development of a suite of learning settings that are able to deliver multiple modes of learning is essential to ensure that the furniture provided is both practical, robust, relevant and fit for purpose.

6.4 Space Planning

Since Gray Puksands Engagement as Head Design Consultant in early October 2020, we have begun the process of re-affirming the initial briefing process that has been undertaken previously.

Assumptions and decisions made have been challenged and interrogated, seeking to confirm our understanding of the project brief and stakeholder expectations for the projects development through consultation with the Technical Reference Group, Specialist Focus Groups and Technical Consultants.

TAFE NSW ASSET STRATEGY PLAN

Five key principles have been identified in the creation of the TAFE NSW Campus Aspiration Plan to be implemented across each TAFE NSW Asset.

The principles describe how the physical campus can contribute to and enable an Improved Service Delivery Model.

These elements can be applied to any campus to assess how they are supporting the vision: Building a TAFE NSW for the future.

A MULTI TRADES CONSTRUCTION HUB

"The Multi-Trades Construction Hub is an active learning environment co-locating disciplines under building, construction and engineering united by a focus on various technologies. Students will have access to state-of-the-art facilities, that can expand, contract and adapt to industry needs."

COURSE DELIVERY INFORMING A BRIEF

Through liaison with the TAFE NSW Team, a preliminary refinement of the courses to be delivered in the Construction Centre of Excellence has been conducted with the Technical Reference Group and Specialist User Groups.

The key disciplines that are currently proposed to be delivered from the campus are:

- Carpentry
- Electro Technology
- Plumbing
- Civil Engineering
- High Risk Works
- Scaffolding
- Crane Works Rigging & Dogging

The list above is not intended to be exhaustive nor limit the potential for various other disciplines to engage with the facility.

Flexibility and adaptability remain key factors to the brief for this building and general concurrence has been established with the stakeholders that this approach will essentially future proof the facility to cater for changes in the construction industry.

Interrogation of what exactly constitutes flexible and adaptable spaces will be furthered as the spatial design advances. Input from our specialist sub consultant engineers, industry, technology leaders and other tertiary educational institutes will help mould these ideologies.

Place and Identity

- Differentiation of campuses (campus specialisation)
- One TAFE experience
- Unique geographic opportunities
- Campus presence
- Welcoming (navigation and way finding)

Campus Heart

- Social and communal campus
- Customer focused
- Open green outdoor spaces
- Safety and security
- Support spaces
- 24 hour campus

Value from Assets

- Create commercial opportunities
- Flexible and adaptable spaces
- Create shared use opportunities
- Transparency of utilisation
- Customer focused
- Centrally timetabled

Connectivity

- Industry engagement
- Community on campus
- Commercial opportunity for local industry
- Blended and on campus learning
- Inter-sector connectivity
- Accessibility for all users

Innovation

- New and consistent E+T strategy
- Social and informal learning
- Active learning
- Flexible and adaptable spaces
- Digitalisation and integration technology

FUNCTIONAL RELATIONSHIPS AND CRITICAL ADJACENCIES

Spatial typologies, functional relationships and the overarching pedagogies driving courses will be further examined with all stakeholders as these elements are fundamental to the successful planning of the new facility as we progress into Schematic design.

Examination of opportunities to share space, collaborate between trade points and create a simulated workplace experience for the TAFE NSW students, supported by the teaching spaces, lecture spaces and utilisation of virtual reality to enhance course delivery will be the focus as we move forward.

In-depth understanding, not only of how courses are delivered now, but how they may be delivered in the future will become a critical step in this design development phase.

This thinking should ideally go beyond current skill points to consider how spaces may be adapted to deliver skills that will be required in the future of the construction industry, promoting learning innovation.

Amenity and breakout space for staff and students should not be understated in the design process, promoting cross disciplinary social interaction aimed a sustained presence on campus.

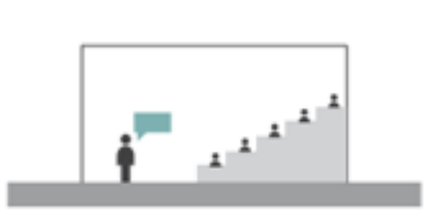
LEARNING SPACE TYPOLOGIES

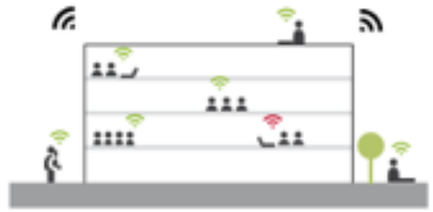
Various learning space typologies were identified as the key spaces required in the original briefing document.

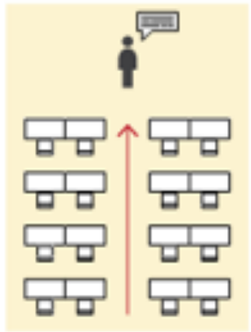
Gray Puksand generally concurs with the approach proposed and this will be re-verified in our engagement with the TAFE NSW stakeholders over this brief and concept re-affirmation process.

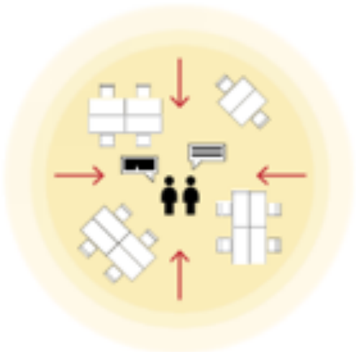
The next step that is currently underway with the Technical Reference Group (TRG) and Specialist Reference Groups (SRG), is to begin the investigation of what the micro scale spatial typologies will constitute the macro area allocations briefed.

Various examples of these micro scale typologies are outlined below and a mixture of these will begin to develop the grain of the building, functions and functional relationships.









KEY SPATIAL TYPOLOGIES IDENTIFIED AT PROJECT BRIEF

PRACTICAL SPACES

Shared Workshop

- Multi Trades Triple height space
- Practical skills bays
- Work Bench Zones
- Open flexible workshop space
- Open scaffold delivery and construction area

Plumbing Workshop

- Large double volume space
- Open format workshop
- Sandpits 22mx10m 2m deep
- Two level practice fit off bays
- Roof area for working at heights
- Thermostatic mixing valve lab
- Work bench zones
- Wet area for hose reel fitting

Machine Room

- Large fabrication machinery
- Well ventilated space
- Acoustically treated

Welding Workshop

- 30–40 welding bays
- Arc and Gas welding
- Mechanically ventilated space

GENERAL LEARNING SPACES

Large Group Learning / Event Spaces

- Open learing environment for 100 people
- Co located with lobby / industry event space

General Learning — 20 Students

- 65–75m2 spaces to cater for 20 students
- Adaptable formats
- Located near or adjacent to workshops
- Use of operable walls to enable larger format teaching spaces

Seminar Spaces — 8 people

- Student group work
- Connectivity
- 15–17m2

Data / GLS — 20 Students

- GLS / Workshop for Data
- Specialist teaching & practical equipment
- Approximately 75m2

STAFF WORKSPACE

Quiet Room — 1 Person

- Quiet work / Phonecalls
- Digitially enabled for CLC Teacher Delivery

Meeting / Withdrawal — 2 persons

- Students & Staff or Industry Partners
- Distributed for us across the facility on an impromptu basis
- 7–9m2

Boardroom — 16 People

- Staff Meetings
- Connectivity
- 25–30 m2

Laptop Docking workstations

- Laptop Dock & 2 Screens

INDUSTRY ENGAGEMENT SPACE

Exhibition Space

- Flexible exhibition space, suitable for larger industry events
- Loading access

Events Space

- Flexibility space for industry events
- Catering and presentation facilities required

Collaborative Workspace

- Computer Labs / Workshops
- Applied Research / Robotics
- 60–75m2

Workshop

- GLS / Workshop space for student & industry collaboration
- Space suitable for flexible workshop & bespoke equipment
- Loading access

CAFE

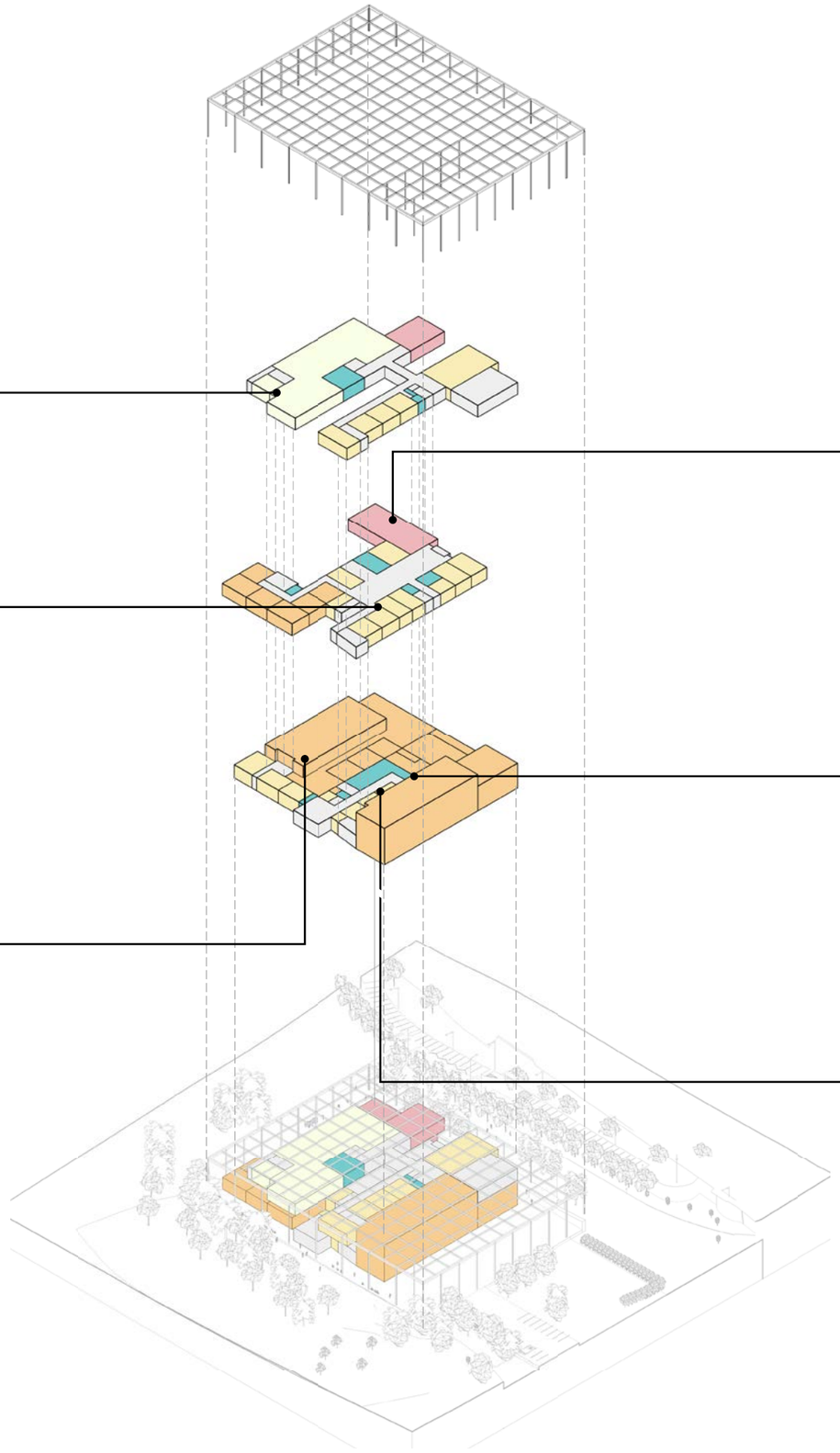
It is TAFE NSW's brief that this cafe space is simple in nature, providing hot and cold beverages and pre-packaged type food offering only.

A student canteen is located elsewhere on the campus.

The area will be designed to comply with the relevant provisions of AS4674-2004, incorporating the key requirements including, layout of the facility to minimises opportunities for food contamination.

Food facilities, fixtures, fittings, equipment will be designed and constructed to be cleaned and, where necessary, sanitised, and equipped with the necessary services of water, waste disposal, light, ventilation, cleaning and personal hygiene facilities, storage space and access to toilets.

6.5 Spatial Distribution and Functional Uses



- WORKSHOP
- GENERAL LEARNING
- WORKSPACES
- INDUSTRY ENGAGEMENT
- CIRCULATION / AMENITIES
- CAFE
- SERVICES PLANT

WORKSPACE

Staff are located together to encourage collaboration and comradery and foster a collegiate atmosphere. The modern, open plan workspace fit out, will include areas for small and large meetings, quiet spaces for private conversations, communal kitchen and access to an elevated outdoor area.

LEARNING SPACES

A variety of flexible and adaptable learning space typologies have been provided to facilitate different teaching delivery and learner experiences. These include spaces for individual study and self-directed learning, collaboration and small group work, general learning spaces for direct instruction to 15 – 20 students, lab spaces for practical activities, simulation rooms and dedicated technology workshops and large group delivery for cohorts of up to 100 people. All spaces are digital enabled with digitally enhanced spaces provision for specific purposes. Flexibility of these future focused spaces is facilitated via operable wall types, mobile and adaptable furniture, power and data provision and the ability to reconfigure the space and equipment.

WORKSHOP

Practical workshop spaces service the main trades of carpentry and building construction, plumbing and electrotechnology. Real-life hands-on activities and opportunities to learn via technology and virtual reality headsets, will occur in these spaces. Shared workshops provide active learning environments where students from different disciplines can come together. This 'multi-trades' approach facilitates opportunities to collaborate on cross disciplinary projects. The high visibility of these workshop spaces, with glazed facades, puts the trades on show, fostering curiosity and engagement in what is happening across all trade training programs.

INDUSTRY ENGAGEMENT

Spaces are provided to enable industry collaboration onsite the TAFE NSW Construction Centre of Excellence. These spaces offer potential industry partners opportunities for co-locaiton, engagement with staff and student and exhibition. Fostering these direct relationships will enhance employment pathways for students and improve the quality and industry relevance of course delivery

CIRCULATION

The circulation spaces offer a range of settings, outside of formal classes, that encourage collaborative activities and accommodate team and individual study, waiting, socialising, and improve the collegiate experience. These comfortable 'in between' spaces, include tea points for student access, and a café, to provide a sense of belonging outside of the formal classes.

AMENITIES

A variety of amenities are provided for students, staff, visitors and industry partners. These include end of trip facilities, male, female and accessible bathrooms, a café, several kitchenettes located in common areas with tea, coffee and microwave provision. These amenities contribute to a warm and welcoming social and communal hub that encourages activity and enables 24-hour access.

7.0 Contextual Analysis

7.1 The Design Response

The design of the new Construction Centre of Excellence will provide a venue for learning that points to the future of skills training in the building and construction industry. The built form will both passively and actively contribute to the teaching and learning experience.

Functional programs at CCoE can evolve over time. This will require a structure and service configuration that allows for seamless reconfigurability. Driven by the need to re imagine jobs of the future, the design will ensure that current and future training programs will be supported as continual advancements in construction skills, technology and methodologies emerge. Functionally this will be achieved by organised educational spaces around a series of exhibition areas and social space. This combined with the logistics required for multi–disciplinary operations, the building will showcase the future of skills training and be prototype for tertiary education, a demonstration to industry within its educational precinct.

To achieve this the design will display a refined and contextually relevant aesthetic. The design is a direct response to place and function. With a prominent entry to the west serving as the TAFE NSW/compass entry, civic presence will be established on the east facade that faces the university precinct. A dual address resulting in legible and welcoming arrival points for students, visitors, industry and the community.

This is a true ‘building in the round’ with all sides being activated with a variety of visible education opportunities, exhibition spaces and settings for student amenity. This is further augmented with prominent event space for industry engagement and civic presence. A facility that is an invitation to students and industry for learning, re– skilling and industry collaboration.

CAMPUS CONTEXT

The siting for the CCoE has numerous environmental and contextual qualities that have influenced the design. The gently undulating greenfield site offers tremendous scope to position the building in the landscape. Siting options have been explored to provide maximum connectivity with existing infrastructure, visual prominence and economical constructability.

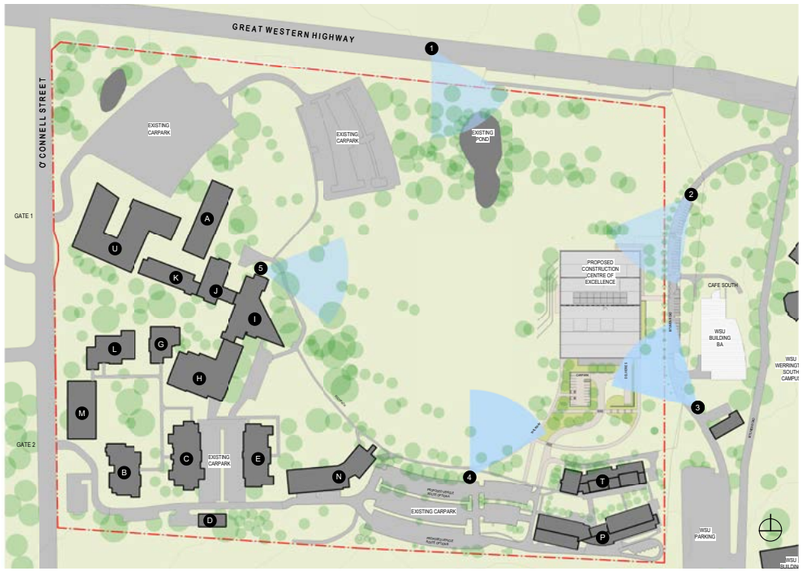


Fig. 1 Key views and vistas demonstrating the contextual qualities of the site.

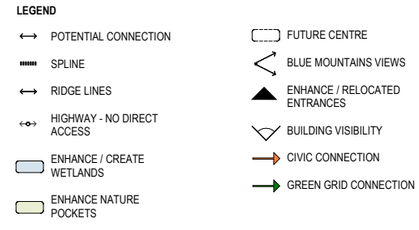
CAMPUS CONSTRAINTS

The physical site constraints relate to access, topography, drainage and the built-environment of the existing and future campus.

- No possible vehicle access from the Great Western Highway to the north.
- Primary site access via entry points on O'Connell street to the west, with possible secondary access from the Western Sydney University campus to the east.
- The topography of the land slopes down to a low point along the mid northern boundary. This provides a physical overland flow constraint which requires consideration when siting the building.
- The natural water courses that run across the north eastern portion of the site down towards this low-lying area will influence the overland flow strategies for the new building.
- The built environment of the existing Campus and the possible future masterplan development provides a physical constraint on how the new facility relates to its existing and future campus neighbours.

CAMPUS OPPORTUNITIES

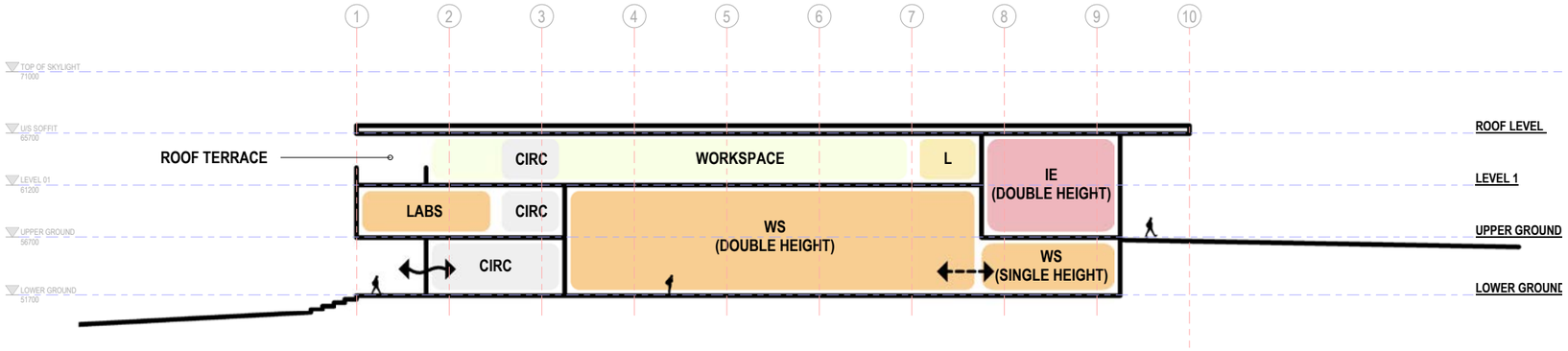
- Visual exposure to the Great Western Highway from Eastern approach
- Landscaping opportunities around the natural low lying 'wet' area to the mid northern portion of the site
- Creating a 'destination' building that can strengthen the east-west & north south links across the site and provide opportunities for more community engagement
- Improving connectivity to the Western Sydney University campus to the west
- Views towards the Blue Mountains
- Creating a campus where the built environment engages with nature
- Possible permeability of the southern boundary to provide more accessible links between the community and the campus
- Creating a sense of arrival by improving the existing access points off O'Connell Street



The building concept responds to the following key elements:

- A cross fall of more than four metres over the site footprint (Fig.2)
- A street address to the University access road providing education precinct connection.
- Significant trees and existing overland flow paths down to a small dam add important natural aesthetics and environmental opportunities. (Fig.3)
- Potential distant views to the Great Dividing Range from upper level vantage points. (Fig.4)
- Sight lines into the site from the Great Western Highway for community exposure. (Fig.4)
- Elevated site that provides visual connection to the existing campus. (Fig.4)
- Multiple entry and arrival points. (Fig.5)
- Proximity to tertiary educational collaboration. (Fig.5)

The design will add vibrancy to the existing campus and to the greater educational precinct by activating all facades with a variety of internal and external educational settings. The internal program of space is arranged to inform external spaces, adding function and vibrancy.



EAST – WEST SECTION

Figure 2: The natural crossfall of the site topography assists in informing key spatial planning and distribution strategy, as well as in designing various façade interfaces with the corresponding surrounding context — civic vs landscape, formal vs informal.

Figure 3: Overland flow paths down to a small dam with significant trees and landscape.

Figure 4: Potential views and vantage points.

Figure 5: Multiple entry points to increase accessibility into the new Construction Centre of Excellence and the overall campus, as well as establishing a connectivity to the tertiary education precinct

8.0 Urban Response

8.1 Urban Analysis

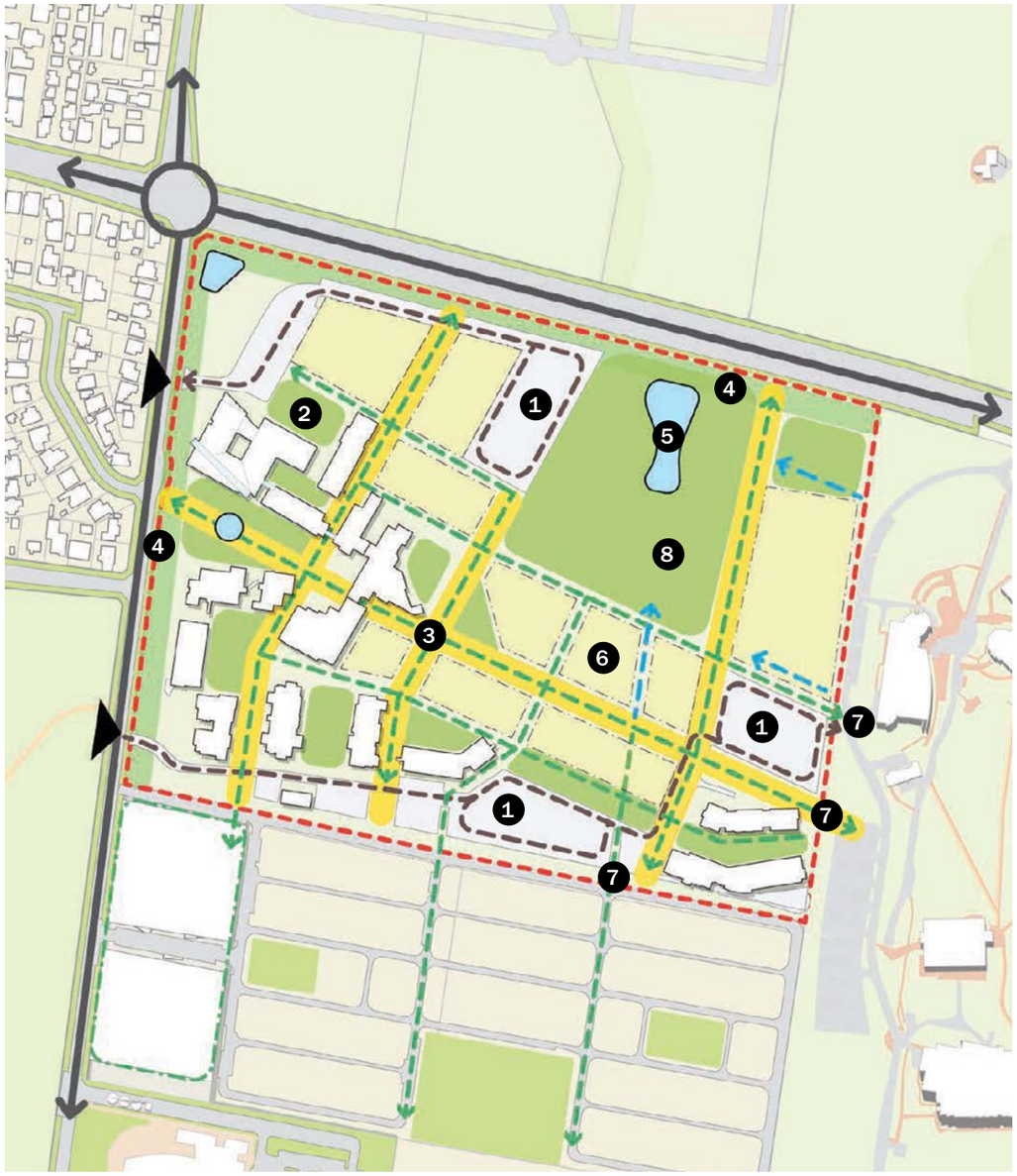
The development of the new Construction Centre of Excellence has been carefully considered in how it relates to the site and the surrounding urban fabric. The consideration also takes account of an evolving urban character and density as future development within the TAFE NSW Kingswood Campus and the wider Quarter Masterplan get underway.

The proposed building is located on a fairly open site, with WSU's Building BA located to the East and TAFE NSW's own Building T to the South. These are the two current existing buildings located within the immediate adjacency.

Current future plans, including the TAFE NSW Kingswood Campus Structure Plan and the Quarter Masterplan, identified extensive developments along the East–West corridor within TAFE NSW's site, whilst retaining the open space on the North and North–East. Future development of for Western Sydney University sees a complete overhaul of the entire Werrington South Campus site, to include Mixed–Use, Residential and Commercial / Retail, alongside its main educational offering. Green open spaces are also one of the mainstay feature to ensure sustainability and liveability of the Quarter Precinct, which entends into the TAFE NSW site as part of the continuation of the interconnected 'green lung' spaces of the wider community.

The siting of the CCoE also takes into account future interconnectivity between TAFE NSW's own assets. The current campus vehicular access configuration has two distinct entry points which address the campus' North and South respectively. To address this division, the setback of the new building to the Eastern boundary is increased to factor in potential need to provide all–round accessibility and mobility from within the campus. This setback provides accessibility options for the future without disrupting the spatial relationship and connection between the CCoE and the future buildings along the East–West corridor the open landscape.

8.2 The Previous Structure Plan study for TAFE NSW Kingswood Campus



KEY MOVES

- 1. Reorganise site parking areas to provide a vehicle movement and servicing circuit
- 2. Shift existing driveway entry in front of Building U outside of the main pedestrian desire line to avoid conflicts and enhance entry experience. Location to be determined subject to transport consultant advice
- 3. Enhance key campus spines with legible pedestrian wayfinding and connectivity
- 4. Provide a landscape buffer along the western and northern edge as an interface with adjacent single residential development and the Green Grid
- 5. Enhance existing drainage ponds as landscape features
- 6. Provide new building sites that offer campus expansion consistent with an agreed site structure
- 7. Provide new or potential entry and connections with adjacent sites (as vehicle or pedestrian links)
- 8. Retain the open field and enhance views to the Blue Mountains
- 9. Investigate consolidation of the campus to the west, south and east of the new circulation spine creating a new address at the interface with WSU
- 10.Extend movement corridors from the surrounding context into the campus to increase permeability and passive surveillance
- 11. Provide a site arrangement that allows the Western Sydney Construction Hub to be integrated into the TAFE NSW Kingswood campus.

8.3 Siting Options within the Structure Plan

Various siting options have been explored during the early design phase to test the viability of the new building in relation to the wider site context, and the influence the new building has on the future of the campus and its current Structure Plan.

OPTION 1

This option follows the current Structure Plan closely. Access is from the South utilising the south entrance from O'Connell Street. A new carpark accommodating current demands of the new CCoE as well as the demand from future development is located on the South side of the new building. In this arrangement, the carpark dominates the Eastern end of the site's major East–West spine, and involves a major cost allocation to site infrastructure.

OPTION 2 – Current Adopted Option

This option moves the CCoE further South to occupy the proposed new carpark from Option 1. The move creates better immediate adjacency to existing site facilities and relates closer to the existing carpark compound to the South. It relies on the existing Suthern carpark occupancy rate and potential reconfiguration to cater for the increased demand from the CCoE. This arrangement has better integration of the CCoE within the main East–West spine and has potential for future expansion or further development on the North East. This option presents the least capital involvement in road and carpark works.

OPTION 3

This option adopts the move from Option 2 and further extends the proposed CCoE into the site to the West. Whilst it enhances the site integration with the main spine and allows ample development potential to its North, as well as better North and South facing building orientation, this option requires the most extensive site excavation and benching. This is due to the natural ground sloping in the same direction as the proposed building option.

OPTION 4

This option looks into positioning the new CCOE closer towards the North boundary, whilst freeing up the Southern end for additional landscaping. While it slightly improves the street presence from the Great Western Highway, the new building is in fact located on the lower side of the sloping topography, which in itself reduces its presence when viewed in context with its surrounding. This position is also the furthest away from any existing infrastructure – a perceived isolation that poses some challenges to accessibility and delivery logistics. Reliance on delivery access from WSU's Werrington South infrastructure is also a risky proposition, given the uncertainty of direction for the future development of the adjacent site.

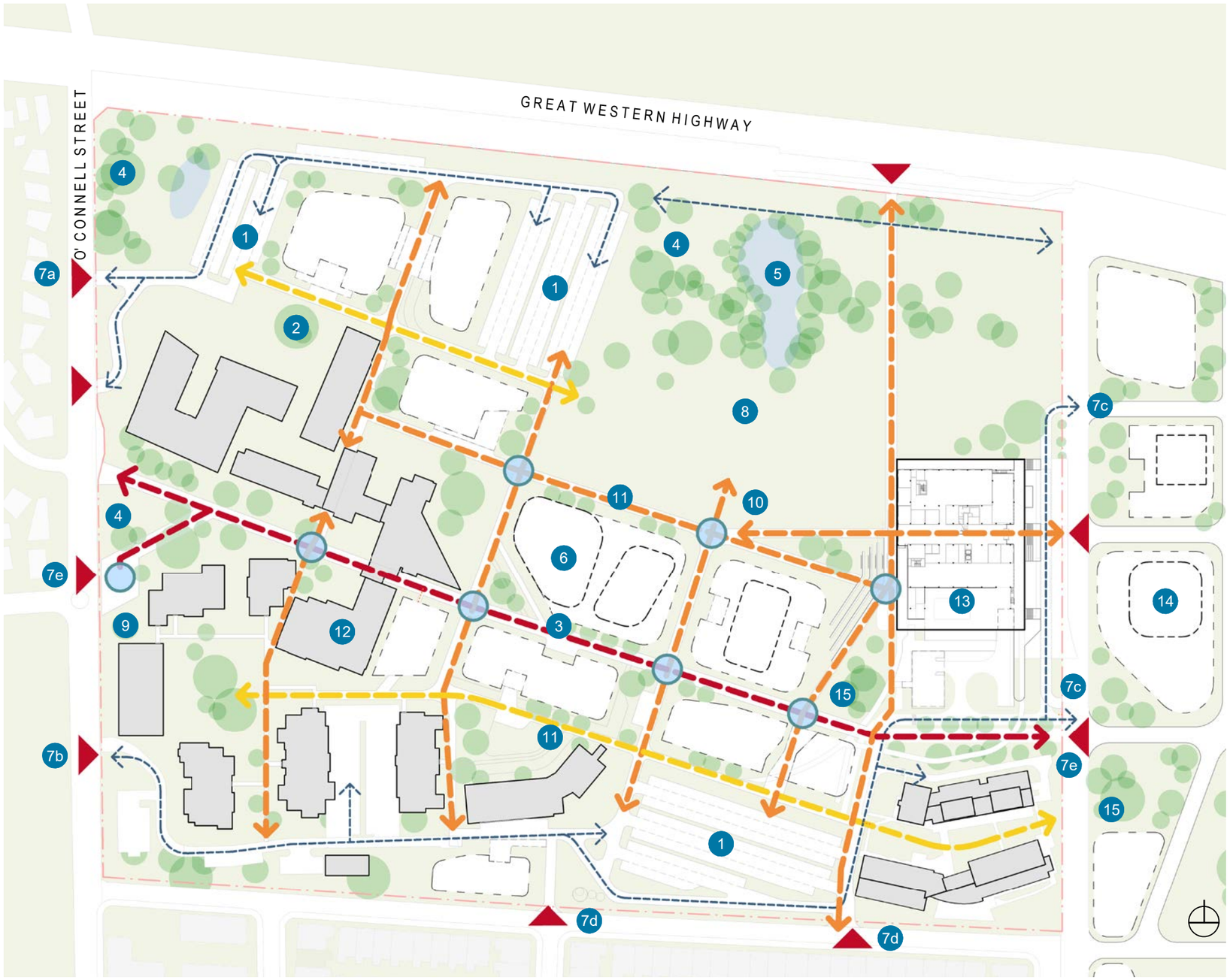
OPTION 5

This is a variation of Option 4. It eliminates the reliance of access from WSU's site and introduces carparking and access to the South of the proposed new building. It also seeks to retain development potential on the Eastern end of the East–West spine within TAFE NSW's wider Structure Plan. However, the option does not eliminate the isolating factor of positioning the building to the far North Eastern corner.

OPTION 6

This option follows Option, but positions a new carpark compound to the north of the new building. An accessway is then provided to link the new carpark to the existing carparking compund on the North West.Whilst this remains a viable option in terms of strategic integration with the Structue Plan, the option still lacks the immediate adjacency to the existing facilities sprawling along the West and the Southern part of the TAFE NSW Kingswood site. It also requires an upfront capital injection into establishing the required Northern access link.

8.4 Current Structure Plan



Site Plan incorporating the current structure plan to show integration with future development within TAFE NSW Kingswood

- 1. Reorganise existing site parking areas to provide a more efficient configuration, movement and servicing circuit, enhancing the development potential to the North West of the Campus.
- 2. Creation of open space from the reconfiguration of the existing carpark.
- 3. Primary circulation spine to enhance key campus connectivity with legible pedestrian way finding.
- 4. Provide a landscape buffer along the western and northern edge asan interface with adjacent single residential development and the Green Grid.
- 5. Enhance existing drainage ponds as landscape features.
- 6. [Typical] Provide new building sites that offer campus expansion consistent with an agreed site structure.
- 7a. Main vehicular entry and link to the Campus' North.
- 7b. Main vehicular entry and link to the Campus' South.
- 7c. Potential future vehicular or service link to WSU's Werrington South facility and infrastructure.
- 7d. Potential new secondary vehicular links from the Southern boundary and future road network.7e. Main pedestrian entry and link between WSU's Kingswood and Werrington South Campus, through creation of circulation spine spanning East and West across the TAFE NSW campus. The new link will consolidate the movement across the different sites and create new address at the interface with WSU.
- 8. Retain the open field and enhance views to the Blue Mountains.9. Potential new entry plaza, enhancing the axial co
- nnection to WSU Kingswood campus to the West, through Second Avenue.
- 10. [Typical] Major circulation intersections, denoting place-making nodal points for activity and interaction.
- 11. Secondary spines to extend movement corridors from the surrounding context into the campus to increase permeability and passive surveillance.
- 12. [Typical] Existing building and built form.
- 13. The proposed Construction Centre of Excellence.
- 14. Indicative representation of future development for the WSU Werrington South Masterplan.
- 15. Landscape / Green Lung extension for connectivity and continuity of green open spaces between TAFE NSW and WSU.

9.0 Conceptual Development

9.1 Architectural Expression

Driven by a desire to create a rational and adaptable program of educational spaces the design is underpinned with the notion of 'pavilion in the landscape'.

A building that will be seen 'in the round' within a backdrop of gently undulating grasslands sloping from a high point to the east, westward towards the centre of the campus.

A variety of mature trees and an existing dam further augment the natural beauty of the site and opportunities for student amenity, health and wellbeing.

The pavillion is envisaged as a simple composition of parts, that form a unified aesthetic. Starting with a simple rectangular form, the ground plane level is governed by a north/south delivery and storage axis.

A student or campus entry is established on the lower ground floor to the west and a civic/ educational precinct entry on upper ground is provided on the east of the building. These main entry points set up a cross axis (east/west) that transverse all levels of building addressing the Werrington South Campus.

With this simple circulation planning students, educators and visitors are removed from loading and logistics requirements. The natural fall of the land has been utilised to provide a variety of double and triple height internal workshops, all visually connect via an internal spine, an atrium activated with passive collaboration settings and social spaces.

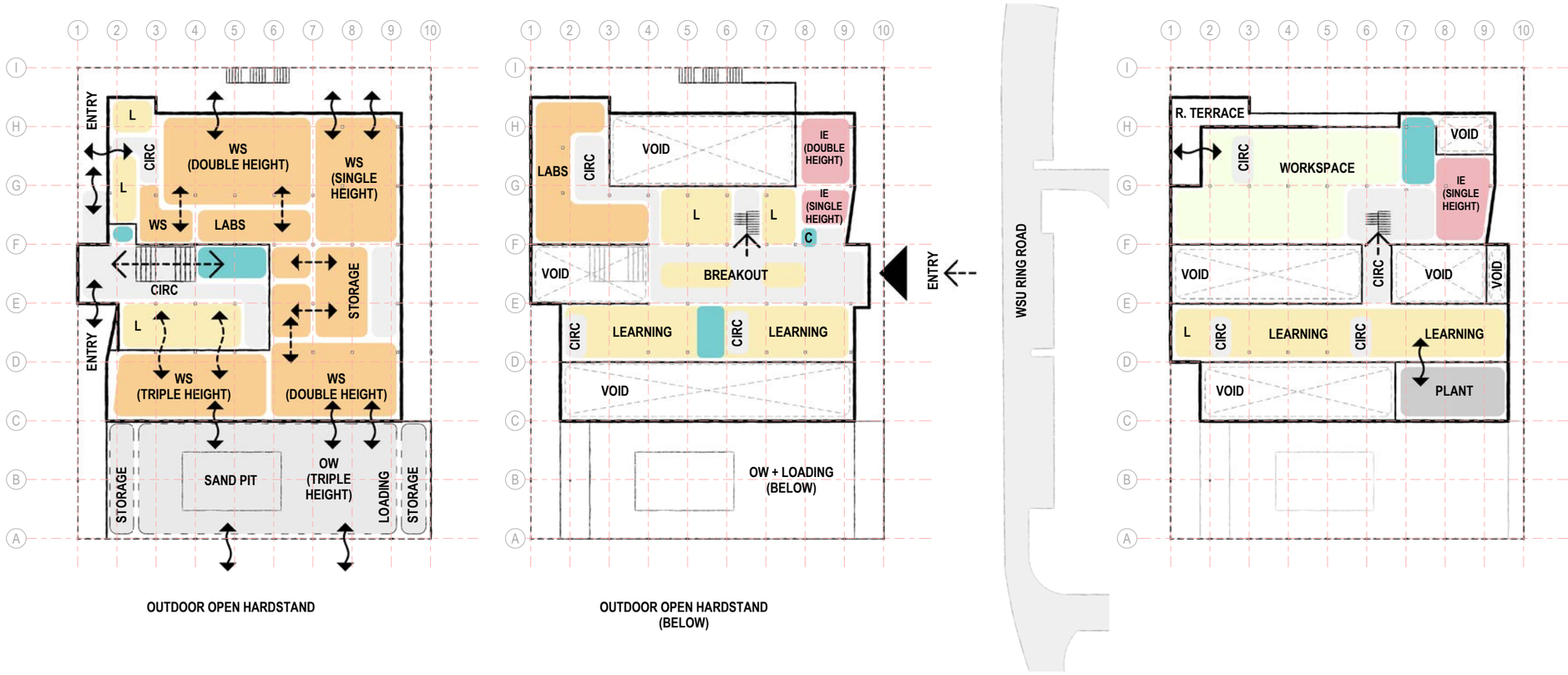
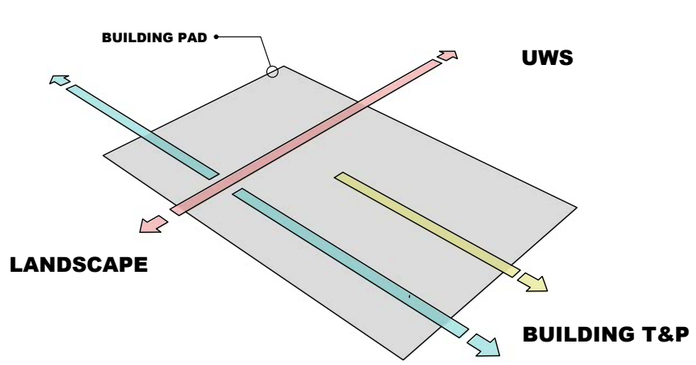


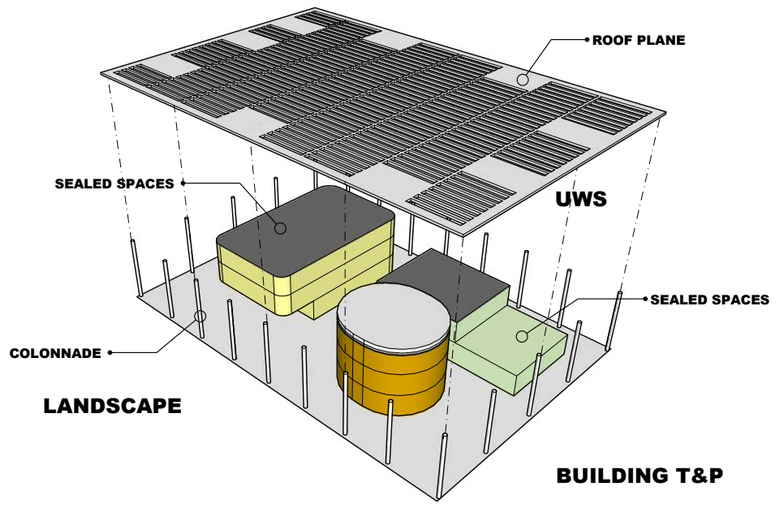
Figure: The spatial organisation features primary (East-West) and secondary (North-South) movement and circulation axes that aid planning, clear circulation and accessibility. The East-West spine links all the levels, visually connecting the various workshops, learning and work spaces.

The key visual element to the design has been established with a slender roof plane supported by pilotis that circumnavigate the rectangular base. This roof plane acts as a parasol that floats beyond the building mass forming shelter for external workshops, upper level decks and courtyard space for a variety of educational, exhibition and social activities.

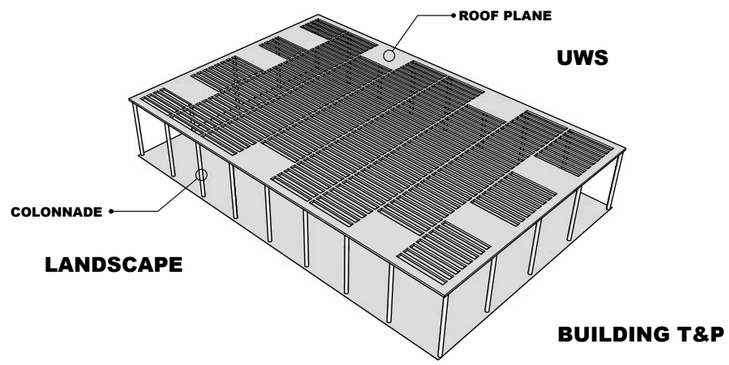
UNDERLYING FORMAL EXPRESSION AND COMPOSITION



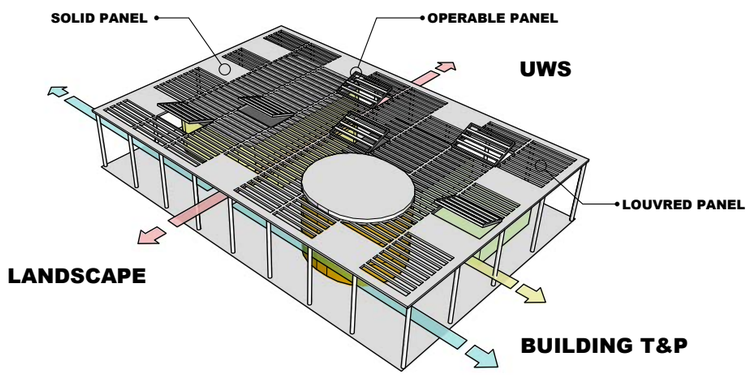
The basic ground plane and the notion of connecting various existing precincts around the site



Population of spatial programme below the floating parasol



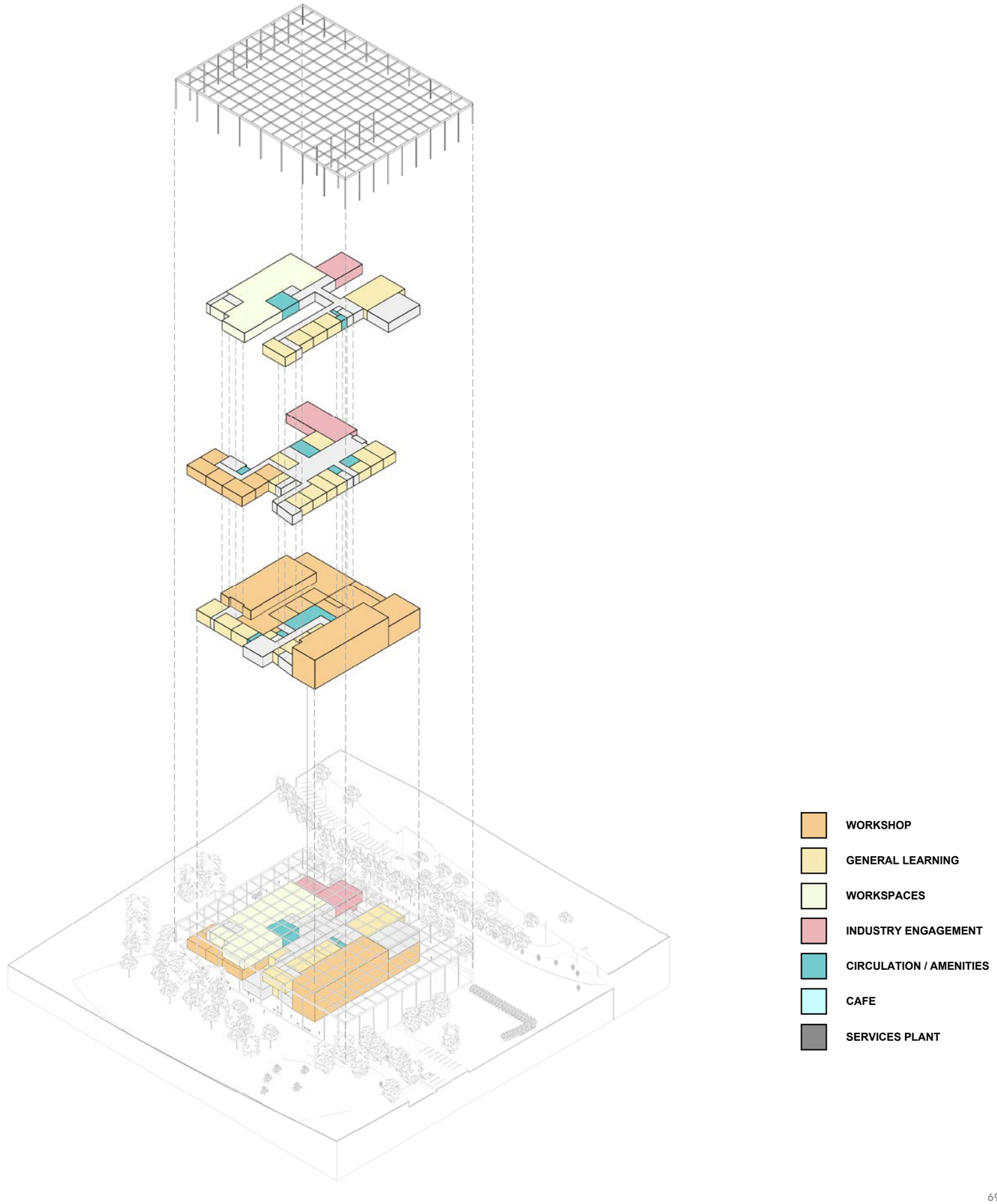
The unifying element of the roof plane and pilotis



The roof plane creates an ‘organising’ element and shelter for external workshops, upper level decks and courtyard spaces

This interplay of floating roof plane over functional building mass represents a compelling analogy to an architecture whose functional spaces are disconnected from its protective cover. This aesthetic informs flexibility in educational planning. Spaces that can change over time in response to the environment and evolution in andragogy. The design therefore does not battle with nature or with adaptation of educational programs. Rather, the functional space located beneath a protective parasol that stretches out into the landscape provide a future proofed facility responding over time in an environmentally sustainable manor.

This design allows for large areas of shaded glass facilitating views into the educational activities within and unobstructed view out to the landscape. Internally the planning program has been arranged around a simple and functional cross axis providing seamless connectivity and visual access to a full program of educational programs. The circulation strategy considers both efficient movement and opportunities for acoustic separation. Workshops both internal and external, a variety of learning spaces, social settings and workspaces are all housed beneath a legible shelter providing an architectural aesthetic of comfort and function.



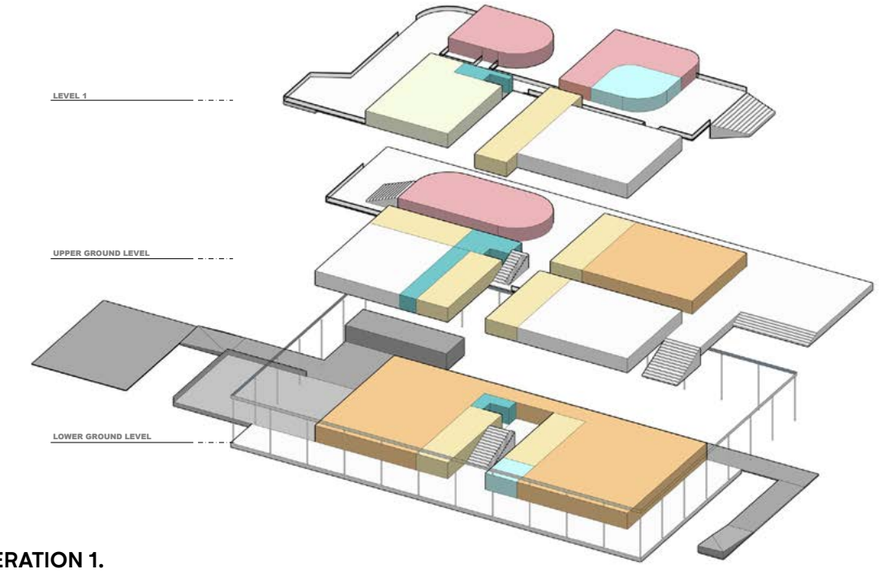
Exploded Axonometry showing organizational hierarchy of spaces and connectivity. The spatial programming can change, expand and adapt to an evolving andragogy, all organised under the unifying floating roof.

Acting as a unifying plane the roof is a place-maker. A parasol supported by slender columns that form a colonnade and sheltered ‘verandah’. The building will respond to the time of day and year utilising basic architectural principles in building elements that shelter, deflect prevailing winds and provide a varying degree of shade and direct sunlight.

WORKSHOP
GENERAL LEARNING
WORKSPACES
INDUSTRY ENGAGEMENT
CIRCULATION / AMENITIES
CAFE
SERVICES PLANT

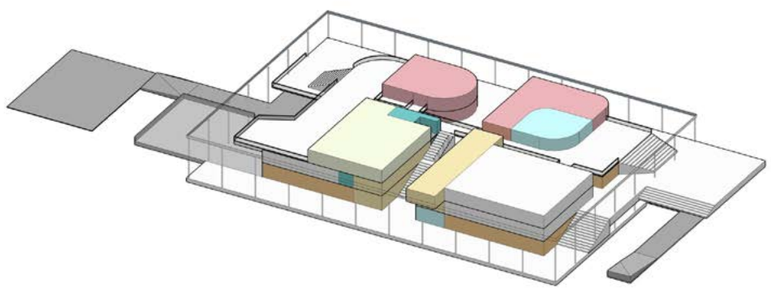
9.2 Design Evolution

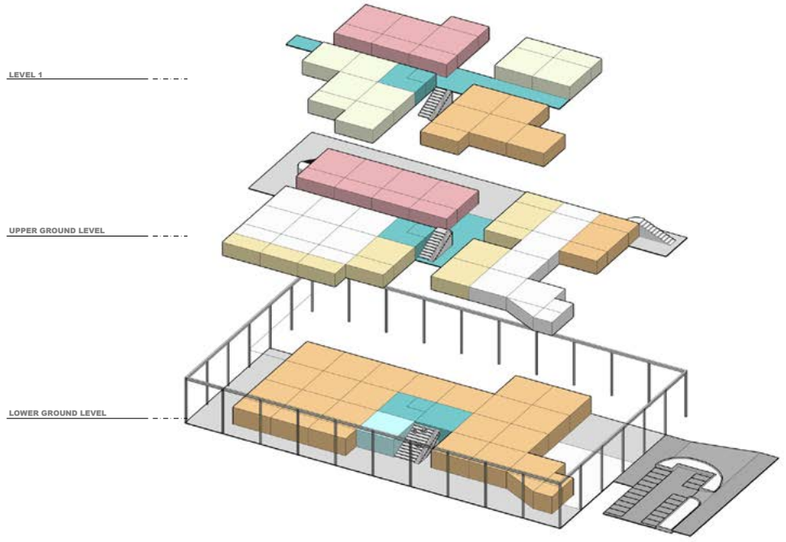
The design has undergone various iterations and refinements throughout the design stages in response to the dynamics of site context, functional expectation, and masterplan integration aspirations. The following highlights some of the major developments in terms of architectural moves. Amid the design progress, some thematic design elements endure — ones that speak of *'pavilion in the landscape'*, *'building in the round'*, and the organising floating plane of the parasol.



DESIGN ITERATION 1.

The concept of 'pavilion in the landscape' is first established through the circumnavigation of a rectilinear base by a series of pilotis that supports a thin, floating roof plane that acts as a parasol. A East–West spine / axis that bifurcates the building into two major volumes, also serves as a spatial connector by directing foot traffic to and from the various functional spaces. A secondary North–South axis also exist on all three levels — the bottom axis on the Lower Ground acts as a subterranean connection the carpark, external workshop and loading to the North, with the existing infrastructure network to the South. The upper levels axes serve to increase building permeability and connectivity between the open exhibition spaces to the North and to the South.



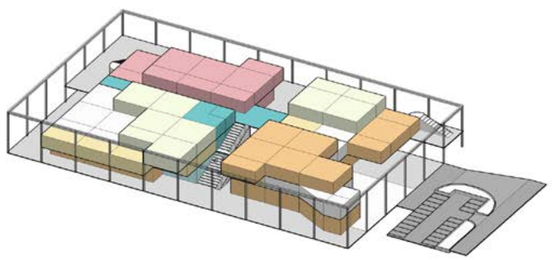


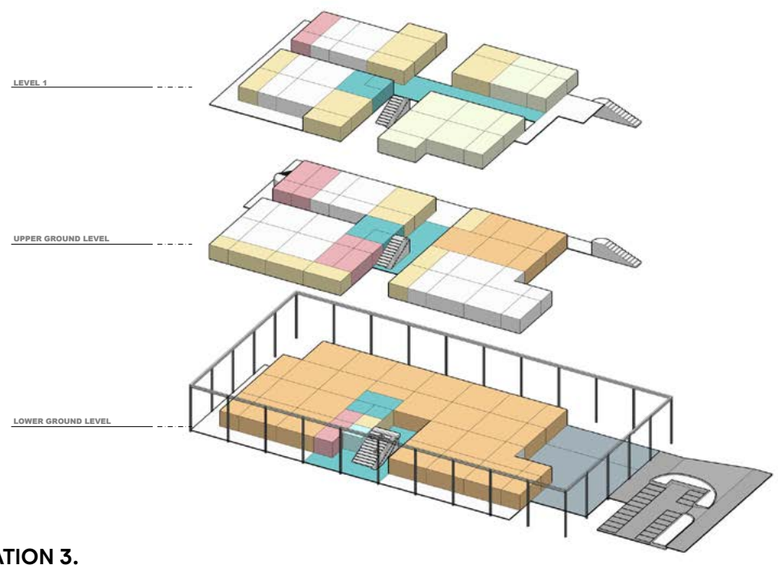
DESIGN ITERATION 2.

The pavilion concept carries through with the introduction of a regular 12m square module arrangement of 6x10 grids to promote modularity. The addition of this 'modular–cell' supports simplicity in planning, clarity in organization and reconfiguration, as well as future adaptability should the need arise. The overall building span is shortened in both direction as a result.

The external workshop, loading and carparking are now shifted to the South, closer to the existing road network. This shift removes the need for the North–South axial connection to the Northern portion of the development, for a simpler interconnection with existing infrastructure.

The 12m wide covered external corridor–way, the edges of which is defined by the perimeter pilotis and the building envelope, is retained although with some encroachment of the of the building envelope to compensate for the loss in built up areas with the shortened overall dimensions of the building.



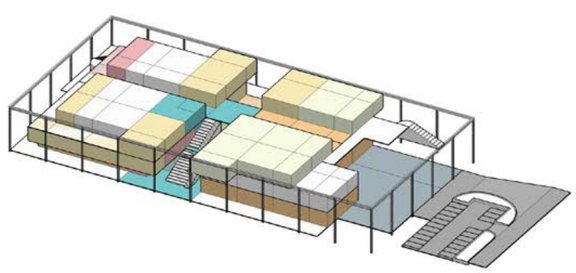


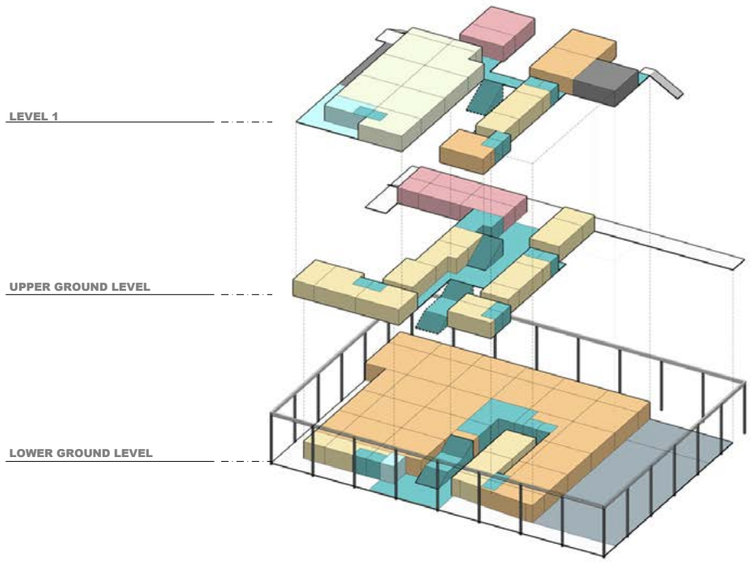
DESIGN ITERATION 3.

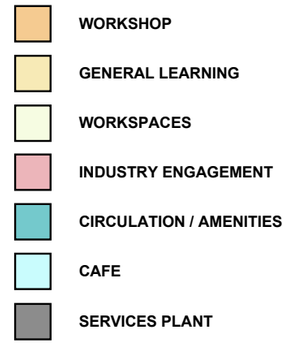
This is an iterative development and continuation of the previous design option, with the 6x10 grid now reduced to 5x10 module. This is achieved by shifting the building envelope by half a grid in both directions, resulting in an all-round reduction of covered external corridor-way. It represents a more efficient use of built-up areas and reduced construction cost. The workshop on the Lower Ground also extends deeper towards the East to allow greater flexibility in planning for multiple volume workshop spaces — a design approach that varies from the previous iteration which sought to minimize excavation of the increasing rise in natural ground levels to the East. The number of grids on the North-South axis is maintained to increase the area for external covered workshop.

As with previous design option, the design anticipates a South and South-Westerly pedestrian movement from both the new proposed and existing carparks.

This option also explores the shift of triple volume workshop spaces to the North, a reduced open terrace spaces on the top floor, and a decentralised Industry Engagement spaces for a more even distribution across the floor plates.







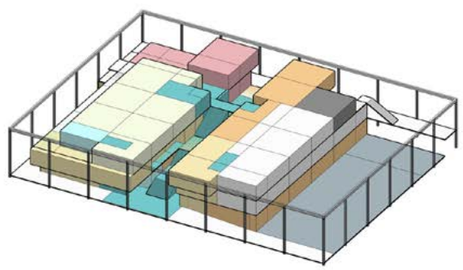
DESIGN ITERATION 4.

The grid further develops from 5x10 to 6x8 modules, with a significant nett reduction in overall footprint and the resultant built-up areas — a natural progression of the design responding to the need to further increase spatial efficiency and overall reduction of briefed functional areas.

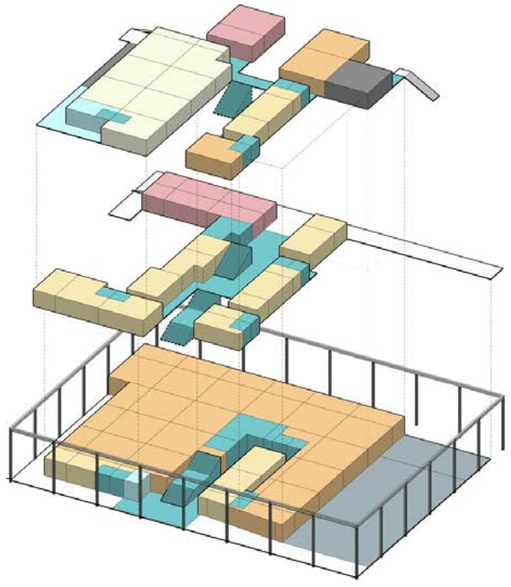
This design iteration sees a more resolved spatial adjacency and an improved distribution of functional areas. It features a consolidation of multiple-volume workshop spaces, with the triple volume workshop now returning to the Southern end to better correspond and extend directly to a vast triple-volume, covered external workshop space.

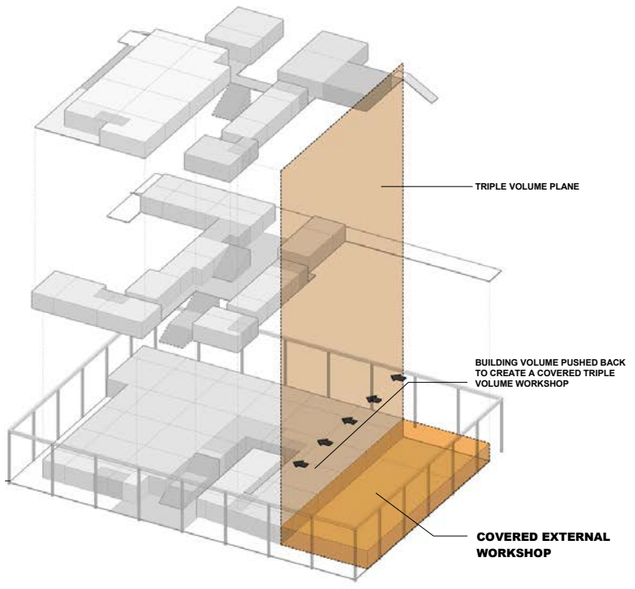
The increase in building width from 5 modules to 6 provides the much needed spatial relief between the two bleacher/ connector spaces. Conversely, the reduction in building length along the North-South axis from 10 grids to 8 (whilst maintaining the North-end site positioning of the building) translates into a reduction in overall earth excavation — the Southern composition of carparks and access roads now extends less into the natural topography of increasing ground levels to the South.

The Building Grid has been further developed in this design iteration whereby the short (6 module) width of the building has been divided into 9 bays of 8m wide each. This provides for a more efficient structural solution while still maintaining the 12m module along the length of the building and to the building spine. The building footprint is unchanged by this building grid change.



9.3 Key Design Intent





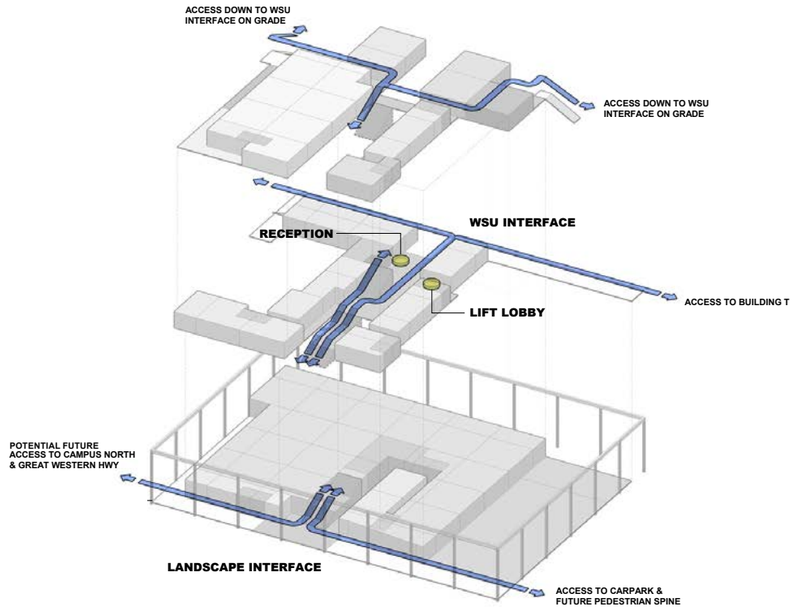


DIAGRAM 1 (BLOCK AND STACK)

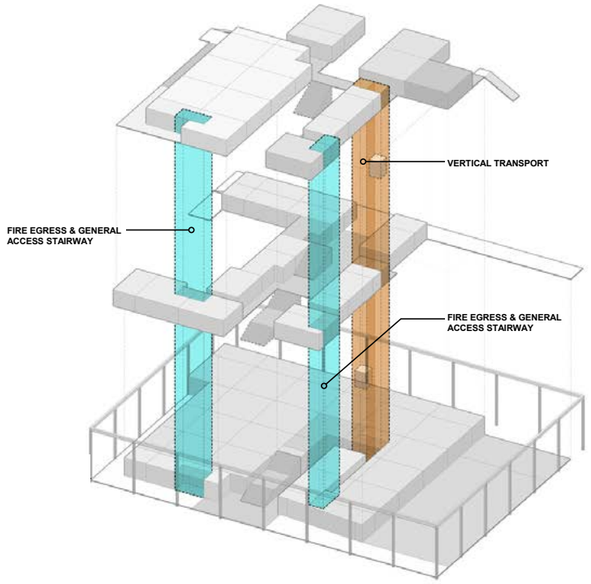
The provision of 3 levels in the CCoE is in direct response to spatial need and clearances required for working with heights and trade activities. Each of the three floor plates are strategically organized to reinforce the ideal spatial adjacencies, movement logistics, and clarity of activity progression. The 12m x 8m structural grid consisting of 8(12m) x 9(8m) modules provides for that cellular granularity and simplicity of spatial organization. The structural efficiency of this grid allows for the provision of column free flexible space to the outdoor workshop and to the double and triple height workshop spaces, while maintaining an efficient structural buliding grid. The column free spaces opens flexibility in planning and embeds modularity for future proofing through opportunities in expansion or reconfiguration, as future advancement in technology and andragogy evolve.

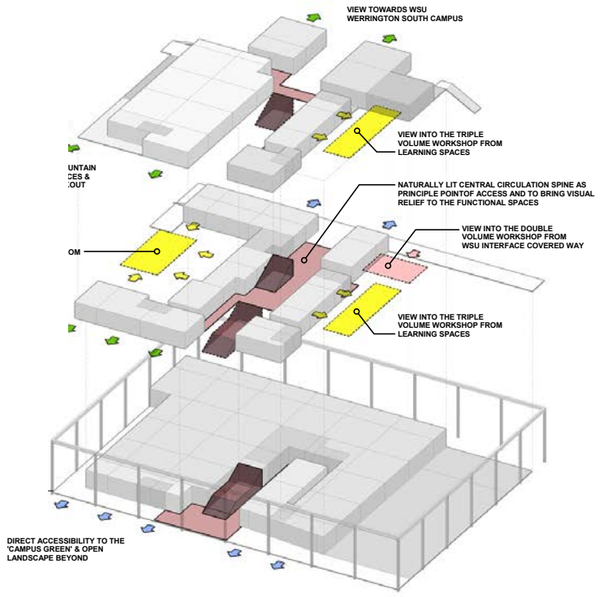
DIAGRAM 2 (EXTERNAL WORKSHOP)

To support the need for working with heights and the external nature of civil trades training, the building envelope is pushed inboards from the South, while maintaining the grid module. The move creates a protected work area under the organising plane of the parasol. The South approach promotes accessibility, proximity, and ease of materials delivery from existing network of infrastructure. It also offers greater overall protection from the elements.

DIAGRAM 3 (CIRCULATION)

The central spine provides the crucial link between WSU South Werrington and TAFE NSW Kingswood, where the East interface of the CCoE is seen as the institutional frontage with civic presence, addressing the WSU campus. The connectivity promotes cross pollination of like activities and collaboration. Multiple points of access are provided across all floors. The locations of the reception and main lobby that align towards the University interface further reinforce this formal integration between the two institutions.





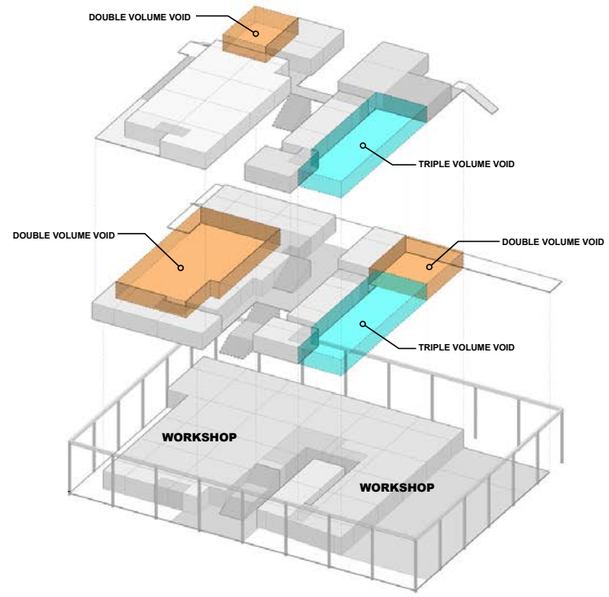


DIAGRAM 4 (VERTICAL CIRCULATION)

The internal spine is the main spatial connector from which all functional spaces can be accessed. While the strategically located mechanical lifts offer the ease of access between floors, further internal vertical inter-accessibility between floors is achieved through the stair core that acts both as fire egress and multi-point connector/link between some key spatial adjacencies.

DIAGRAM 5 (VIEWS)

The configuration of the spatial arrangement lends itself to ample viewing opportunities from various frontages. The towering Western façade, as a result of natural topography, offers views in spades towards the green, open sloping landscape and the magnificent Blue Mountains over the horizon. Meanwhile, the lower ground of the same frontage offers opportunity for the workshop and learning spaces to break out and spill into the landscape, connecting the inside and the outside. On the WSU frontage on the East, the strategic placement of the Industry Engagement space provides for the required street-level activation. The double volume workshop on the same East interface also offers the opportunity for demonstration of trades by connecting view into the workshop activity from street-level, whilst maintaining the separation in acoustics through the difference in level.

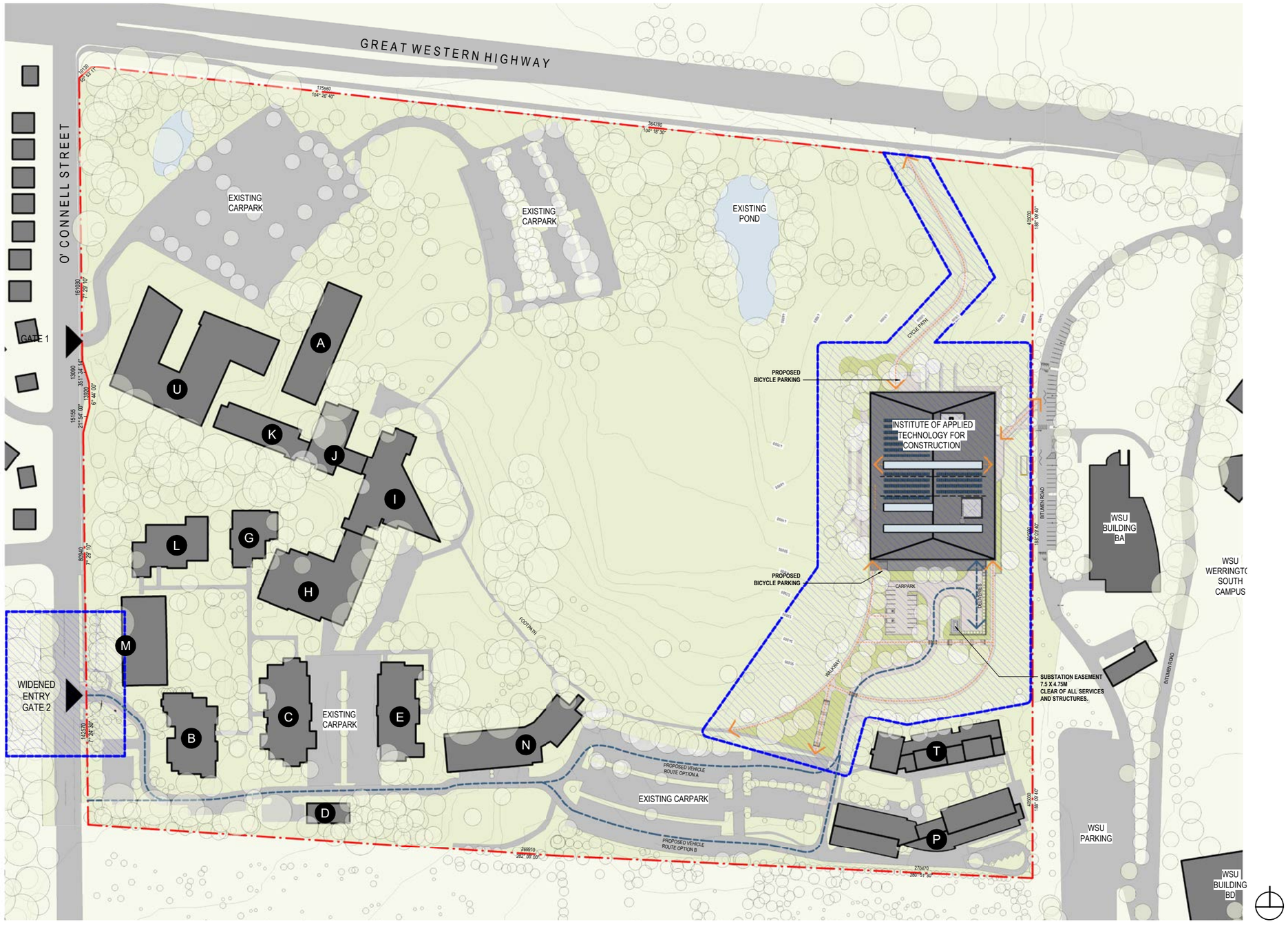
DIAGRAM 6 (VOIDS)

The placement of voids resulting from the double and triple volume workshops reflect the hierarchical order and inter-relationship of spaces between the public circulation, the closed nature of the General Learning areas and the openness of the Workshops. The voids enable multiple points of visual connectivity from the main spine, general learning spaces and the from the street-level interface of the University side. The placement of the multiple volume spaces, along with the parasol, also considers the balance between the need for natural daylight and solar heat control. The triple volume workshop also has direct relationship and spatial flow to the external civil component, sand pits and scaffolding activities.


TAFE


ESPRESSO
Coffee

Proposed Site Plan



LEGEND

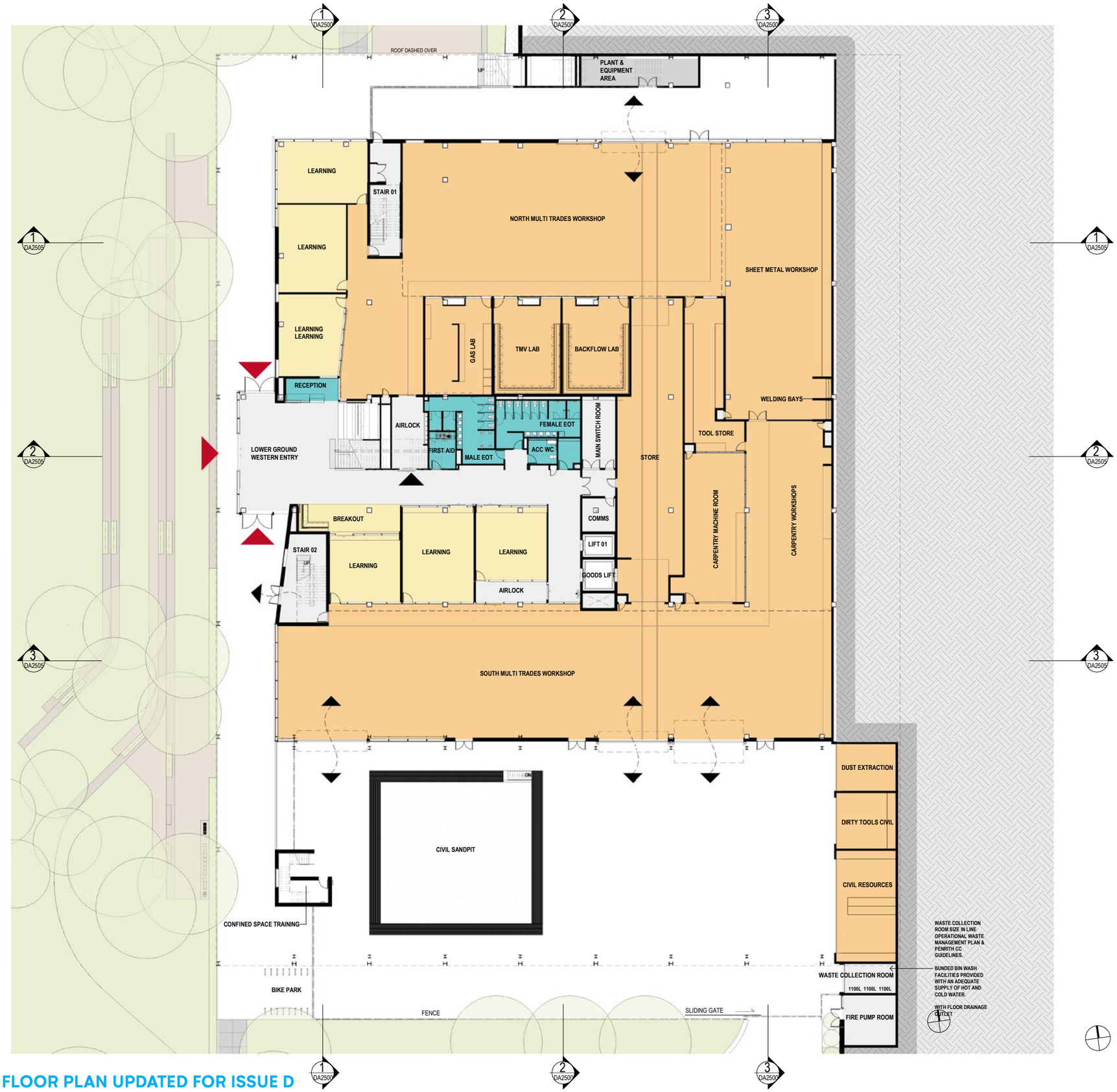
- EXISTING PEDESTRIAN ACCESS
- EXISTING VEHICULAR ACCESS
- BOUNDARY LINE
- A — EXISTING BUILDING NAME
- PROPOSED VEHICULAR ROUTE CARPARK RECONFIGURATION
- PROPOSED PEDESTRIAN PATH
- EXTENT OF SSD SCOPE
- PROPOSED CONSTRUCTION HUB
- PROPOSED ROADS WALKWAYS AND RECONFIGURED CARPARK
- EXISTING ROADS, WALKWAYS AND CARPARKS

SITE PLAN UPDATED FOR ISSUE D

Lower Ground Floor Plan

LEGEND

- WORKSHOP
- LEARNING SPACE
- WORKSPACE
- INDUSTRY ENGAGEMENT
- AMENITIES / OTHER
- CIRCULATION / SERVICES

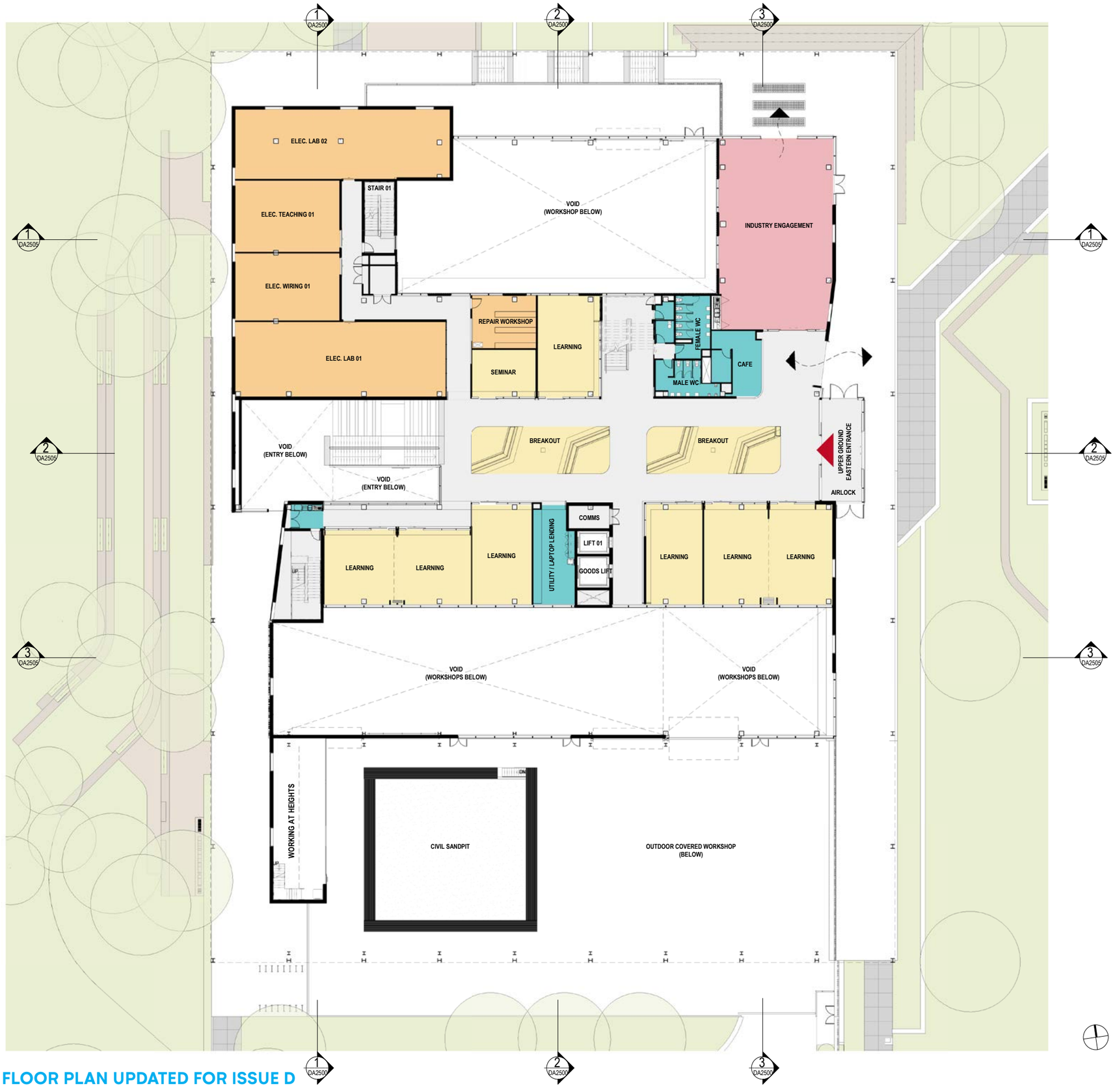


FLOOR PLAN UPDATED FOR ISSUE D

Upper Ground Floor Plan

LEGEND

- WORKSHOP
- LEARNING SPACE
- WORKSPACE
- INDUSTRY ENGAGEMENT
- AMENITIES / OTHER
- CIRCULATION / SERVICES

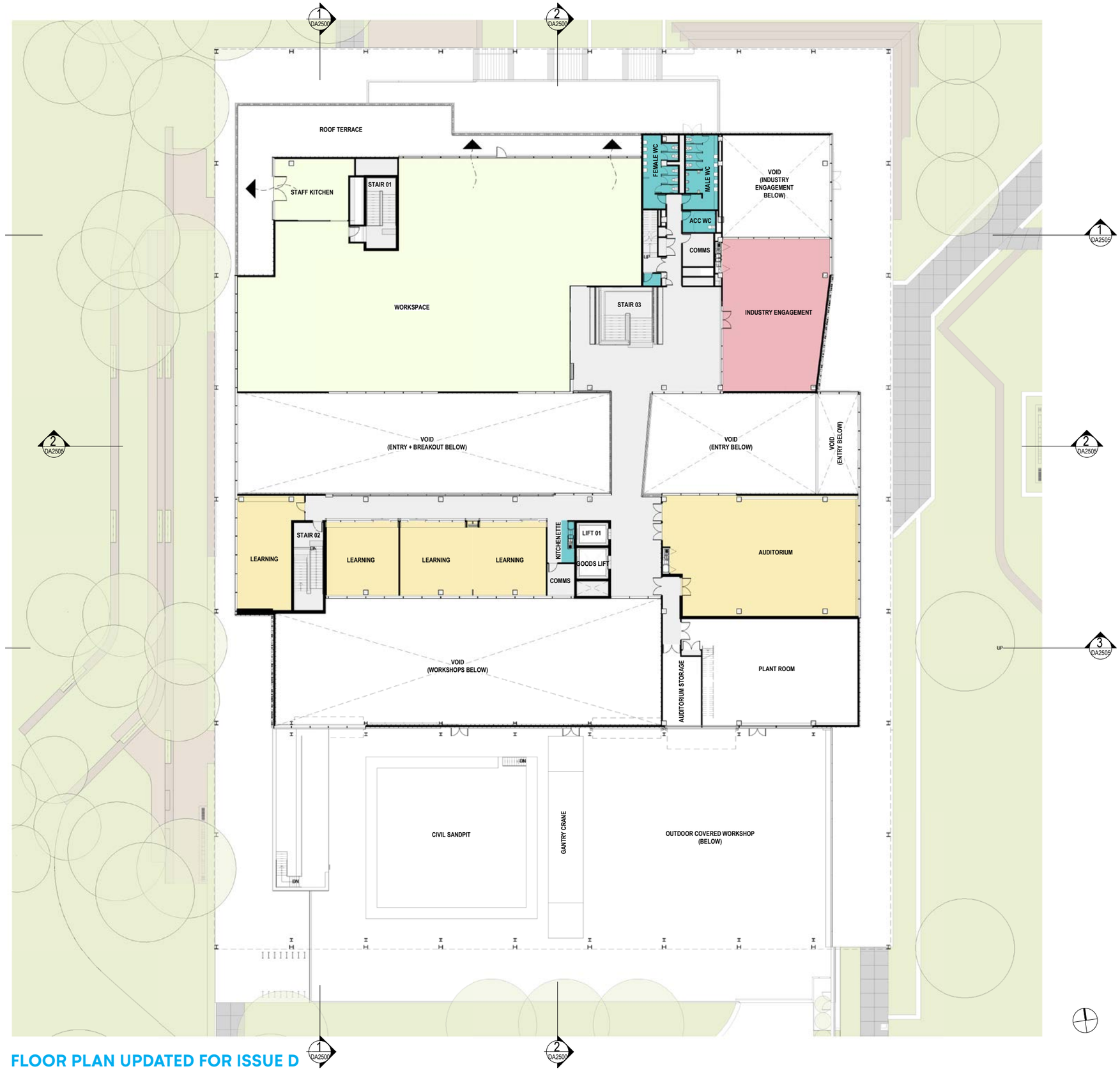


FLOOR PLAN UPDATED FOR ISSUE D

Level 1 Floor Plan

LEGEND

- WORKSHOP
- LEARNING SPACE
- WORKSPACE
- INDUSTRY ENGAGEMENT
- AMENITIES / OTHER
- CIRCULATION / SERVICES

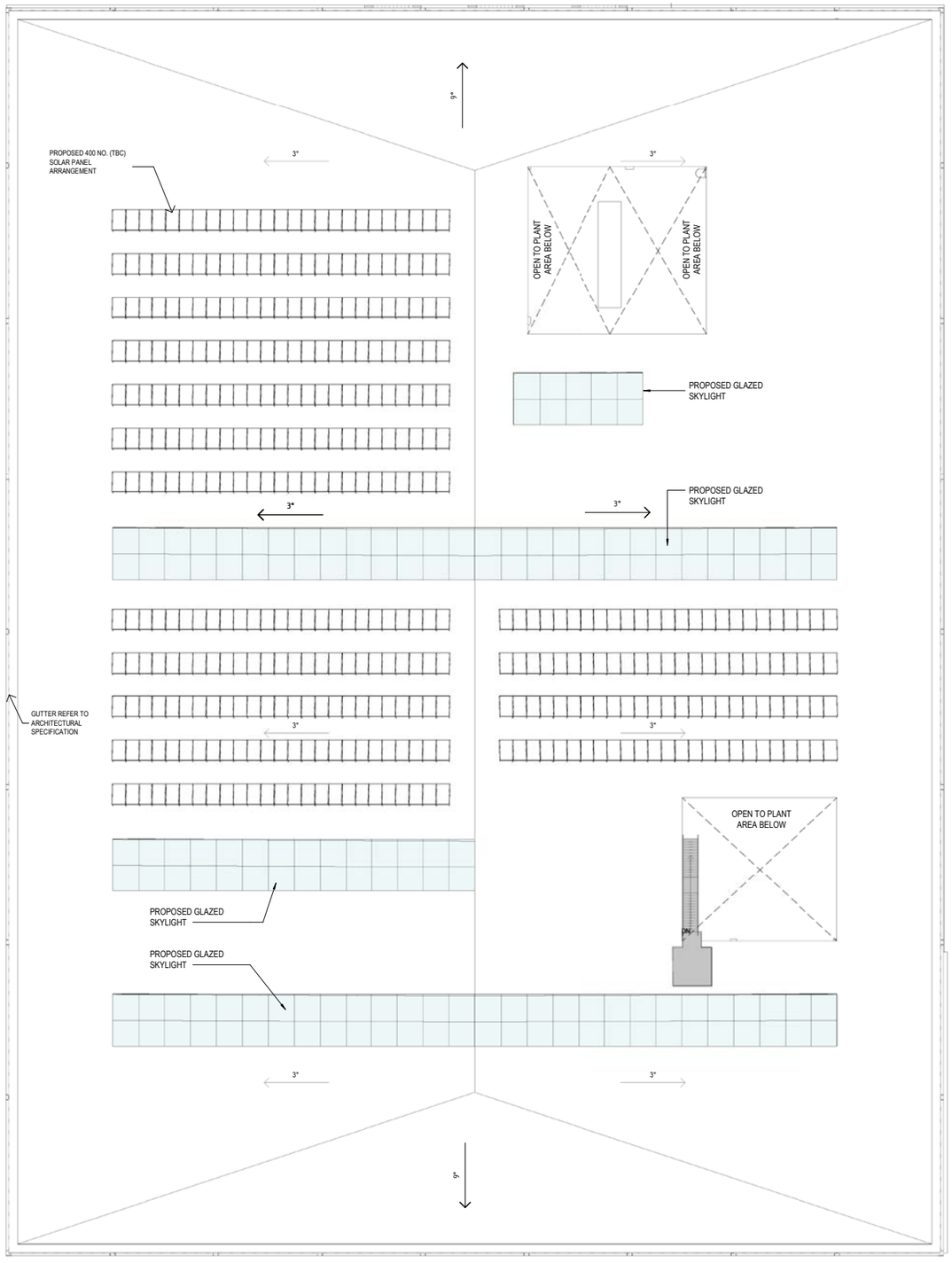


FLOOR PLAN UPDATED FOR ISSUE D

Roof Plan

LEGEND

- WORKSHOP
- LEARNING SPACE
- WORKSPACE
- INDUSTRY ENGAGEMENT
- AMENITIES / OTHER
- CIRCULATION / SERVICES

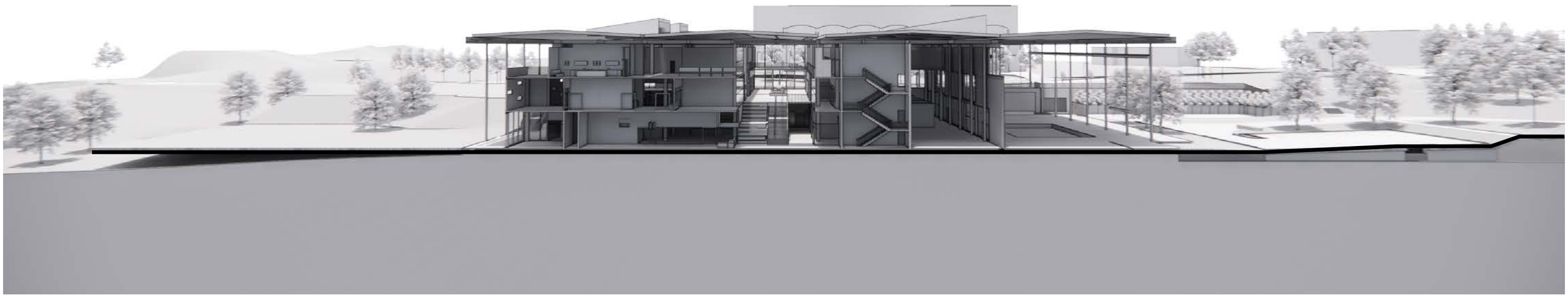


FLOOR PLAN UPDATED FOR ISSUE D

10.0 Built Form Analysis

10.1 Sectional Analysis

Section 01_North South

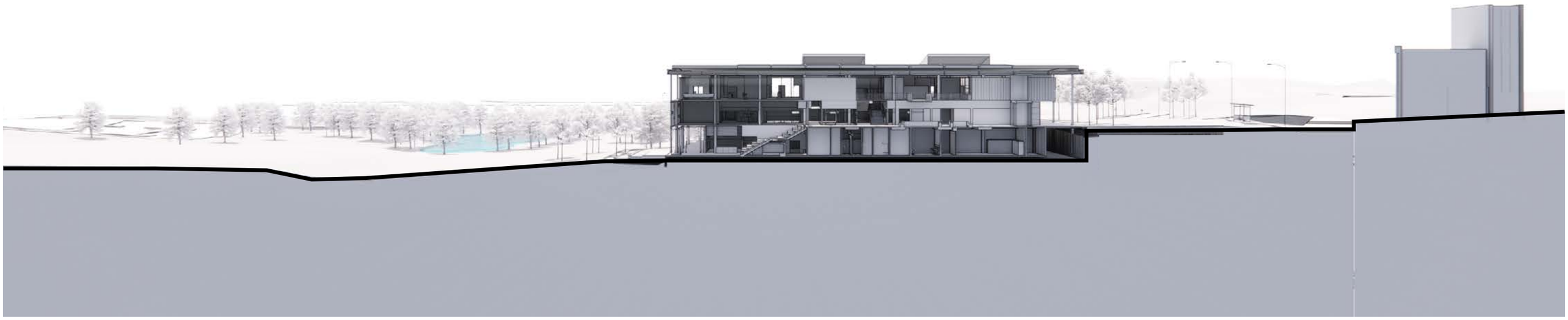


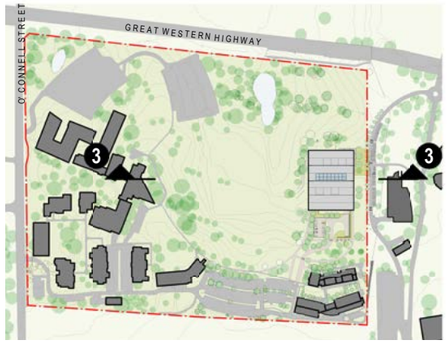
VIEW PLAN

Section 02_East West

VIEW PLAN

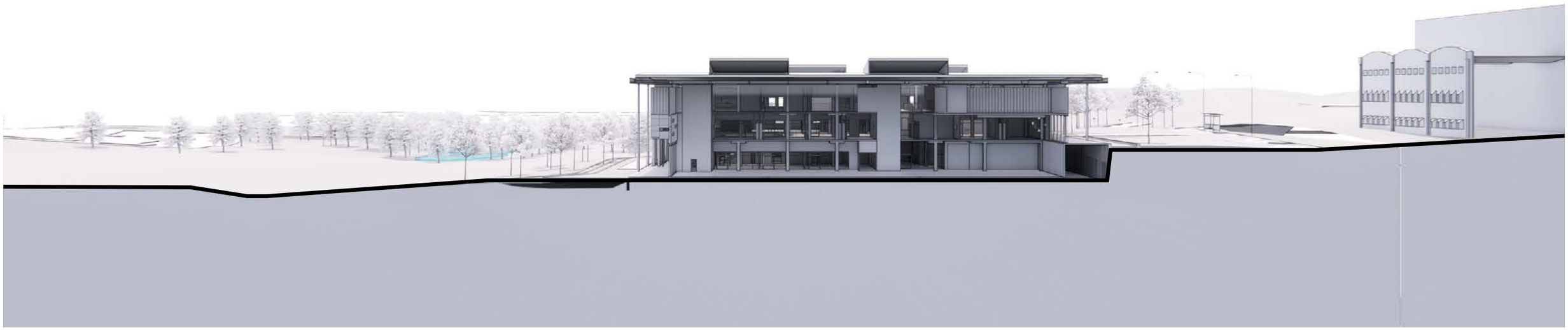
Section 03_East West





VIEW PLAN

Section 04_East West



VIEW PLAN

10.2 View Impact Analysis

OVERVIEW

Five vantage points have been identified within the locality of the chosen site to assess the visual impact the proposed development has on the immediate streetscape, public realm and vistas.

The 5 public vantage points are as folllows:

View 01 Great Western Highway Perspective

View from Great Western Highway (Eastern direction of approach) – Views through the gaps between existing retained on-site vegetation offers a distinctive view of the new building that perches on the higher end of the undulating topography. It is prominent and sits in amongst the landscape and points to the future of TAFE NSW Kingswood.

View 02 King Street Perspective

View from Northern end of King Street within WSU Werrington South Campus, near street carpark zone P1. This is view from the institutional entry approach from WSU, where the retained existing fig trees continue to dominate the street view on the foreground. The interstitial views between the figs, along with the sheer linearity of the roofline, indicate a formal identity with an approachable humanistic scale.

View 03 King Street Perspective

View from the Southern end of King Street within WSU Werrington South Campus, near Building BH. This view establishes the building's civic entry and its direct address to Building BA for a potential synergistic functional co-existence.

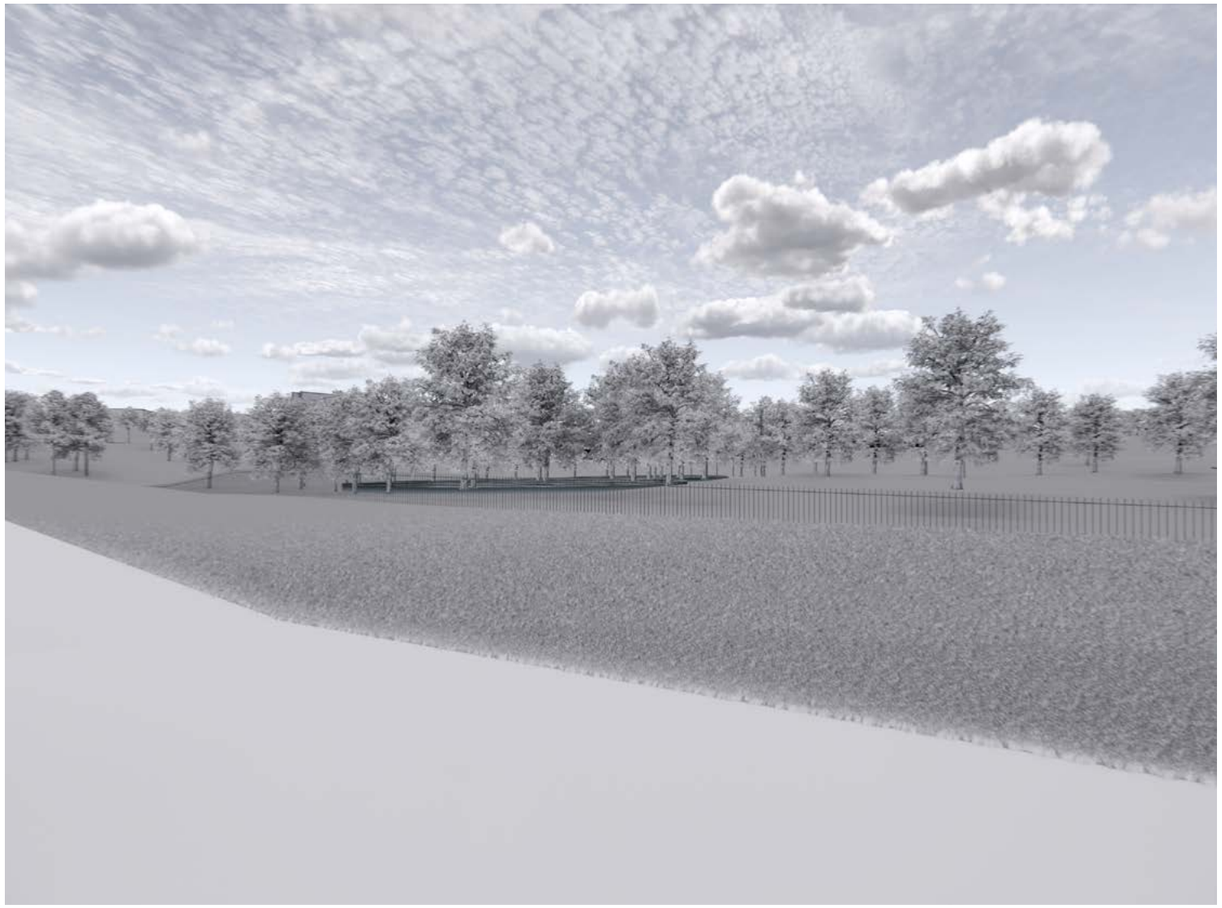
View 04 Perspective view from the Southern Carpark Compound

This view relates to the main pedestrian approach from within TAFE NSW campus. The Western entry of CCoE is designed with the intent of addressing students and visitors accessing from the existing Southern carpark. Two pathways lead pedestrians to an semi-outdoor forecourt with a shear wall and framed views to the internal workings of workshops, which collectively direct the foot traffic towards the entry. It also addresses the solitary appearance of WSU's Building BA by providing a mutual institutional interface between TAFE NSW and WSU.

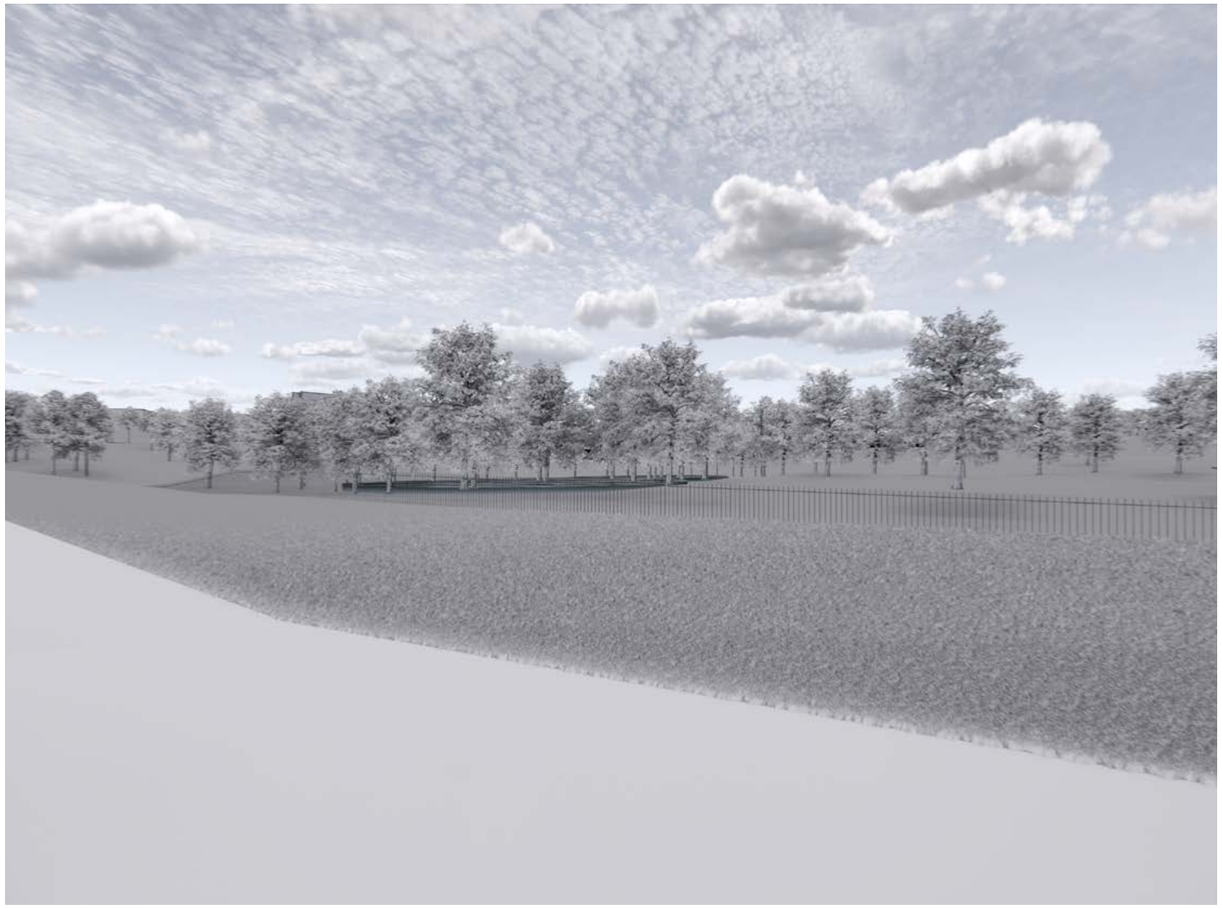
View 05 View from the TAFE NSW campus landscape

View from the open field area to the North of TAFE NSW Kingswood campus – From here, where there are no future development planned for this area, the proposed building is perceived to perch on the undulating topography. The prominence of the flat roof is akin to a pavilion within the landscape.

Key View 01_Great Western Highway View



BEFORE



AFTER
(Note Building masked by trees)

VIEW PLAN

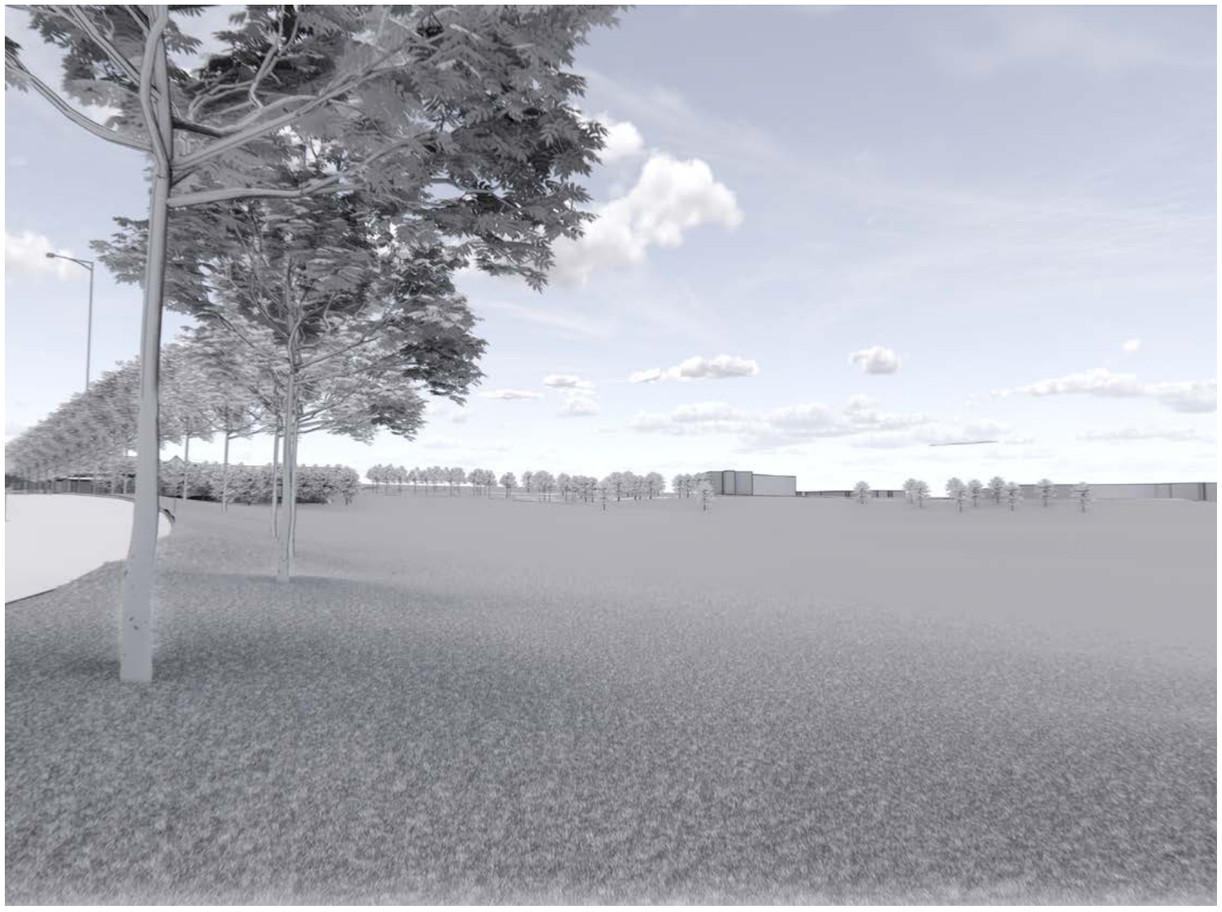
Key View 02_Great Western Highway View 2

BEFORE

AFTER

VIEW PLAN

Key View 03_Western Sydney University North East

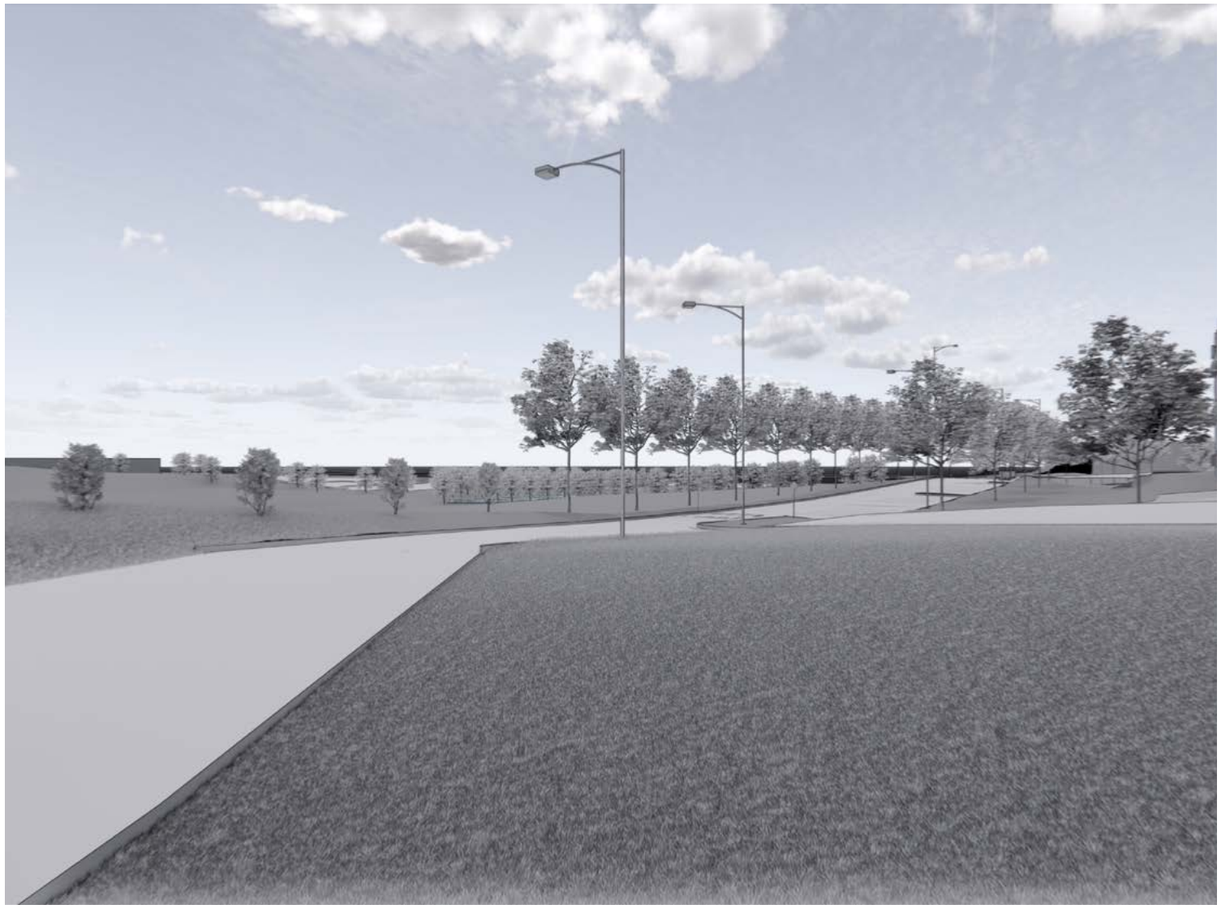


BEFORE

AFTER

VIEW PLAN

Key View 04_Western Sydney University South East



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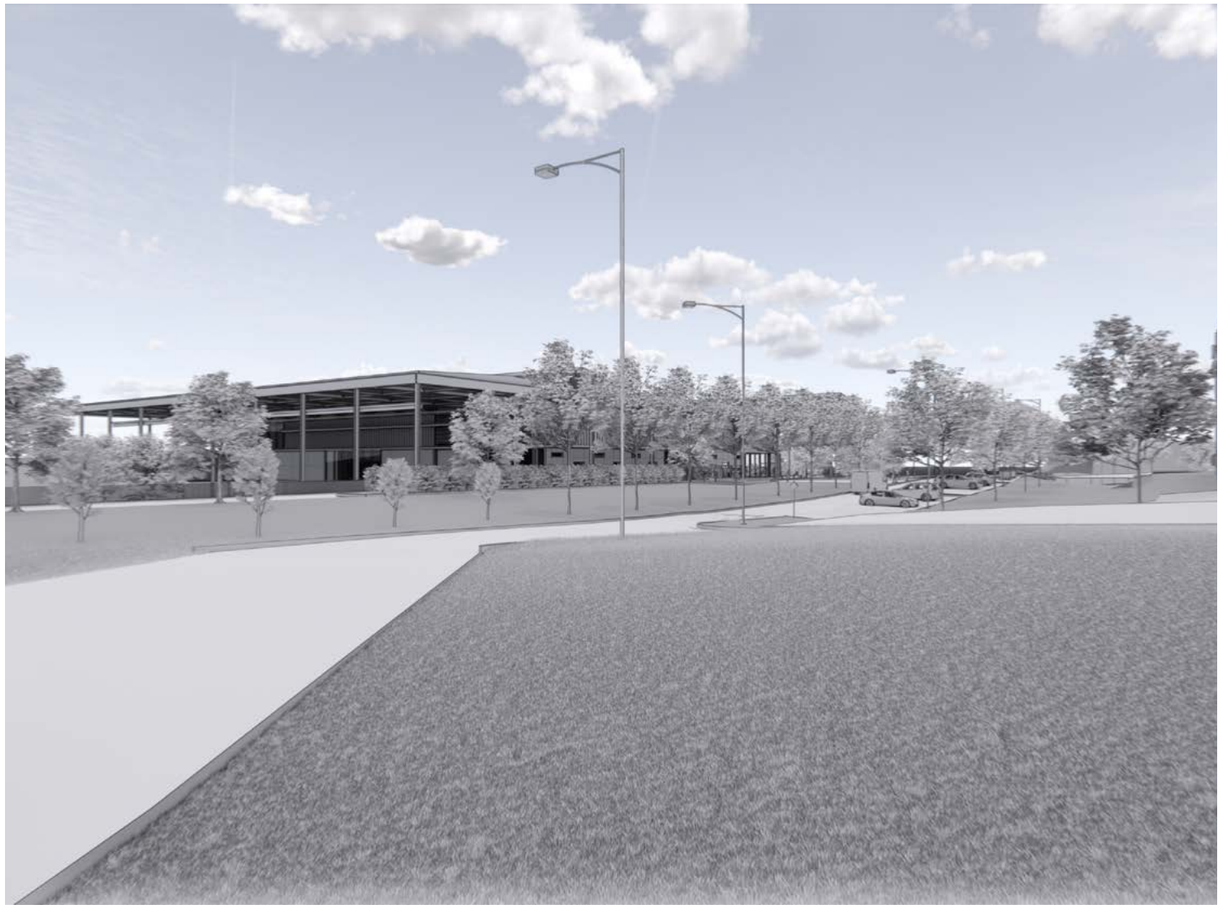
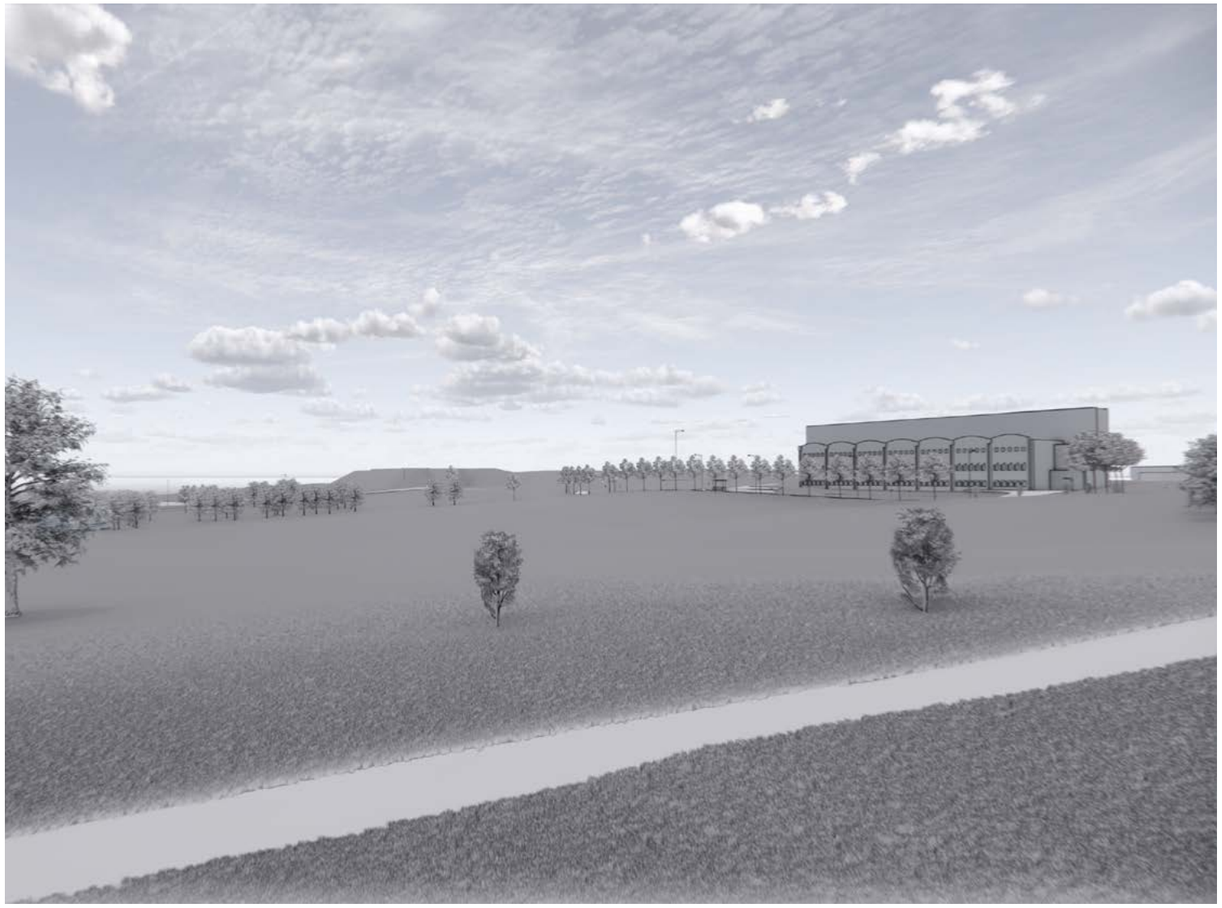


AFTER

VIEW PLAN

Key View 05_Existing Car Park South West



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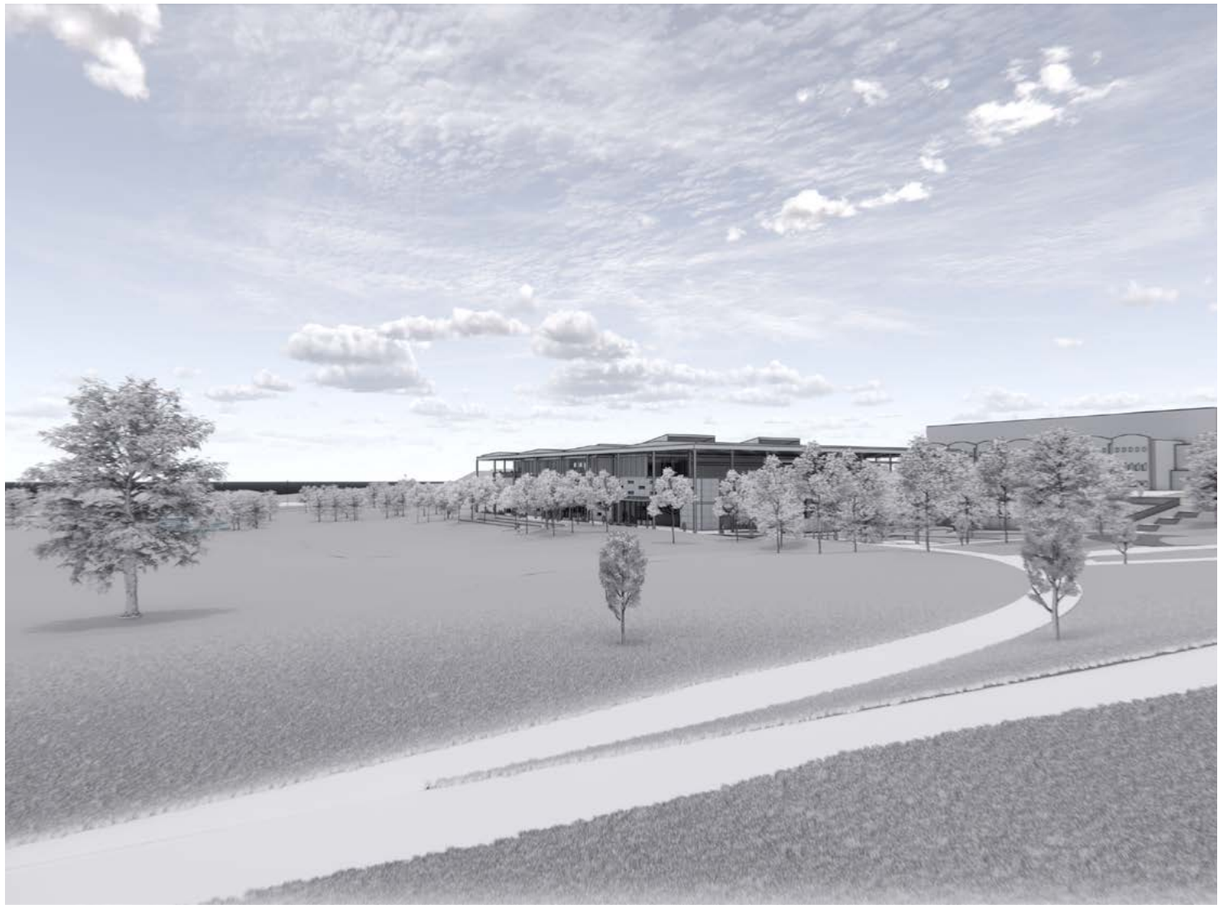
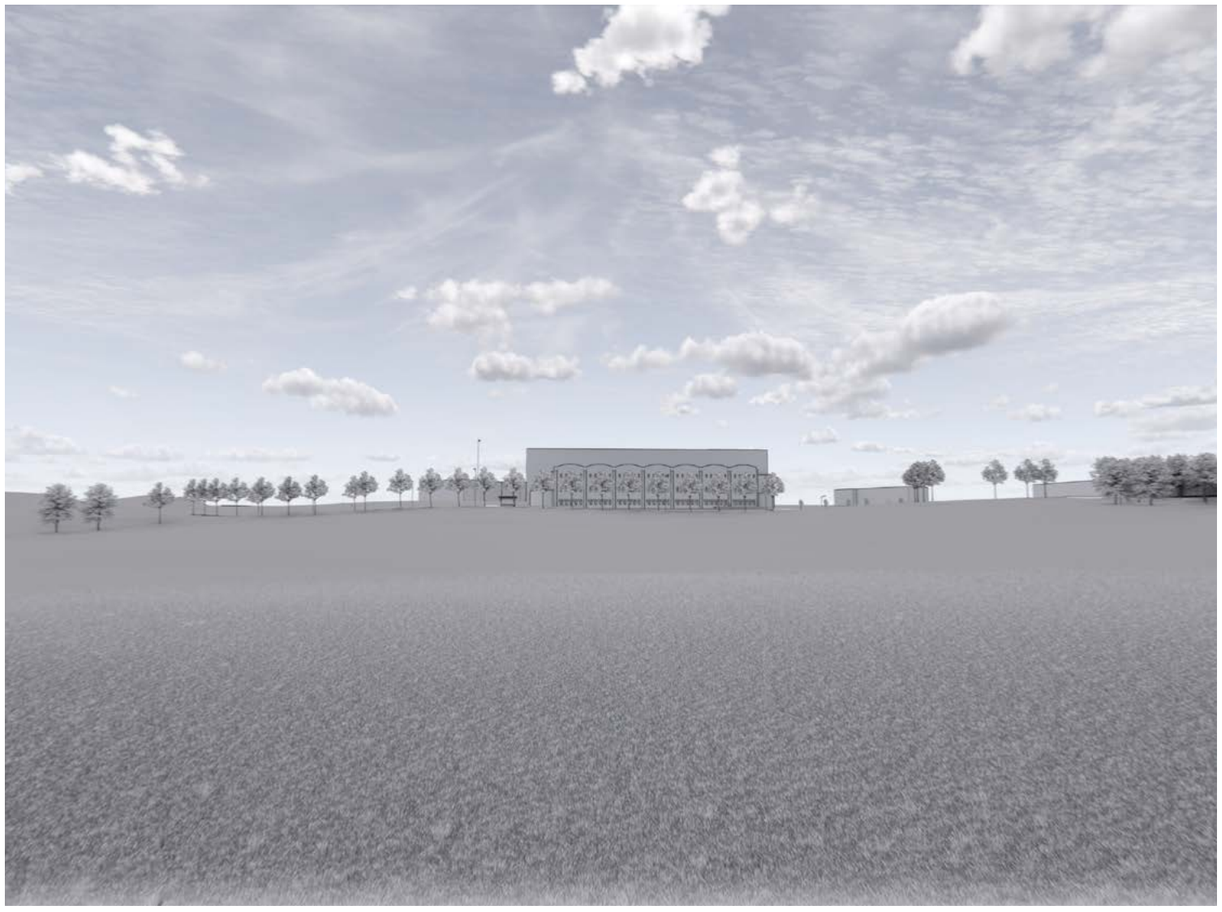


AFTER

VIEW PLAN

Key View 06_West Pedestrian Walkway Intersection



BEFORE

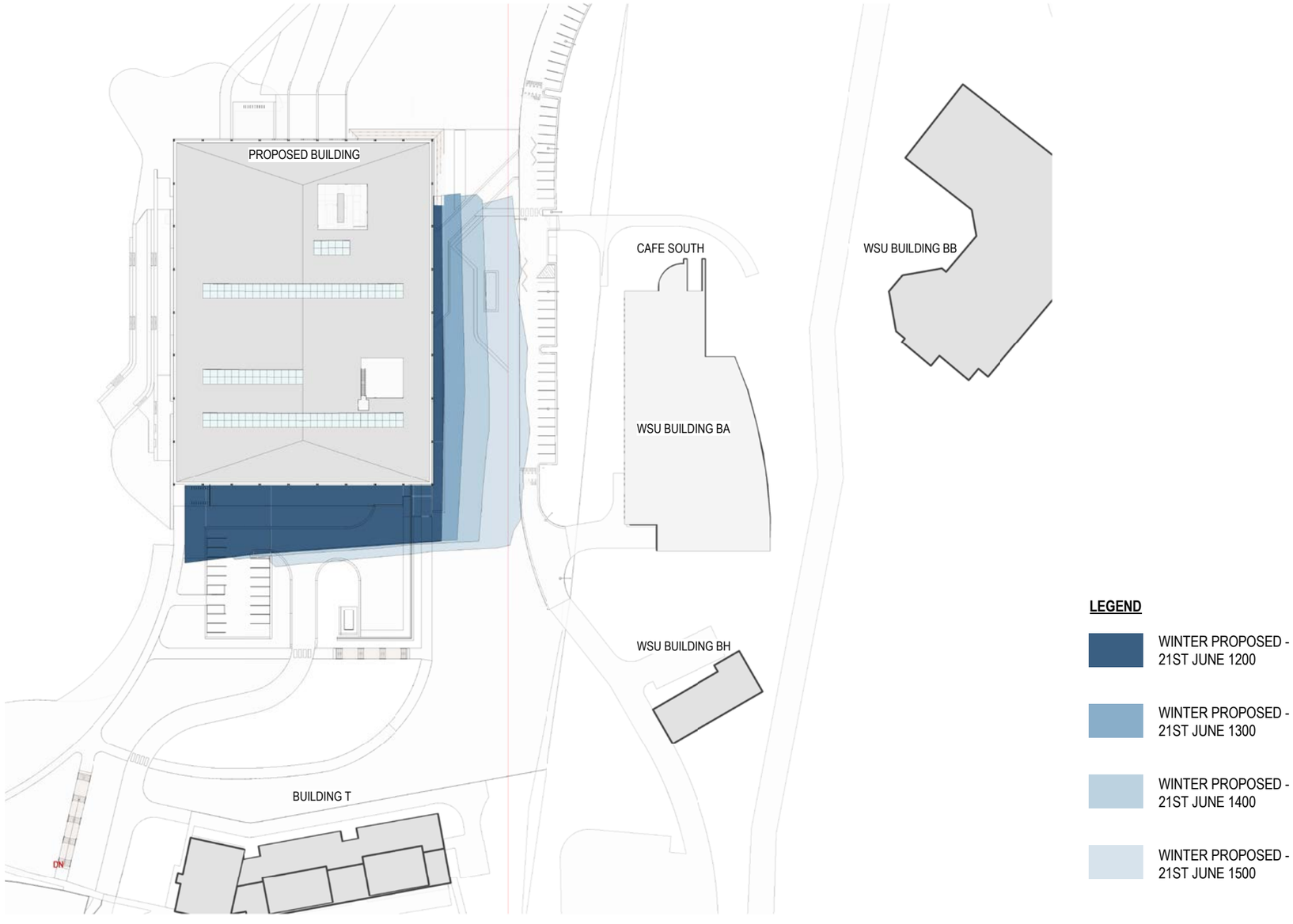
AFTER

VIEW PLAN

10.3 Shadow Analysis

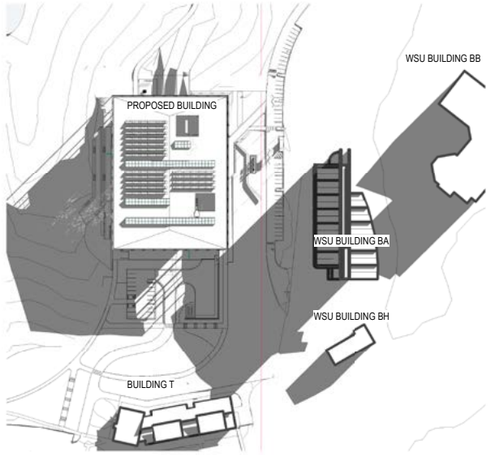
A study of the potential overshadowing impact of the development confirms minimal impact to the surrounding amenities of adjacent buildings, including the WSU site. The analysis is taken on a Winter Solstice to simulate a worst case scenario. The minimal impact is due to the low rise of the proposed building, favourable sloping topography and in part, due to the site context that is dominated by vast landscape and minimal built form.

An hour by hour shadow study shows elongated shadows that encroaches onto WSU's Building BA (John & Patricia Ward Library) in the late hours, although no appreciable impact on the amenity of the building is observed. Directly to the South, the extent of shadows is fairly consistent throughout the day and does not extend to anywhere near the existing Building T. The West is dominated by landscape and will continue to be so over the long term as the Structure Plan seeks to preserve the open space.

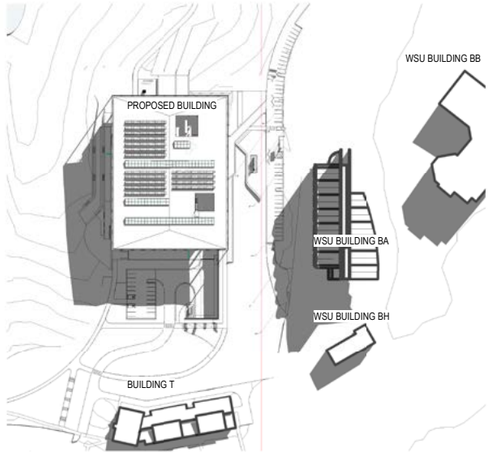


DIAMGRAMS UPDATED FOR ISSUE D

Shadow Diagrams



1 WINTER PROPOSED - 21ST JUNE 0900
1 : 1500



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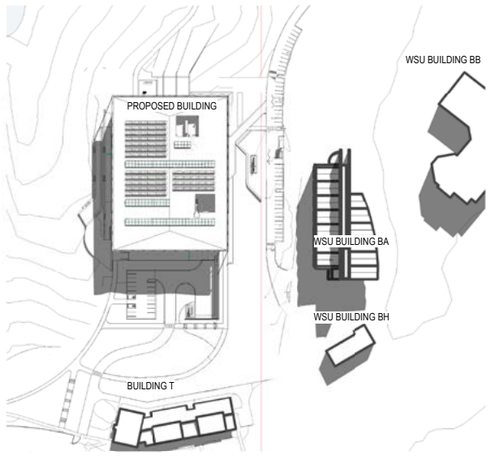
1 : 1500



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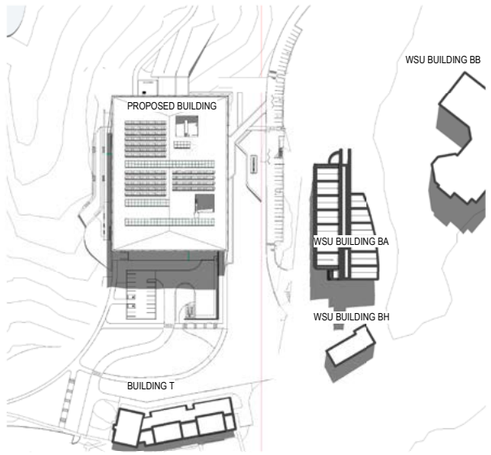
1 : 1500



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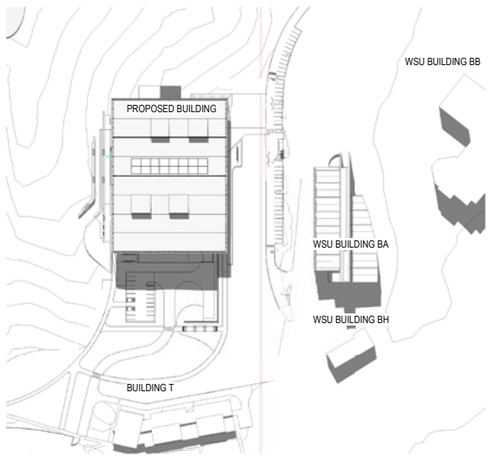
1 : 1500



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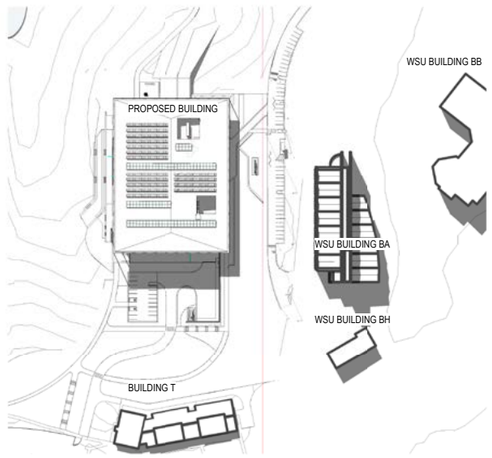
1 : 1500



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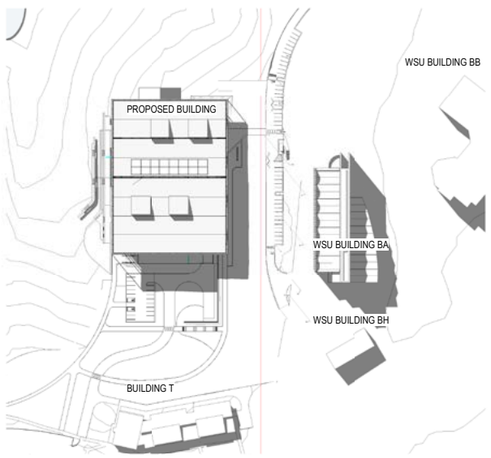
1 : 1500



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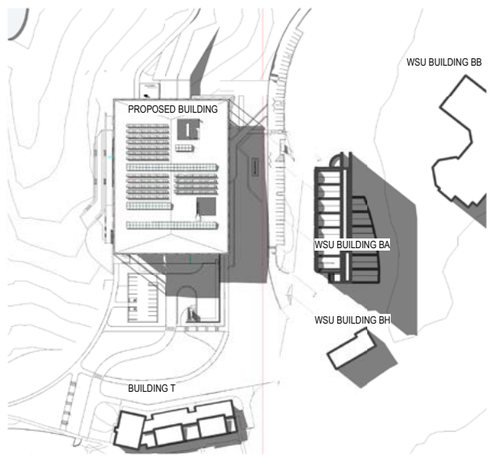
1 : 1500

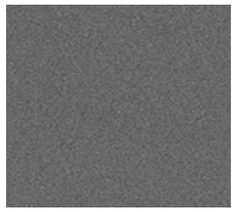


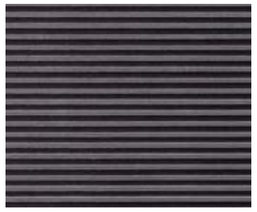
4 WINTER PROPOSED - 21ST JUNE 1600
1 : 1500

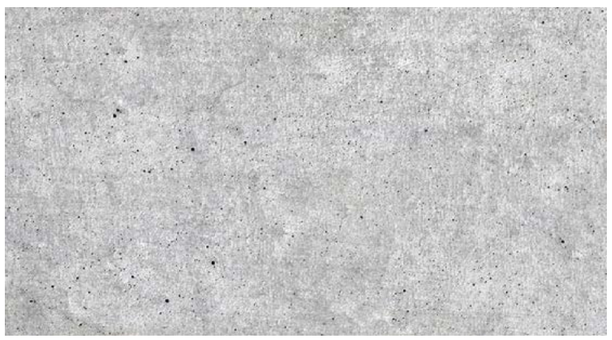
DIAGRAMS UPDATED FOR ISSUE D

11.0 Materiality and Facade

11.1 Material Palette







From Top Left, counter clock-wise:

1. SHITANG VILLAGE INTERNET CONFERENCE CENTRE – AZL ARCHITECTS

The array of columns that reflect the main materiality of the building, adds character and accentuates the vertical qualities of the space that reinforces the idea of a building within the lush tree lined landscape.

2. THE ARENA DA JUVENTUDE (YOUTH ARENA) – VIGLIECCA & ASSOCIADOS

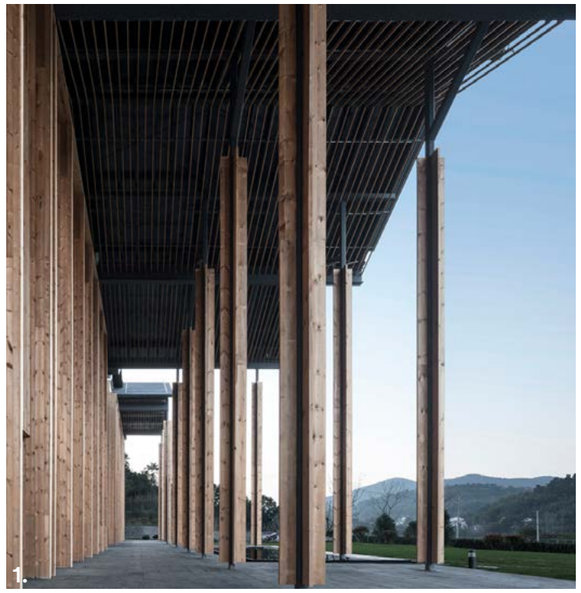
Lightness of the roof, supported by perimeter pilotis, frames the spatial programmes under the organising plane of the roof, providing a intermediary semi-outdoor space between the indoors and the external environment.

3 & 4. HOUSE IN THE HILLS – SEAN GODSELL ARCHITECTS

Again, the roof, characterised by its lightness, serves as an organising plane for spatial programme below it. The spaces below could either be hermetically sealed, completely opened or semi-outddoor, increasing the utility of the various spaces that is weather protected at the same time. Various levels of transparency can be introduced to enhance the quality and thermal comfort of spaces.

5. THE NUNS' ISLAND GAS STATION – MIES VAN DER ROHE

The singular organising plane of the roof is a powerful tool that adds an overarching simplicity to spaces below it.


1.


2.


5.


4.

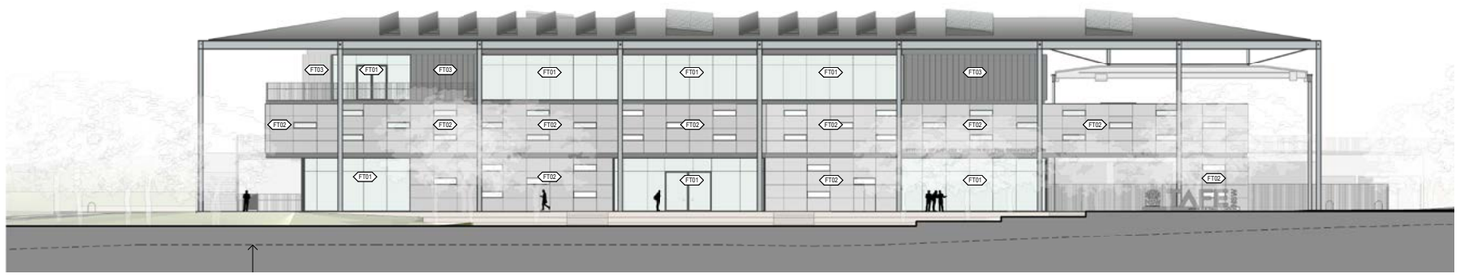

3.

11.2 Facade Type Analysis

NORTH ELEVATION

EAST ELEVATION

SOUTH ELEVATION



WEST ELEVATION

ELEVATIONS UPDATED FOR ISSUE D

- **FT01:** Unitised window wall with flush glazed mullions and expressed perimeter frame. Refer to Prism Facade performance specification
- **FT02:** Proprietary GRC cladding on insulated steel stud or concrete block wall with punch windows. Refer to Prism Facade performance specification.
- **FT02A:** Proprietry extruded aluminium standing seam cladding on insulated steel wall. Refer Prism Facade performance specification.
- **FT03:** Proprietary extruded aluminum standing seam cladding on insulated steel wall. Refer to Prism Facade performance specification.
- **FT04:** Proprietary horizontal extruded aluminium louvres on steel framing. Refer to Prism Facade performance specification.

TYPE 1

TYPE 2

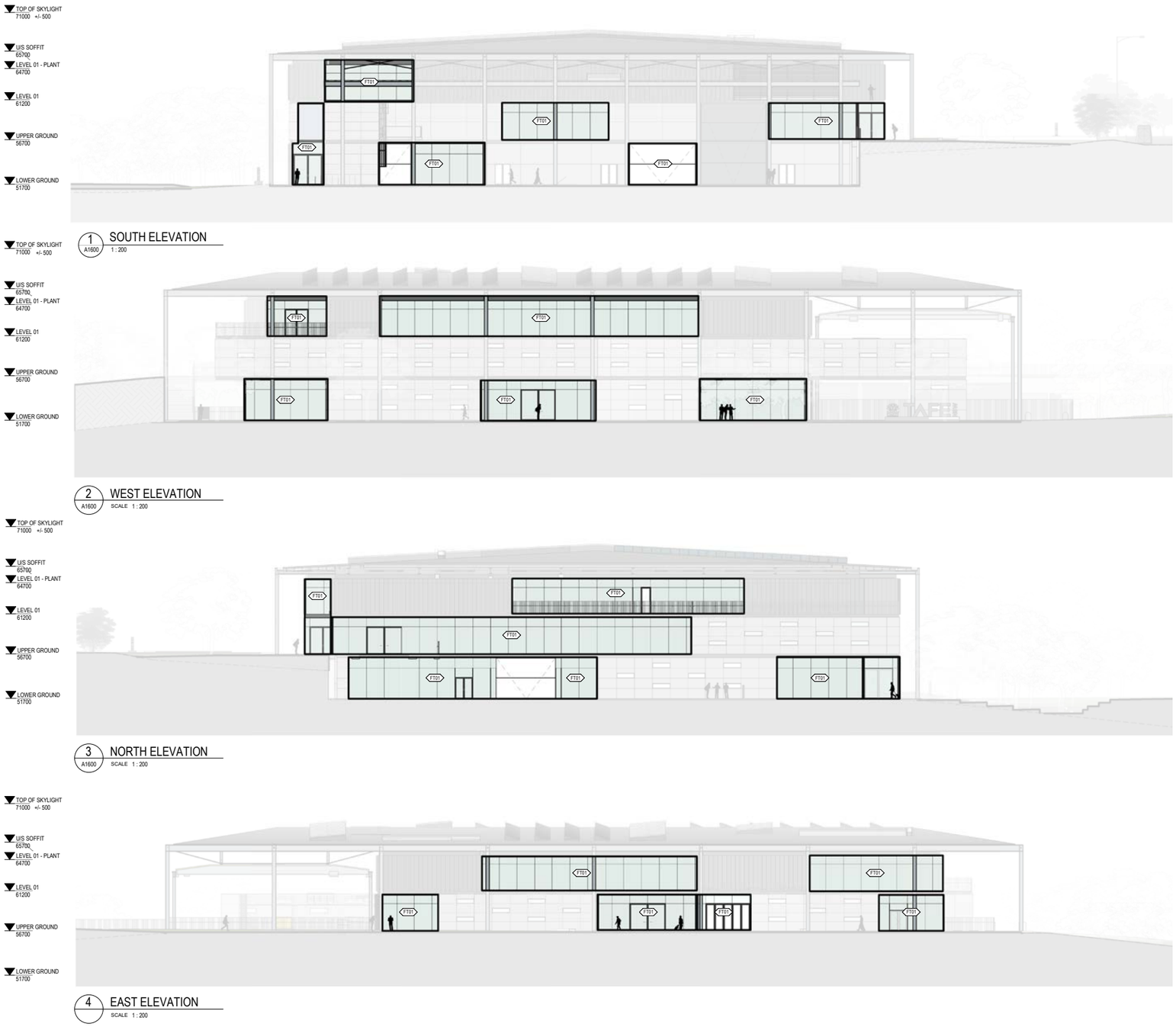
TYPE 3

TYPE 4

TYPE 5

TYPE 6

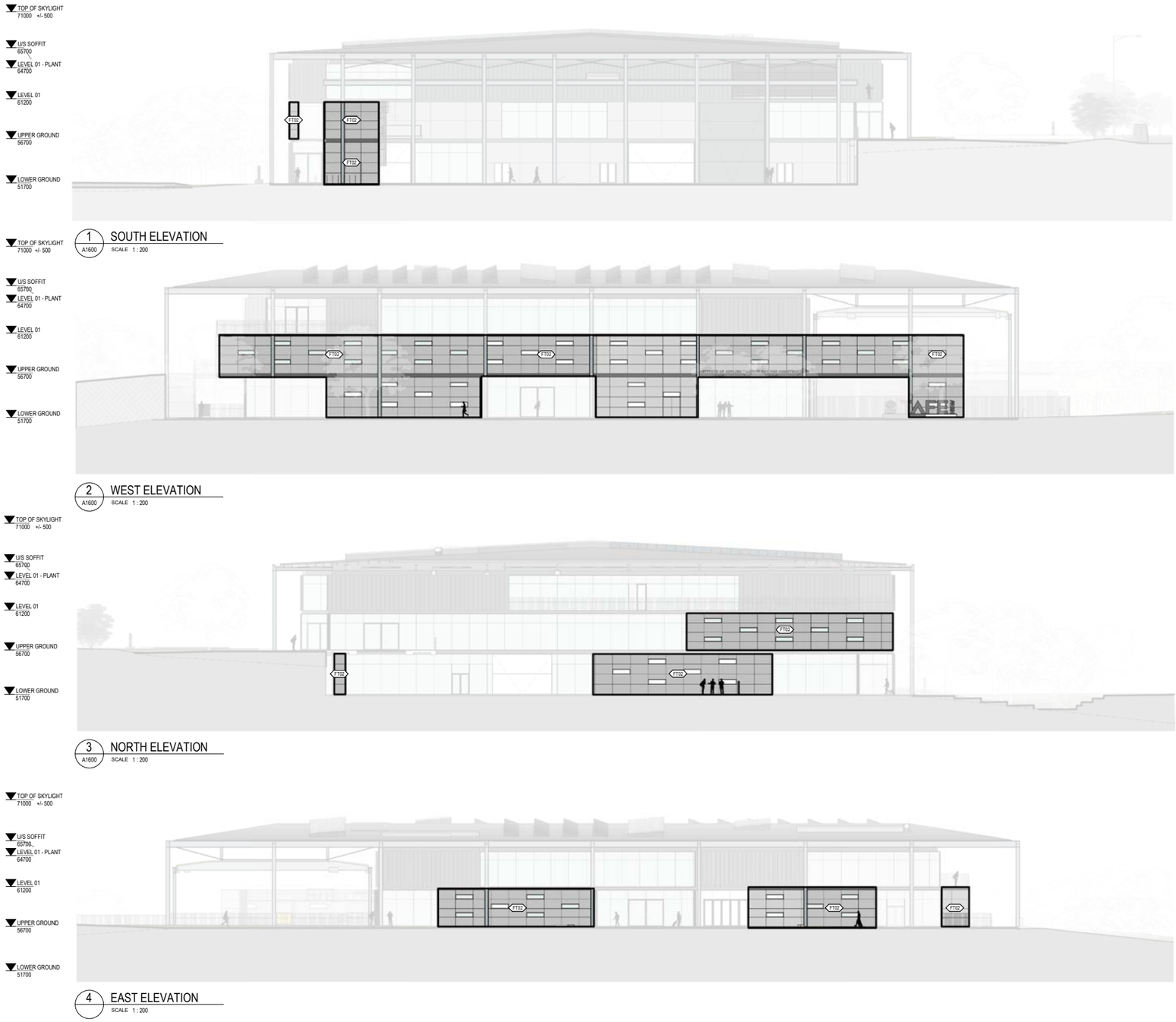
Facade Type 01



- **FT01:** Unitised window wall with flush glazed mullions and expressed perimeter frame. Refer to Prism Facade performance specification

ELEVATIONS UPDATED FOR ISSUE D

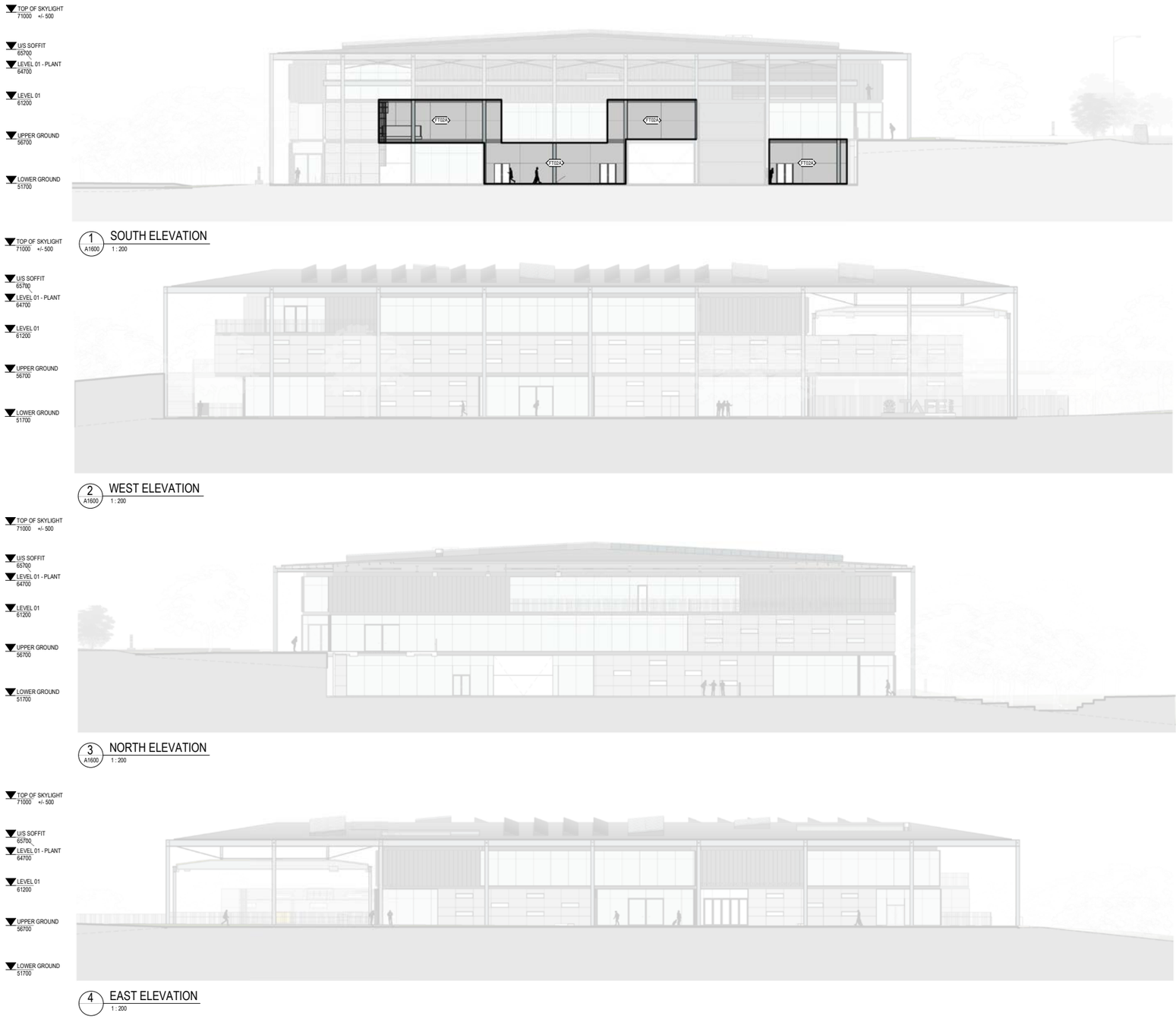
Facade Type 02



- **FT02:** Proprietary GRC cladding on insulated steel stud or concrete block wall with punch windows. Refer to Prism Facade performance specification.

ELEVATIONS UPDATED FOR ISSUE D

Facade Type 02A



- **FT02A:** Proprietry extruded aluminium standing seam cladding on insulated steel wall. Refer Prism Facade performance specification.

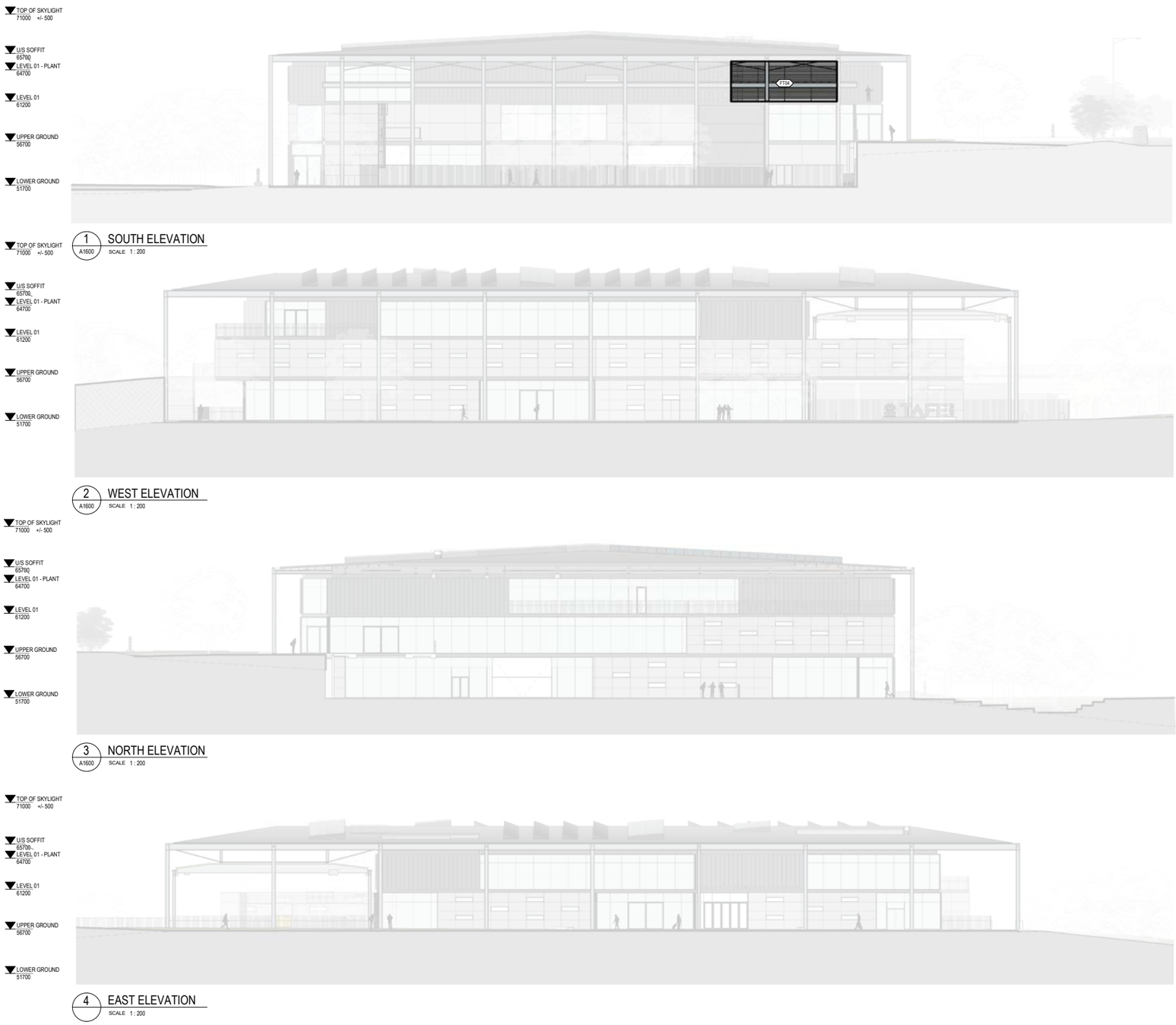
ELEVATIONS UPDATED FOR ISSUE D

Facade Type 03

- **FT03:** Proprietary extruded aluminum standing seam cladding on insulated steel wall. Refer to Prism Facade performance specification.

ELEVATIONS UPDATED FOR ISSUE D

Facade Type 04



- **FT04:** Proprietary horizontal extruded aluminium louvres on steel framing. Refer to Prism Facade performance specification.

ELEVATIONS UPDATED FOR ISSUE D

12.0 Signage and Wayfinding

12.1 Signage and Wayfinding

The building will include new external building identification signage at the West entry, as well as the East entry — as shown in the Architectural plans and elevations. Signage will comprise:

1. A large on-ground sculptural sign, located in amongst the angled landscaped lawn terraces. It is based on the TAFE NSW Logo with the 'Waratah' symbol, mounted over a plinth. This sign will be less than 2.6m in height, with a width to suit the logo proportions. The sign will compliment the building materiality and be of a neutral tone and will include subtle local illumination.

2. Wall mounted facade signage comrising "CONSTRUCTION CENTRE OF EXCELLENCE" will be located on the Western facade, aligned towards the South. The elevated Southerly location assists in identifying the main West entry to address the approach by students, educators and visitors from the existing Southern carpark and existing Buildings T & P. It also aligns and positions well within the main East-West axial movement identified in the Structure Plan, to signify identity and place within the overall campus.

3. Overhead building name signage above the East entry doors. This signage is small and subtle, whilst projecting a more formal entrance identity. It reinforces the East facade's institutional interface towards Western Sydney University's Werrington South Campus . The size of the signage also complements the smaller scale of the East facade with its 2 level rise, compared to the three levels on the West. The signage will be subtly illuminated indirectly by the ambient lighting of the entry forecourt.

4. Floor mounted sculpted pedestal way-finding signage – This signage will be strategically located at main arrival points to assist in overall site navigation on key facilities of the new building, as well as locations / orientation of surrounding existing buildings.

STATE ENVIRONMENTAL PLANNING POLICY NO. 64 — ADVERTISING AND SIGNAGE

State Environmental Planning Policy No. 64 — Advertising and Signage (SEPP 64) aims to ensure that advertising and signage is compatible with the desired amenity and visual character of an area and provides effective communication in suitable locations and is of high quality design and finish. It does not regulate the content of signs and advertisements. The proposed development includes the installation of under awning and facade business identification signages.

SEPP 64 requires all signage to be assessed against and satisfies the criteria outlined in Schedule 1 of the SEPP.

Character of the Area
The proposed signage will be compatible with the existing and future character of the surrounding area. The signages are appropriately scaled to allow for easy identification of the location within TAFE NSW facility. The signage will establish the identity and purpose of the new facility, without dominate the surrounding area. The details and design of the signage will be in line with TAFE NSW's standard to ensure consistent brand identity of the institution.

Special Areas
The subject site is not located in any special area and will not impact upon the heritage items within the locality.

Views and Vistas
The wall-fixed facade signage will not obscure any vision windows and the on-ground signage below the the extended roof will be appropriately sized to reinforce building identity without sacrificing the predominating views and vistas to the campus green on the West and the Blue Mountains beyond.

Streetscape, Setting or Landscaping
The proposed signage will complement the existing streetscape of the surrounding area. The wall signages will reinforce the notion of Entry on the East and West, while the on-ground signage to West sits amongst the landscape in a sympathetic and complimentary way, and serves as an extension of the landscape design. Scale, colour palette and placing have been carefully considered with neutral and complimentary tones in materiality.

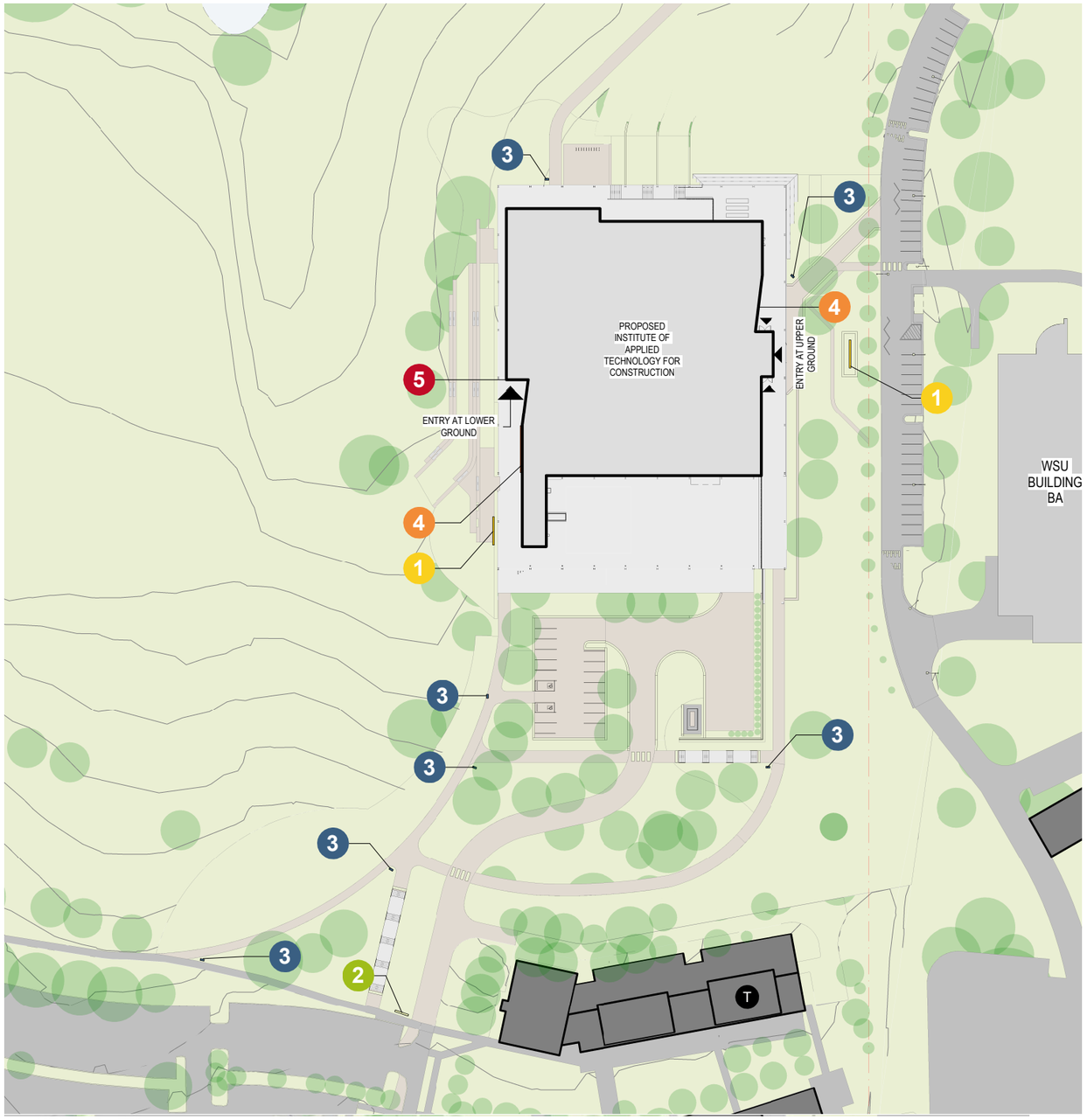
Site and Building
The scale of the proposed signage is proportionate in the context of the existing buildings as well as open spaces, and will complement its architectural design and building identity as a construction hub.

Associated Devices and Logos with advertisements and advertising structures
Considered lighting has been proposed to the signage (more commentary below). No safety devices are proposed. The signage will feature the TAFE NSW logo and the proposed building name for building identification and entry signifier.

Illumination
Low impact local illumination is proposed. Selection will be carefully considered to avoid unacceptable glare and remove risks of affecting the safety of the nearby Great Western Highway, and amenity of the existing Building BA (WSU) and Building T. The proposed signage is sufficiently illuminated, along with adequate street lighting to ensure pedestrian safety. No curfew is proposed to the illumination.

Safety
The proposed signage will not impact on the safety of pedestrians, motorists or cyclists as it will not disrupt any sightlines or be interpreted as a traffic control device.

12.2 Signage Location Plan



LEGEND

1 SIGN TYPE 1

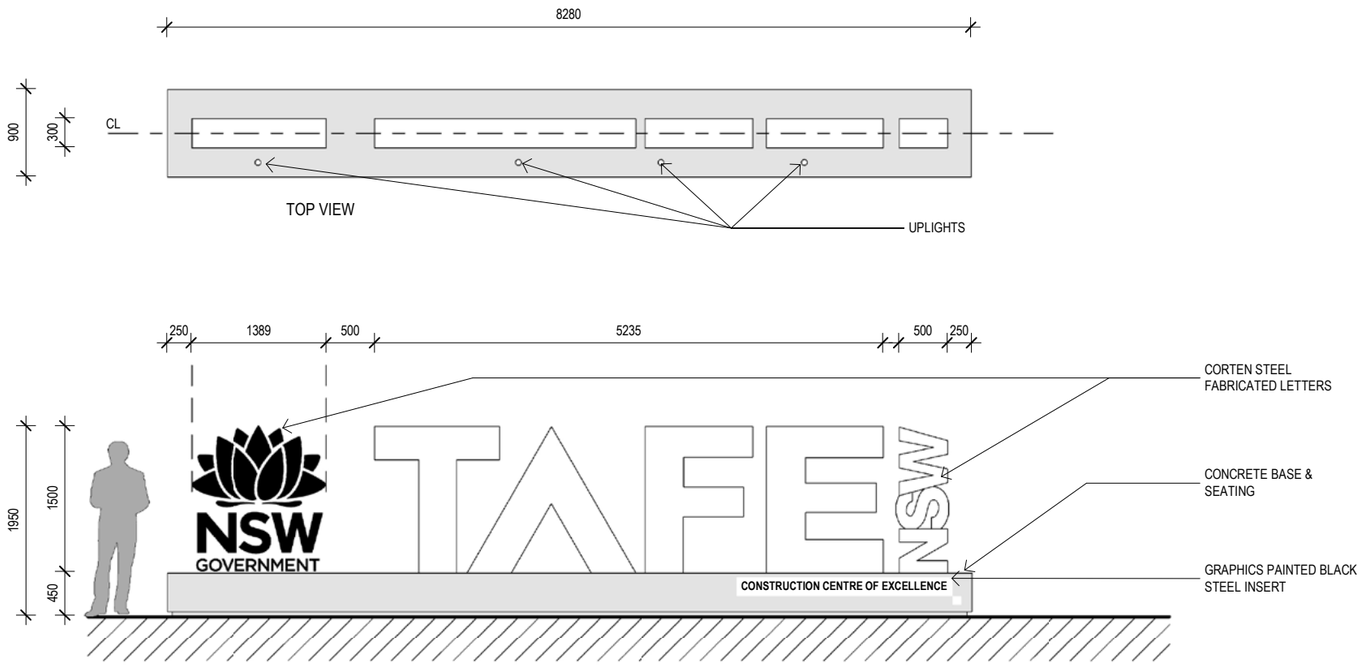
2 SIGN TYPE 2

3 SIGN TYPE 3

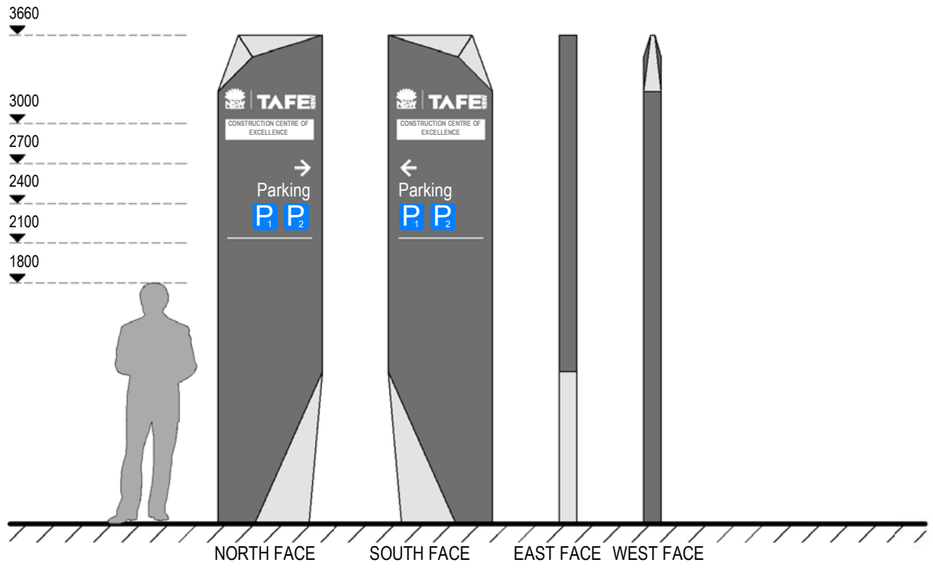
4 SIGN TYPE 4 (WALL MOUNTED)

5 SIGN TYPE 5 (WALL MOUNTED)

PLAN UPDATED FOR ISSUE D

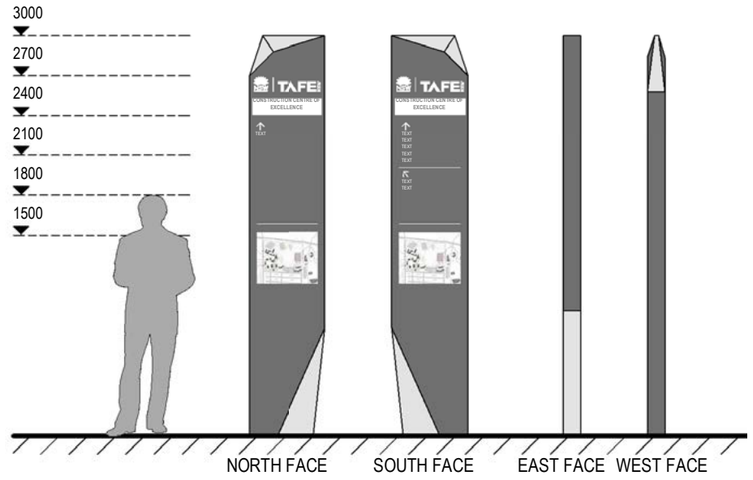


SIGN TYPE 1



SIGN TYPE 2

DIMENSIONS
H3660mm x W780mm x D130mm
Typical Cap Height: 100mm



SIGN TYPE 3

DIMENSIONS
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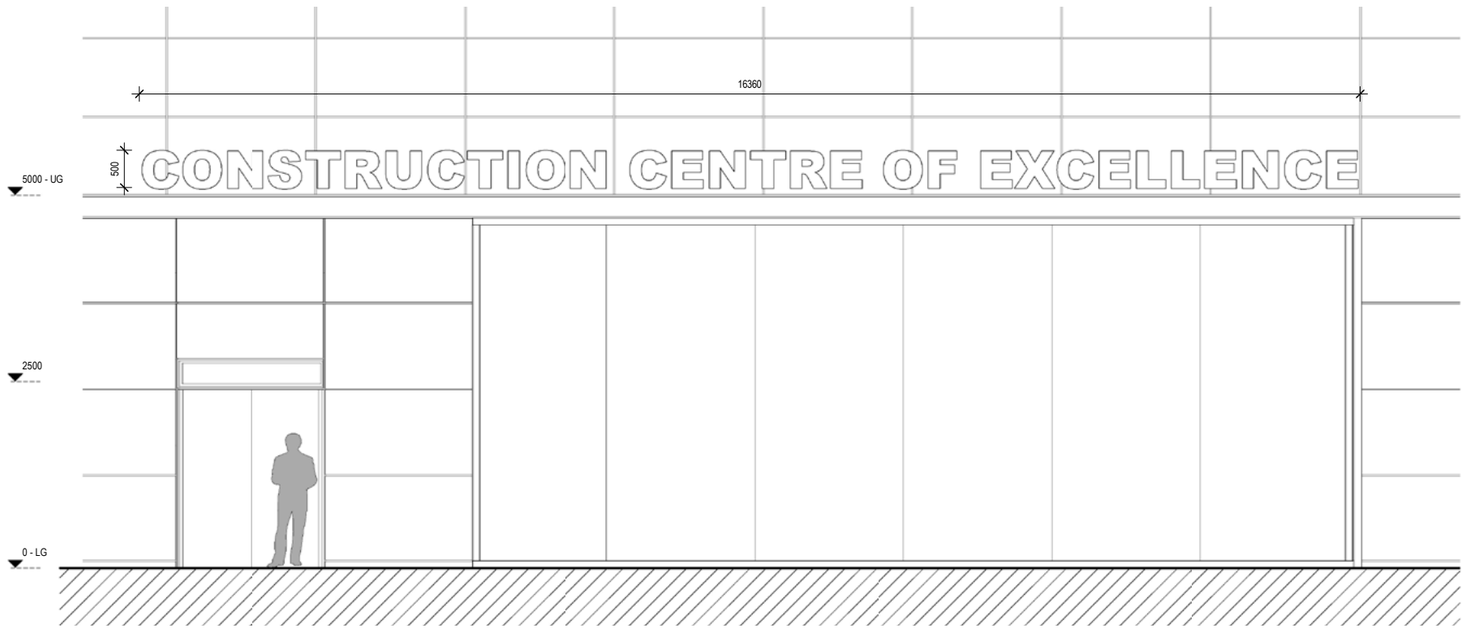
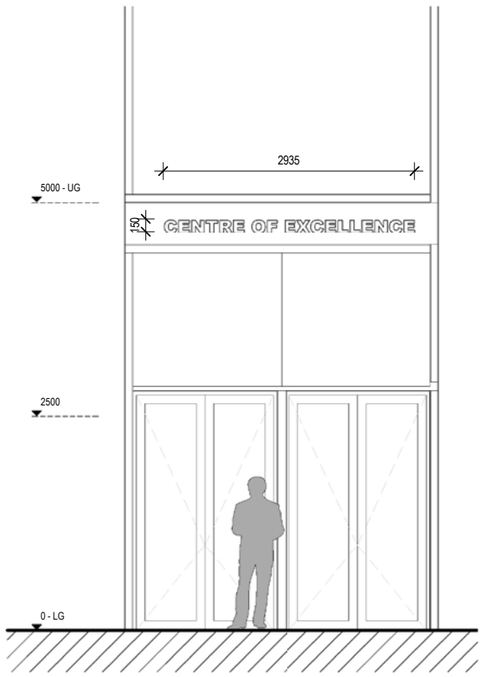
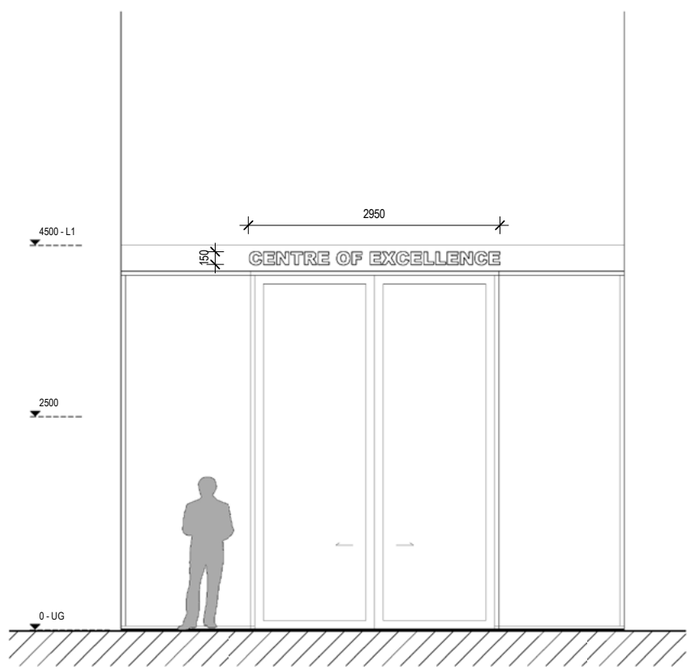
Typical Cap Height: 100mm



SIGN TYPE 4



SIGN TYPE 5
WEST FACADE



SIGN TYPE 6
EAST FACADE

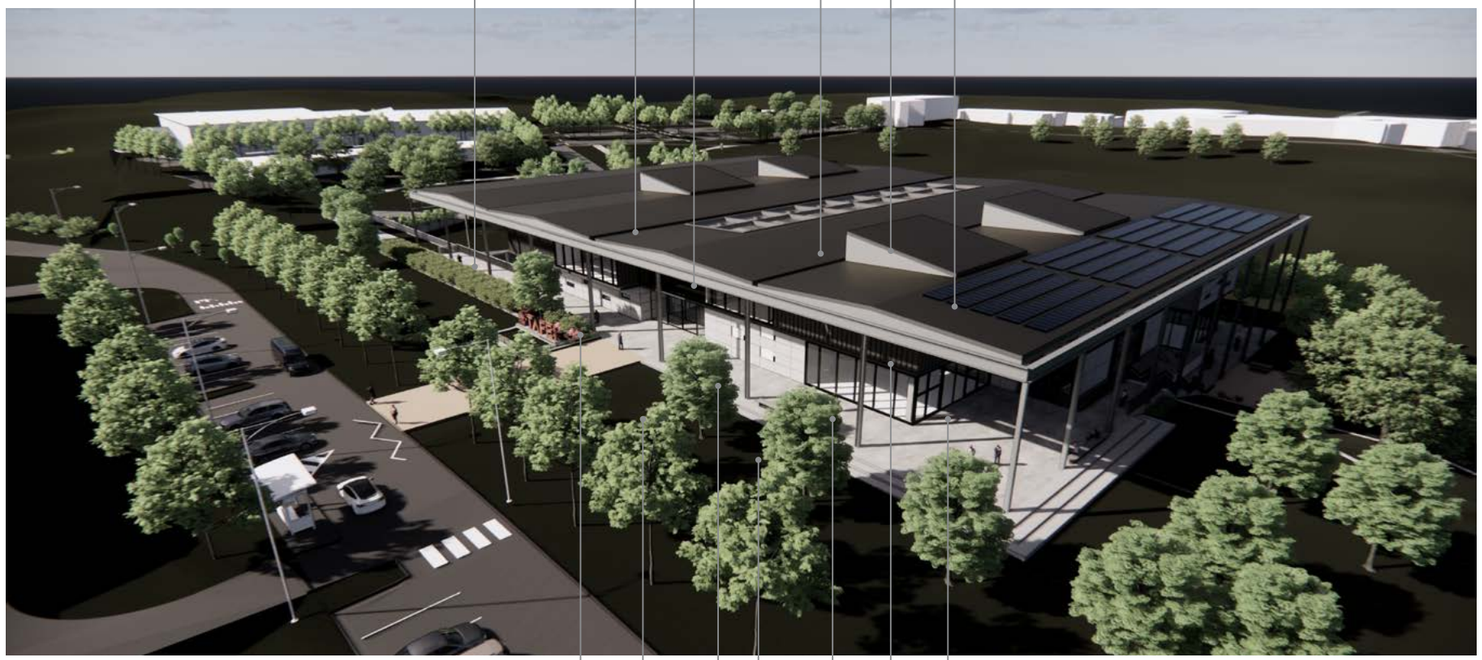
13.0 ESD Principles

13.1 ESD principles

The aim of the ESD objectives is to encourage a balanced approach to the designing new facilities for the TAFE NSW project to be resource efficient, cost– effective in construction and operation; and to deliver enhanced sustainability benefits with respect to impacts on the environment and on the health and well–being of students, staff and visitors whilst providing the best possible facilities for a constructive student learning experience. The development will implement a holistic and integrated approach to Ecologically Sustainable Design(ESD), maximising passive opportunities with the selective application of modern technology where appropriate. Initiatives are chosen with due regard to innovation vs. cost effective benefits to TAFE NSW.

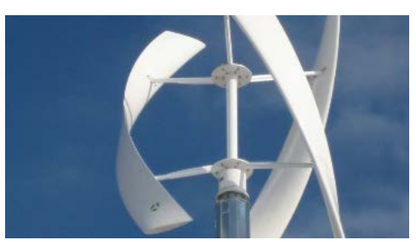
The project is targeting the following sustainability objectives:

- Incorporating principles of Ecologically Sustainable Development
- Demonstrate 'Design Excellence' by integrating sustainability principles of Green star and demonstrating project intent to achieve a 5 Star Green Star Design & As Built v1.3
- Minimum code compliance — National Construction Code (NCC) Section J energy efficiency provisions; and
- Consideration of the CSIRO's climate projections for the site location and design measures to create adaptable spaces and inclusion of climate change adaption and mitigation measures within the building design









13.1 ESD Principles

RESOURCES EFFICIENCY

Passive Design Measures

- Incorporation of shading on the north, east, and west facades of the buildings through the extension of the planar roof
- Use of well-designed slit windows towards west
- high use of thermal mass to regulate temperatures
- Natural Ventilation in Atrium, exploiting the building's design to promote natural airflow
- Integration of landscaping into the building designs to minimize heat islanding and promote passive cooling through transpiration.
- Improved building fabric and glazing performance to lower heat gains during summer while maintaining good views and daylighting throughout the building.
- Hybrid HVAC system with Adaptive Thermal Comfort Control – Mixed mode mechanical systems (incorporating individual room control) incorporating use operable windows and cross-ventilation.
- Energy Metering and Monitoring – to effectively monitor the main energy use within the project, alongside the lighting and small power use.
- Improved outdoor air provision – to minimize CO2 build up and improve cognition for the building occupants.
- A highly efficient lighting system – The installation of LED lighting to minimize lighting energy use and reduce heat loads.
- Onsite Renewable Energy – rooftop solar array providing energy production onsite to both reduce energy costs and provide educational outcomes for students.
- Water Efficiency – strong focus on the effective management of water and reduction of potable water use, including:
- Use of low maintenance landscaping
- Water Sensitive Urban Design
- Rainwater reuse
- Greywater reuse
- Low carbon material use – Reduction in embodied carbon of each material and use of materials with low VOC and formaldehyde content.

ENVIRONMENTAL COMFORT

Daylight Access and Visual Comfort – The design aims to allow daylight penetration and control into both internal and external spaces, to minimize energy used for lighting

Access to Views – Access to external views allows the switch between short and long focal lengths reducing eye strain for office staff and students.

Acoustics Comfort – Incorporation of acoustic strategies such as:

- Interior noise level control (sound masking + treatment)
- Reduction of Reverberation through the building
- Room and Spatial Acoustic separation

Additional Thermal Comfort measures:

- Use of optimized glazing (double glazed and low-E) and window shading;
- Thermal Mass for energy capture throughout the day and release at night minimizing the internal temperature variation across the day;
- Incorporation of Fans where possible to assist air movement.

Lighting Comfort

- Use of LED lighting for a highly efficient lighting system
- Motion, photoelectric (PE), and timer controls for circulation space lighting

LEARNING AND ENGAGING ENVIRONMENTAL

High-quality amenities – Amenity spaces promote collaborative studies which also act as a collection between indoor and outdoor spaces.

Integrating the latest technology – Use of smartphones apps to communicate about the building and information about the current ventilation strategies, energy use, new amenities, etc.

Waste Management – The provision of separated waste and recycling streams allows for more effective recycling of the project's operation waste.

14.0 State Design Review Panel

14.1 Response To State Design Review Panel

INTERACTION WITH STATE DESIGN REVIEW PANEL

The New South Wales State Design Review Panel (SDRP) was established as a pilot program to reflect changes in the NSW Environmental Planning and Assessment Act to include a policy objective "to promote good design and the amenity of the built environment."

The panel is convened by the Government Architect's Office and consists of independent and expert members who are called upon to form review panels to provide independent and impartial advice on the design quality of the development proposals.

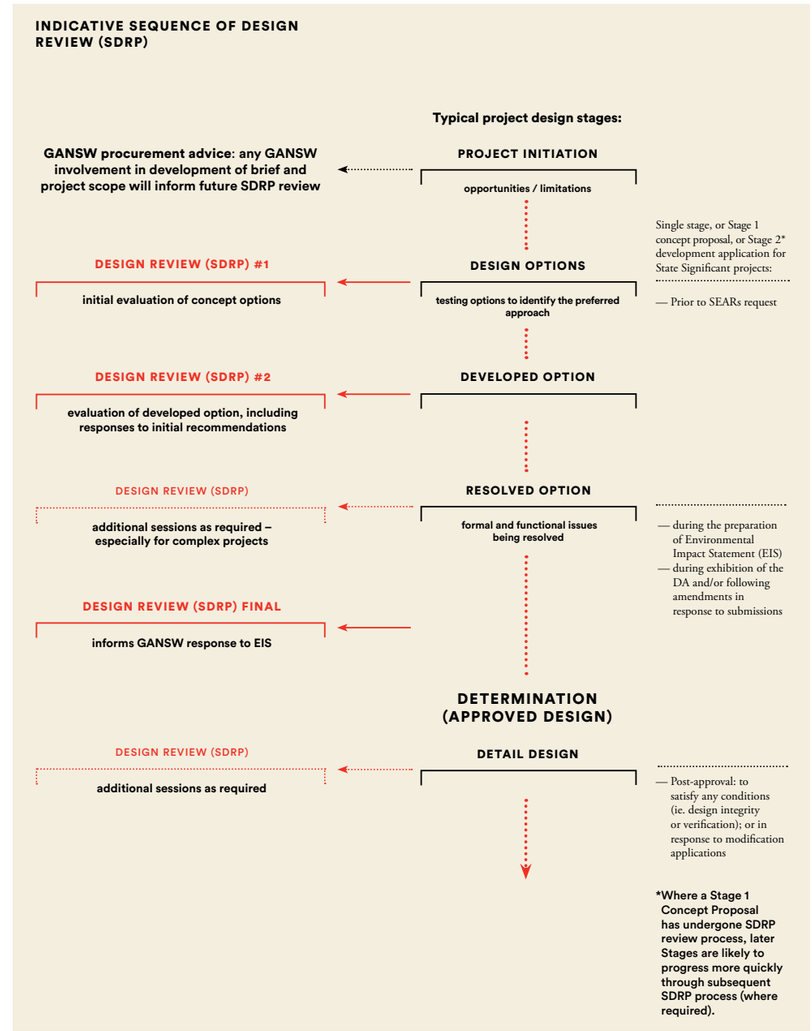
In November 2020, the SDRP was formalised to an ongoing model with an expanded pool of panellists and the addition of a team of State Government Design Champions.

DESIGN REVIEW 1

Gray Puksand presented the concept design to the State Design Review Panel on 18th November 2020.The panel was generally supportive of the overarching conceptual design approach for the campus and how the building interacted with both the landscape and the campus.

Feedback from session one is summarised as follows:

- Alignment to the strong axis presented in the Structure Plan
- Architectural intent to consider CCoE as a 'building in the round
- Linkage to existing site links to WSU
- A landscape design that support integration of the built form with the landscape, increase of tree canopy and creation of outdoor spaces
- Establishing visual connection to the campus green and the Blue Mountains
- Exploration of passive thermal comfort options
- Innovation focused architecture that communicates current and future trade technologies
- Incorporation of WSUD ESD initiatives into the project.



Indicative Sequence of Design Review – Source – NSW Government Architect – NSW State Design Review Panel – Overview

14.2 State Design Review Panel Response Matrix

SESSION 1

1.00	MASTERPLAN AND LANDSCAPE	
	COMMENT	**RESPONSE**
1.10	The proposed WSCH does not align with a strong access through the existing TAFE campus as proposed in the structure plan. Provide an amended structure plan showing new nodal points to support movement through the campus as well as potential future connections to WSU to the east of the site.	The preliminary response to the earlier structure plan for the site has been continually developed in liaison with Western Sydney Universities Urban Design Team over the last few months. The fundamental urban design principles presented in session one have been enhanced to reflect the potential relationships to both WSU's urban design concepts for the Werrington campus to the East and the potential for a pedestrian link to the WSU Kingswood campus on the West. The aspirational campus structure plan outlines potential future development sites, pedestrian connectivity, nodal connection points and landscape approach around the proposed development.
1.20	The architectural intent to consider the WSCH as a 'building in the round is not apparent in the planning approach. The location of the carpark to the south cuts the building off from the existing buildings and any proposed site links, as well as compromises the main entry into the facility. Demonstrate that other options for carpark arrangements have been considered to improve this outcome.	The siting and design of the proposed building is informed by its local topography and contextual relationship with the overall TAFE NSW site and WSU Werrington South Campus. The design has developed to reflect the building in the round concept with homogeneous facade articulation, anchored by a common tectonic element in the form of piloti, and the lack of 'back of house' facade treatment, reinforces this notion. The 'building in the round' concept adapts well with the 'green field' character of the site, given its vast undulating landscape and openness. Each of the four main facades resonates with its surroundings and provides relevant activation to all external spaces with the internal activity bleeding to the peripheral space. Connections to both campus and existing buildings are maintained and the design refined significantly since SDRP session one. Carparking and building servicing options to north, south, east and west of the building form have been investigated and discounted for a number of reasons. Consideration of the campus and precinct structure plans and current logistical arrangements support the southern carpark and loading location. The southern aspect of the building will provide the largest outdoor workshop area with the proposed arrangement facilitating the free movement of civil engineering material to the workshop, easy access for various working at heights teaching machinery and utilisation of the existing TAFE NSW campus road ways.
1.30	The central access through the WSCH does not align with any existing or proposed site links. Demonstrate how this axis promotes connections to WSU and supports the intention for a 'building in the round'.	Refer 1.10 and 1.20

1.00	MASTERPLAN AND LANDSCAPE	
	COMMENT	**RESPONSE**
1.40	Engage a landscape architect to support the integration of the built form with the landscape, and ensure the building is better located and orientated in response to the sites unique topography	A landscape architect has been engaged and the design package included with the SSDA documentation and is ready for presentation to SDRP at session two. The landscape team have worked carefully to instil overarching design objectives in their approach. **Outdoor learning spaces to support building function & curriculum** The buildings learning spaces & workshops will be supported and enhanced through the adjacent landscape spaces to provide opportunities for outdoor learning at various scales; **Adaptive & flexible outdoor learning spaces** Outdoor learning spaces to support real world learning skills & simulated work environments in open, adaptive & flexible spaces that encourage collaboration across learning streams; **Parkland Campus** The landscape strategy will enhance the campus parkland landscape character through environmental & site responsive design that considers topography, microclimate and native fora. **Connected Campus Precinct** Establish a strong identity for the Construction Hub while improving connections with UWS, Industry & wider community through a series of landscape spaces that provide opportunities for events & collaborations between communities **Sustainable Landscapes** Creation of landscapes suitable for the local climate to maximise use throughout the year with solar access & wind protection in winter months and shade and passive cooling over summer months. Assisting the building with Passive Heating & Cooling combined with Water Sensitive Urban Design principles to filter hardstand run off. Creation of Green Corridors to enhance pedestrian, vehicle & cycling connections supported with endemic planting for habitat creation. Key considerations around water sensitive urban design have been implemented, striving to ensure our natural habitats remain healthy and that the wise use of our natural resources is considered in the design development. Strategies include grey water reuse for irrigation purposes and carefully managing the storm water management design as an integral part of the landscape proposal. "
1.50	Develop a landscape approach that maintains or increases tree canopy, includes a range of outdoor spaces with an emphasis on cooling and water sensitive design, and explores the quality of spaces created between the WSCH and existing campus buildings, including the diagonal walkway.	
1.60	Provide an arborist plan showing which trees are significant and which trees are to be retained.	Noted. This information forms part of the SSDA submission.
1.70	Provide drawings which show the relationship between the WSCH and potential future development on site, including how this impacts or supports movement across the campus and entry to the WSCH.	Refer 1.10 & Architectural Design Statement
1.80	Provide a key on any future drawings to show the use of the existing campus buildings to enable the WSCH to be read in the context of the overall campus.	Noted. Detail on all existing uses has been incorporated within the Architectural Design Statement.

2.00 ARCHITECTURE

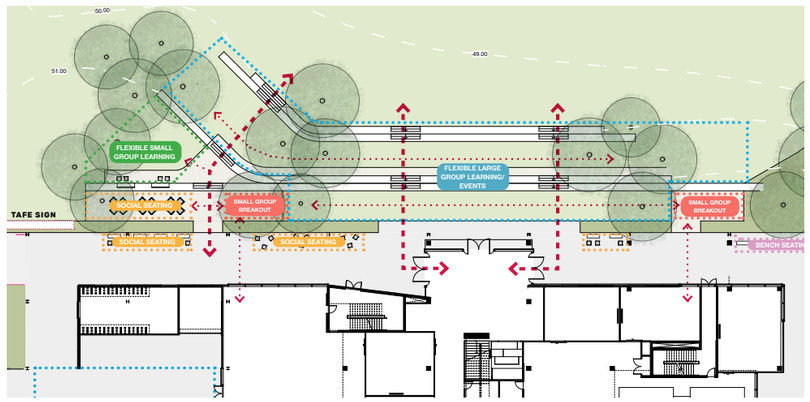
	COMMENT	RESPONSE
2.10	The main entry of the WSCH is accessed obliquely from a long, diagonal walkway off the central site axis. Explore other options for the location and/or orientation of this axis and other, more integrated, arrival sequences that provide a civic address and create places for students to gather.	Through the development of the architecture and landscape design for the Centre of Excellence, approach and civic presence in careful balance with topographical positioning and integration with both the precinct and site structure plans, have enabled a more detailed understanding of arrival and journey to the building. It is anticipated that until the WSU development aspirations for Werrington are realised, that the patrons for the Centre will arrive via O'Connell street making their way along the existing southern road network and parking in the existing expanse of carparking available on the site. The main diagonal approach is orientated to draw pedestrians from the main campus and carparking area, along an accessible grade via the landscaped boulevard to the main entrance. Through the progression of the landscape design, tree and planting has been incorporated to provide shelter along the walk and upon arrival at the entrance plaza, with informal gathering spaces both in the landscape on hard stand providing options for informal congregation before arriving at the main door.
2.20	Provide detailed plans which show the arrival sequence from the carpark to the south to the main entry of the WSCH and how this can be improved.	Noted – detail site and landscape plans are now provided as part of the SSDA submission.
2.30	The architectural intent to use the west facing stairs to visually connect the WSCH with the campus green and capture views to the Blue Mountains is supported. Explore the need for sun shading devices to allow these stairs and the adjoining outdoor spaces to be used year round.	Preliminary sun study analysis have identified that the proposed roof over hang to the perimeter of the building, circa 6m, provides more than adequate protection to the glazed sections allowing the view to the Blue mountains beyond to be maintained. As the design develops, this will continue to be monitored carefully and measured for solar gain and glare, but additional sun shading is not currently anticipated as being necessary
2.40	Explore other means of providing thermal comfort, including the opportunity of embedding the building in the landscape to reduce the expanse of exposed west facing stairs.	The building placement has been carefully considered through an analysis of the existing topography to minimise required cut and fill on the site. The building presents as a three storey composition to the TAFE NSW campus, whilst setting itself in the landscape moving east, with two stories facing the Werrington South aspect. As the facade design and solid to glazed ratios have been bedded down, thermal comfort within the spaces has been considered with respect to use of thermal mass, insulated mass, solar gain and most importantly, how the roof structure can act as a parasol mitigating the harsh temperature variations in the local climate as far as reasonably possible.
2.50	Provide detailed sections showing the building's integration with the topography and its relationship to the existing campus buildings and carparks, and to WSU.	A sectional analysis has been carried out and east west drawings are provided as part of the SSDA drawing package.
2.60	Demonstrate that the acoustic properties of spaces within the building are compatible with the colocation of different learning environments i.e. workshops and classrooms.	The design team have engaged with a specialist acoustic engineer to provide design guidance on suitable acoustic separation between critical spaces in the building. The relationship between theory and practical spaces is paramount and acoustic separation is critical to the success of each space respectively. Through the design development, these strategies will be developed in wall types, construction details, glazing and door suite selections and documented as such.
2.70	Refer to best practice precedents for education buildings, such as Flinders University at Tonsley, South Australia, to inform the architectural response.	Through the stakeholder engagement and brief development journey, we have presented a series of benchmark facilities undertaking a review of success factors and areas that could be improved on in each, analysing the lessons learnt from each. Fortunately, many of the stakeholders involved in the Centre of Excellence were afforded the opportunity to visit Tonsley Park in Adelaide, Sunshine Trade Training in Victoria and the Kangan Institute Automotive Centre of Excellence in Melbourne last year as part of a briefing process for a similar facility. Interactions with staff and students across the exemplars provided informative and was instrumental in the development of the Centre of Excellence concept.
2.80	Explore options for a unique and innovation focused architecture, such as approaches that communicate current and future trade technologies.	Modular Construction, Prefab Construction, Of Site Assembly and various other acronyms have become increasingly popular terminology in the construction industry as clients look for ways to construct smarter, faster, and more sustainably. As a Construction Centre of Excellence, we are working with our specialist consultants to investigate all strategies that can promote construction best practice, innovation and demonstrate the application of trades and services in the finished product for all students and building users alike to examine.

3.00 SUSTAINABILITY

	COMMENT	RESPONSE
3.10	Incorporate water harvesting options in response to the expansive roof area.	A greywater collection and treatment system installation will be incorporated as the design progresses to collect, treat and reuse greywater for landscape irrigation purposes.
3.20	Demonstrate the holistic incorporation of proposed ESD initiatives into the project and include a Greenstar scorecard.	Refer Architectural Design Statement for summary and the ESD Report by Northrop Consulting Engineers forming part of the SSDA submission

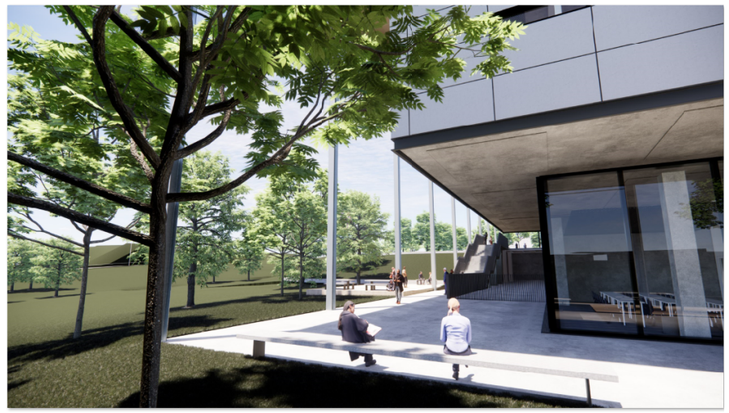
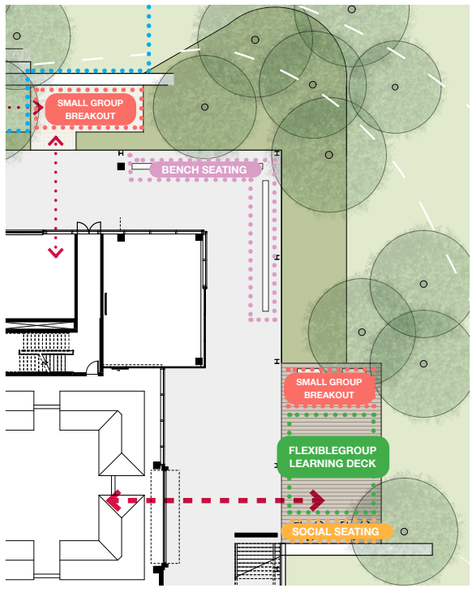
SESSION 2

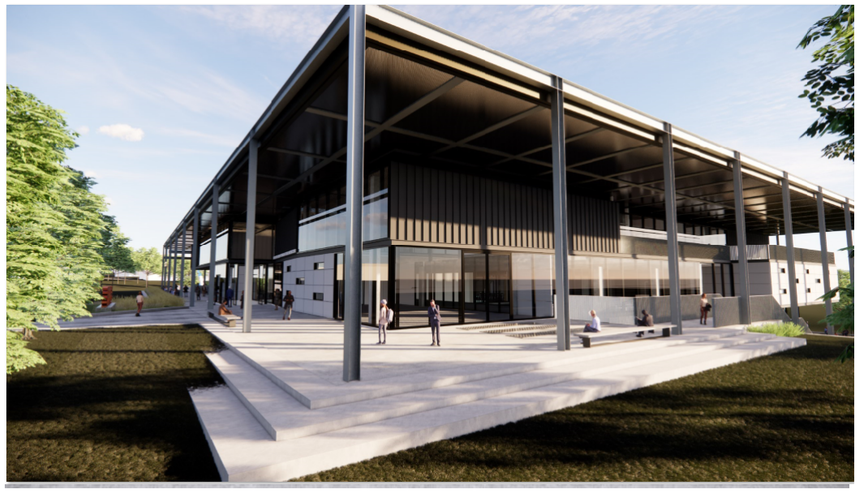
1.00 MASTERPLAN AND LANDSCAPE

	COMMENT	RESPONSE
1.01	The re-siting of the CCE further to the north and the re-orientation car park to allow for a more gradual and expansive entry is supported. However, the entry sequence does not reflect the civic nature require for a centre of excellence and should be developed further.	The design has continued to develop with a focus on the arrival sequence form the southern campus carparks and existing pedestrian walkway from the O'Connell Street Approach.  The arrival sequence has been reinforced with an evolving architecture and landscape design, creating a series of pauses along the route, through landscape interventions, the creation of resting points and informal learning setting within the shade of the trees. 

1.00	MASTERPLAN AND LANDSCAPE	
	COMMENT	**RESPONSE**
		A developed westerly elevational enables views to the activity occurring within the outdoor southern workshop on approach, capturing both the internal workshop spaces and sandpit area on approach, supported by further large openings to the main building facade strengthening connection to the learning environments within, as patrons approach the main entrance. The slight splay in the wall on the approach to the main entrance, draws the approaching pedestrian in, creating a widned forecourt and sense of arrival as you journey into the central atrium.  

1.00 MASTERPLAN AND LANDSCAPE

	COMMENT	RESPONSE
1.02	Further consideration has been given to the CCE as a 'building in the round,' however there is no connection to the open space to the north of the building, which could provide opportunities for outdoor learning as well as links to the existing pedestrian access off the highway (as identified in the Current Site Structure Plan). It is also unclear how the north of the building relates to the existing site levels. View from the north and sections which show this relationship should be provided.	The design has always been envisaged with connections to the northern landscaped area, connecting the large workshop space to the colonnade and beyond.  This has been further developed to ensure an active perimeter along this colonnade, large format door openings allow the workshop to bleed out to the colonnade space, linking to a small group breakout space and learning deck under the shade of trees. Nothing proposed precludes the inclusion of a pedestrian / cyclist connection to the Great Northern Highway to the north at a future time. 

1.00	MASTERPLAN AND LANDSCAPE	
	COMMENT	**RESPONSE**
		Improving the 'building in the round' connectivity, a direct link on the north east corner has been developed to continue the flow around the peripheral colonnade. The staired connection provides a more detailed analysis of the level changes and topography at this aspect of the development. 

1.00 MASTERPLAN AND LANDSCAPE

	COMMENT	RESPONSE
1.03	As a 'building in the round,' further consideration should be given to the eastern entry on the upper ground floor. The entry is key to he relationship between WSU, the CCE and the wider campus and should be designed accordingly.	We are in strong agreement with the eastern façade and entry points being an important interface with the adjoining WSU campus. The 'building in the round concept has seen a further development of this façade, entry point and its interaction with landscape and approach to WSU. Through our ongoing engagement with the WSU design team, the arrival on the eastern side of our boudnary will continue to be developed, with conversations around intermediate solutions underway to proivde connectivity here from the outset.   The design development at the colonnade level has sought to create a stronger presentation to the eastern aspect, with landscape design integrating outdoor breakout spaces that has the potential to establish a strong connection with the internal cafe space, activating the area.
1.04	Similarly, the south west corner of the building is dominated by a storage and services block that could be better positioned to the south east to support the intention for a building in the round.	As noted above, careful consideration has been given to the design discussions around the approach to the building. A developed westerly elevational enables views to the activity occurring within the outdoor southern workshop on approach, capturing both the internal workshop spaces and sandpit area on approach, supported by further large openings to the main building facade strengthening connection to the learning environments within, as patrons approach the main entrance.  

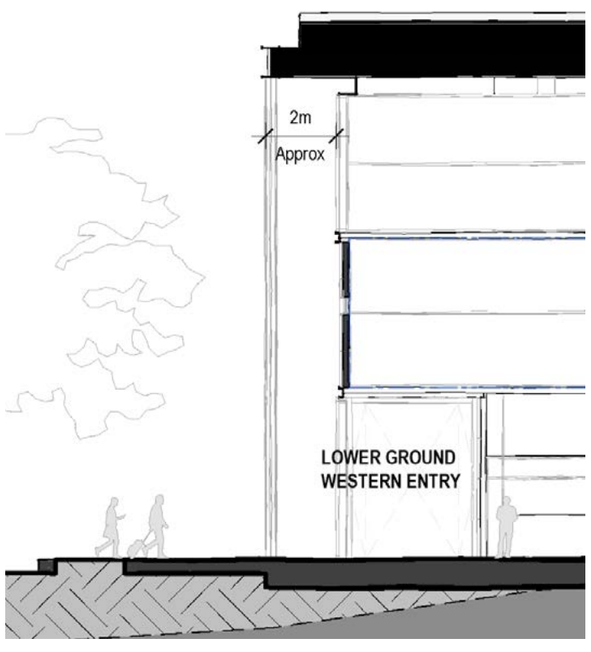
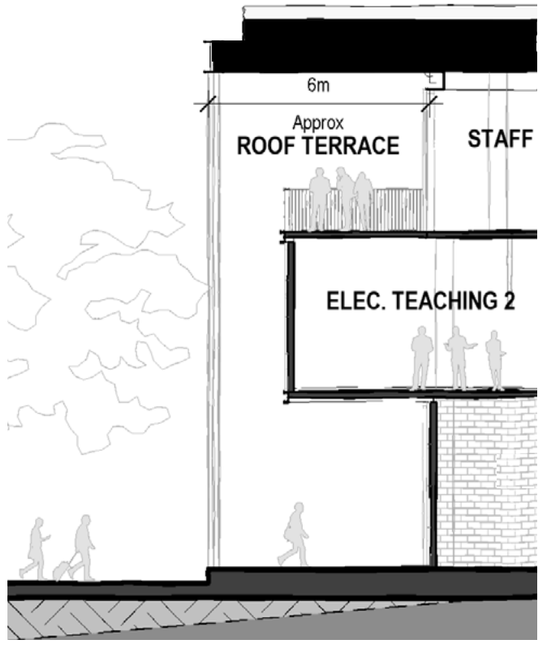
1.00	MASTERPLAN AND LANDSCAPE	
	COMMENT	**RESPONSE**
1.05	The landscape and architecture plan are inconsistent and this should be resolved to ensure the building program is integrated with the landscape approach	As the design has developed, the documentation has been coordinated and has been included as part of this State Significant Development Application.
1.06	The intention for a 'building in the landscape' is seen from the outside only. Views and connections to the landscape should also be provided from inside the building.	Following SDRP Session Two, our design team have focused largely on reintegrating the connection to landscape from within the building, whilst retaining the desired functionality of key areas within the floor plate. The primary area of concern was with respect to the western facade at the main entry point which had developed a solidity that hampered this visual connection. This has been revisited and the incorporation of glazed operable panels to this area enables a direct flow between the atrium and outdoor space when weather permits and they can be held in the open position.  In more inclement weather conditions, the facade can close up, whilst maintaining visual connectivity to the campus and beyond. As we look to other vantage points within the atrium space, the bridged connection to level one has created a framed view to the Blue Mountains beyond via the glazed upper portion of the central western facade.  No changes have been proposed to the upper portions of the building, maintaining a large portion of glazing to utilise the northern and westerly views from the upper floor of the building.

1.00	MASTERPLAN AND LANDSCAPE	
	COMMENT	**RESPONSE**
1.07	Learning landscapes' are supported as a landscape strategy and should be introduced, as should additional spaces of activity.	This has been noted and further development of the landscaping design has embraced the advice.
1.08	Given the bushland setting and availability of open space, the government's tree canopy target of 40% can be met and should be provided to address the heat island effect at this Western Sydney site.	Through the development of the landscape strategies for the campus, additional tree canopy is proposed to help mitigate the heat island effect and providing a conscious contribution to the Premier's Priority "Greening our City"

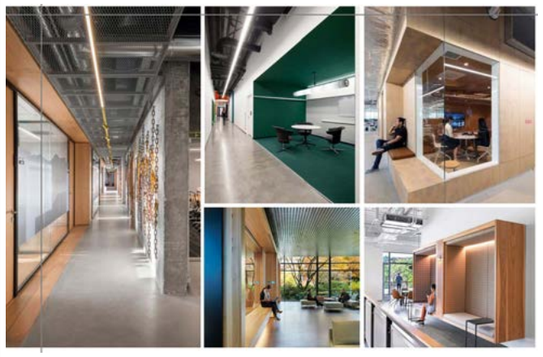
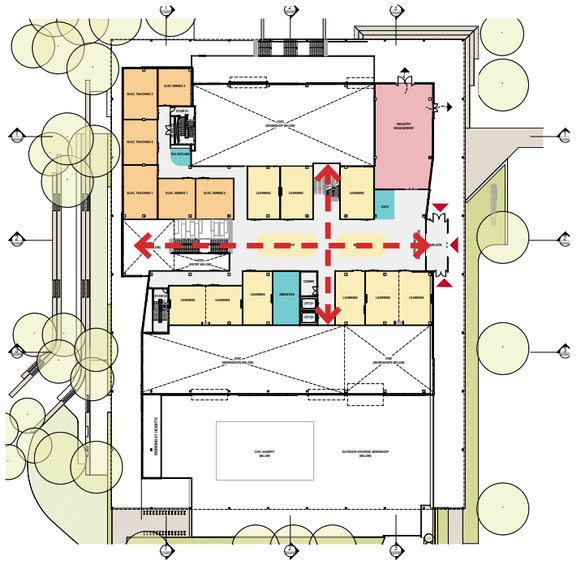
2.00 ARCHITECTURE

	COMMENT	RESPONSE
2.01	The south west approach to the main entry is flanked by the mass of the western façade of the building which is likely to result in Signiant thermal radiation and an uncomfortable pedestrian journey. Consider opportunities to use lighter materials or colours on this facade or break down the mass by providing views into the covered outdoor workshop. The mass on this side of the building could also be reduced by relocating the services and storage block to the eastern side.	As noted above, careful consideration has been given to the discussion around this approach to the building and the design developed accordingly. As materiality selections continue to be refined, the systems selections are developing and a careful balance between thermal mass, construction methodology and sustainable design principles are guiding the facade approach. Given the nature of the approach to the building, positioning of pedestrian 'pause points' combined with the significant roof overhang protecting the facade, it is unlikely that the design will create any prolonged discomfort to building users on their approach. A developed westerly elevational enables views to the activity occurring within the outdoor southern workshop on approach, capturing both the internal workshop spaces and sandpit area on approach, supported by further large openings to the main building facade strengthening connection to the learning environments within, the services previously discussed have been relocated as recommended, enabling this design development. 

2.00 ARCHITECTURE

	COMMENT	RESPONSE
2.02	Panel continues to support the intent to use the west facing stairs to visually connect the CCE with the campus green and capture views to the Blue Mountains. However, given the height of the roof, denser planting or sun shading devices are required to ensure the stairs and terracing, as well as the west facing entry, can be comfortably occupied year round	Implementation of additional solar shading and tree canopy will compromise views to the blue mountains at level 3 of the building. As such, careful consideration has been given to the extent of roof overhang, positioning of glazing and solid to glazed ratio on the central aspect of the Western Façade addressing the atrium space. The central portion has been retained as predominantly solid, enabling a control measure of solar gain during those hottest parts of summer. The roof at this point provides an eave of approximately 2000mm to protect the upper glazed portions from major solar gain. Appropriate glazing suites will be selected to minimise unwanted solar gain to the lower ground floor glazed elements of the central area of the same facade. With the remainder of the facade to the western elevation, primary solar gain is minimised with the circa 6000mm eaves overhang provided around the colonnade of the building.  

2.00 ARCHITECTURE

	COMMENT	RESPONSE
2.03	As the central atrium has been resolved, the intention for visual and physical connections through the building have been lost, This includes the introduction of a solid wall to the western façade at lower ground, which cuts off views from the atrium to the landscape at lower ground, which cuts off views form the atrium to the landscape, the breakout spaces at ground level which intrude into the atrium and the misalignment of north south axes. Further resolution is required to ensure the design intention for the atrium is realised.	Further to the commentary provided above in respect to the western façade, the atrium planning has also been subject to ongoing design development. Break out spaces are being designed to enhance the atrium space as opposed to intruding on it. The graphical display of the floor plans may have created some confusion around the intention here. Conceptual imagery of the interior design intent is provided below for information.  The cross axis – north to south orientation has been enhanced with a resolved alignment. 

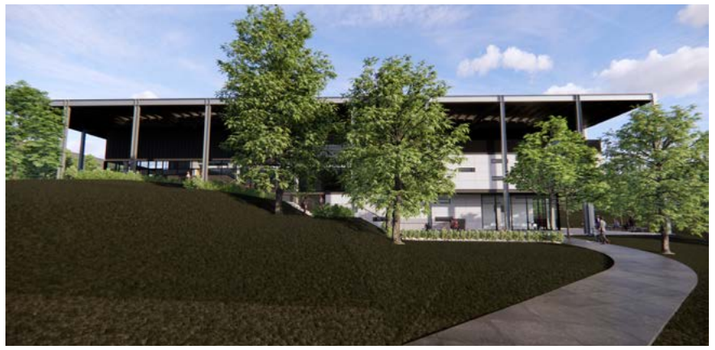
2.00	ARCHITECTURE	
	COMMENT	**RESPONSE**
2.04	Views from the west should be provided to understand how students see the building from the landscape and entry at lower ground.	Noted. Snapshots are presented below for information. Please refer to the view impact analysis section of this report for further detail. 
2.05	The café is embedded in the upper ground floor with views only to covered outdoor workshop. Explore options for relocating the café to activate gathering areas and enable outdoor seating areas.	It is not the design intention to have the Café embedded at a certain location on the ground floor. The design is developing to ensure the space supplements the circulation and associated breakout spaces as opposed to recessing away from it. This will enable the facility to service both internal and external spaces, with patrons having a number of options on where to reside. It is TAFE NSW's brief that this cafe space is simple in nature, providing hot and cold beverages and pre-packaged type food offering only. A student canteen is located elsewhere on the campus.
2.06	The location of the lifts off the atrium and toward the centre of the building does not provide for equitable access and should be reconsidered	The facility is designed to provide equitable access for all patrons, a central lift location within the building facilities this. Whether the arrival approach is from the main entrance on the west or the Western Sydney University campus approach on the East, the lifts are accessible and available to all from the buildings primary circulation.

3.00 SUSTAINABILITY

	COMMENT	RESPONSE
3.01	Consider extending the roof eave on the western side of the building to provide shading to the upper floor which is entirely glass. Alternatively, provide other sun shading devises to mitigate heat load as a result of floor to ceiling glass	As discussed in detail above, there is suitable eaves overhang proposed to the entirety of the western façade, with specific reference to the circa 6000mm overhang protecting the majority of the level one glazing.
3.02	Demonstrate the transparent roof to the atrium will not result in overheating in summer. Alternatively, demonstrate how the heat load to internal spaces will be mitigated.	The current design is being developed with our expert façade consultants, ESD / NCC Section J team to measure, mitigate and minimise solar gain to the atrium space, whilst protecting the ability to flood the space with natural light. These strategies include glazing suite selections, fritted glass options, potential thermal louvre utilisation to the exterior, and finally air movement strategies to the atrium space utilising natural ventilation and spill air from the conditioned spaces adjoining the atrium.

SESSION 3

1.00 MASTERPLAN AND LANDSCAPE

	COMMENT	RESPONSE
1.01	Further develop the hierarchy of internal spaces, utilising access to daylight, and enclosure and openness to create a clear sequence of spaces.	Through the process of design development, the internal arrangement has developed with direct relationship to functional requirement, functional relationships and collegiate interactions. Support and social spaces have been developed to support these core functions and interact further with the campus context beyond the facade line.
1.02	Provide details of thermal modelling to demonstrate the thermal comfort of internal spaces, in particular as a result of the atrium and clear roof overhead. Provide information to substantiate heat mitigation measures within the building.	The proposed building insulation is in accordance with the National Construction Code 2019 requirements. Thermal comfort modelling results indicate that for all the conditioned area within the proposed design achieves a Predicted Mean Vote of –1 to +1 across more than 95% of the floor area of all occupied zones for 98% of the annual hours of operation of the building. The temperature in the conditioned spaces was assessed between 21°CDB to 24°CDB . All the input for thermal comfort analysis were determined in line with the ANSI/ASHRAE Standard 55–2013 — Thermal Environmental Conditions for Human Occupancy. The workshop areas fabric will have adequate insulation but was not assessed for thermal comfort as the proposed mechanical systems are designed only to achieve some level of comfort during extreme weather conditions (set point of say 18°C to 34°C).
1.03	The extensive areas of outdoor paving require further detailing, texture and breakup to avoid large expanses of a singular material and to more closely relate to the detail and breakup of the building.	Noted. Through the detailed design phase, a paving plan will be developed in coordination with the landscape architecture, building structure and integrating the internal functionality to outdoor practical spaces.
1.04	Resolve the junction of external columns and stair. Investigate a greater generosity to the wayfinding informed by the landscape.	The Northern aspect architectural design has been further developed to integrate the stair with the building structure and landscape design. Updated imagery is provided below to demonstrate this relationship.  Image looking from the Northern Cycle Link to Great Western Highway  Bicycle Parking area and informal breakout space
1.05	Give greater consideration to the needs of students working outdoors in the Western Sydney climate. Integrate sun shading as appropriate to provide comfortable working areas throughout the year	The main outdoor work spaces are provided with significant roof over hangs to the southern side of the building, providing ample protection to the elements. On the Northern aspect of the building, these spaces again sit under a 8.7m roof overhang providing substantial protection from the elements and protected by the built form in the topography as the building nestles into the landscape.
1.06	Mitigate the potential for urban heat island effect by considering the location and species of planting as well as material choices for outdoor furniture and paving.	A variety of evergreen large canopy trees and evergreen small/medium trees have been located along the Western and Northern landscapes. The trees will provide layered shading for the building and surrounding landscape areas from the midday & afternoon sun. A mix of Evergreen and Deciduous trees surround the Eastern and Southern landscapes, providing shading in the warmer months while allowing Winter sunlight into the building. Majority of the surrounding landscape will be soft landscaping of gardens and lawn which create cooler microclimates. A selection of hardscape materials will be porous paving. Permeable paving is cooler than impermeable paving as it cools quicker and allows for evaporated moisture to cool the surrounding air. Furniture has been selected with ‘Woodgrain Aluminium’ battens for its robustness and low maintenance requirements. The Woodgrain coating moderates temperature extremes and is cooler than the surrounding temperature in the summer months.

1.00	MASTERPLAN AND LANDSCAPE	
	COMMENT	**RESPONSE**
1.07	Incorporate species of plants endemic to the Cumberland Plain to aid in restoring this endangered ecosystem. Demonstrate a biodiverse showcase of landscape.	Endemic Cumberland Plain species, and NSW Natives consist of 80% of the planting selections. Over half of the sites planting will be endemic and consist of a variety of Cumberland Plain species which have been selected suitable for the site including; Canopy Trees; such as *Eucalyptus tereticornis, Corymbia maculata*, Small Trees; such as *Melaleuca decora*, Shrubs; such as *Dodonaea visocsa*, *Indigofera australis*, Grasses; such as *Themeda australis*, *Lomandra filiformis* and Groundcovers such as; *Hardenbergia violacea, Wahlenbergia gracilis*. Refer to plant schedules for full list of Cumberland species. Areas of gardens will be planted with a variety of endemic species to create a biodiverse landscape that aids in habitat creation.
1.08	Retain the Landscape Architect as part of the design team during the D&C phase of the project to ensure the effort incorporated to date is not lost.	Noted.
1.09	Provide further details of sustainability initiatives including projected energy generation.	• **Indoor Environment quality** — The building design ensures that occupant achieves high level of thermal, acoustic and visual comfort. The design features includes adequate daylight and views to outside natural environment and providing building insulation in accordance with the National Construction Code 2019 requirements. Proposing high fabric performance to minimising thermal heat loss during the heating season, whilst also helping to keep building heat gains to a minimum during the cooling season. Attempt to select interior finishes with low volatile organic compounds, including paints, carpets, adhesives and sealants. Provision of the correct level of artificial lighting is some other the Indoor environment quality features proposed. • **Building Management** – Committed to commissioning and tuning the building which requires minimum quarterly reviews within the first year of operation. Commitment to provide Building user guide so that the Building users and occupants are aware of the environmental and energy strategies put in place by the design team and the optimum working conditions for these systems. A climate adaptation plan will be undertaken to address the future climate change for the life of the project and will incorporating design changes accordingly. • **Energy** – The current proposal includes having 30% of the building power consumption to be generated by PV solar panels on the roof with a capacity of 240kW.. Electrical submitting, incorporating lighting control, Proposal to use high efficiency mechanical systems. A Greenhouse emission modelling will be undertaken to understand the building predicted energy consumption and GHG emissions and reduction. • **Building Monitoring** — The Energy Management System (EMS) is an integrated metering system where the Energy meters are connected to the EMS. The EMS stores information requested so that it can be viewed in graphical form when, or if required. Each meter is capable of sending data to the EMS either periodically, or on request; • **Transpor**t — End of trip facility with adequate number of Bicycle parking, car charging facility are proposed • **Water** — Proposal to treatment of stormwater as per the council requirement and Installation of the highest rated Water Efficiency Labelling Scheme (WELS).Proposal to re-use rainwater for toilet flushing and grey water for irrigation to maintain a water balance are some of the proposed features of the building • **Materials** — whole building life cycle assessment (LCA) will be conducted for the project building to calculate the building environmental impacts and carbon footprint. This process will help to reduce the environmental impact by helping us to select low embodied building material for the project.

GRAY PUKSAND