

STATEMENT OF ENVIRONMENTAL EFFECTS

WOLLONGONG PUBLIC SCHOOL



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SA6418
FINAL
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1. INTRODUCTION

This Statement of Environmental Effects (SEE) accompanies a Development Application (DA) to Wollongong City Council and is made on behalf of the NSW Department of Education (DoE). This application seeks consent for alternations and additions to the existing administration building and construction of a new learning building at the existing Wollongong Public School.

This DA seeks consent for the following works:

- Internal refurbishment of the existing administration building including a new entry canopy to replace the existing canopy;
- Construction of a new two-storey learning building with 11 studio spaces;
- Demolition of existing covered outdoor learning area (COLA) and construction of a new COLA;
- Demolition of existing toilet block (B00F);
- Demolition of walkways and entry cover to administration buildings;
- Refurbishment of toilet block (B00H);
- Relocation of existing rainwater tanks;
- Installation of new security fences and gates;
- New landscaping around the new learning building and administration buildings; and
- Removal of 19 trees.

This SEE includes a description of the site and proposed development and an assessment of the proposed development pursuant to section 79C of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and the *Environmental Planning and Assessment Regulation 2000* (the Regulation).

1.1. PROJECT CONTEXT

Wollongong Public School (the school) caters for children from Kindergarten to Year 6, with an existing equivalent capacity of 414 students. The school employs approximately 37 teaching and administration staff. The school is outgrowing the current facilities and needs to upgrade by providing new teaching, outdoor learning and administration spaces. The proposal will improve teaching facilities and the overall school experience, with the ultimate project goal to remove the existing three demountables from site (sought under a separate approval).

The upgraded facilities will cater for the current and projected population growth in the school catchment area. The school will provide collaborative teaching and learning spaces, maximise outdoor learning and provide core facilities for staff and students in line with *Education Facilities Standards & Guidelines* (EFSG). The proposed development will increase the school's capacity to approximately 575 students.

1.2. CROWN DEVELOPMENT APPLICATION STATUS

Part 4 Division 4 of the *Environmental Planning & Assessment Act 1979* (EP&A Act) allows for DAs to be made by, or on behalf of the Crown. Clause 226 of the Regulations prescribes that a public authority is the Crown for the purposes of Part 4 Division 4 of the EP&A Act. The DOE is a public authority and is therefore a Crown authority for the purposes of the DA and Clause 89 of the EP&A Act.

Further, under section 90 of the Act, Division 5 (Integrated Development) does not apply to a DA made by or on behalf of the Crown, other than development that requires a heritage approval. This DA does not require heritage approval.

1.3. DA DOCUMENTATION

The proposal is supported by the following information:

Table 1 – DA Documentation

Report/Plan Title	Prepared by	Appendices
Site Survey Plan	LTS Lockley	Appendix A
Architectural Plans	Hayball Architects	Appendix B
Acoustic Report	Acoustic Logic	Appendix C
Preliminary Tree Assessment Report	Paul Shearer Consulting	Appendix D
Accessibility Review	Morris-Goding Accessibility Consulting	Appendix E
BCA Report	Steve Watson & Partners	Appendix F
Contamination Report (Preliminary Site Investigation Report)	Environmental Investigation Services	Appendix G
Traffic Assessment	TDG	Appendix H
Heritage Impact Assessment	Urbis	Appendix I
Geotechnical Report	JK Geotechnics	Appendix J
Landscape Concept Plans	Tract	Appendix K
Stormwater Management Plan	WSP	Appendix L
Waste Management Plan <ul style="list-style-type: none"> • Operational Waste Plan; and • Demolition & Construction Waste Plan 	The MACK Group & Hayball Architects	Appendix M

1.4. STRUCTURE OF THIS REPORT

This report is structured as follows:

- **Section 2:** Description of the existing site conditions and surrounding area.
- **Section 3:** Description of the proposed development.
- **Section 4:** Assessment of relevant planning considerations arising from section 79C of the EP&A Act.
- **Section 5:** Assessment of the key planning impacts arising from the development.
- **Section 6:** Conclusion and summary of the proposed development.

2. SITE CONTEXT

2.1. SITE LOCATION AND DESCRIPTION

The site is known as Wollongong Public School, located 67A Church Street, Wollongong. The site has an area of 18,410m², with frontages to Church Street to the west, Smith Street to the north and Market Street to the south. Figure 1 highlights the location of the school. The site is legally described as:

- Lot 1 DP 61915;
- Lot 1 DP 781988;
- Lot 2 DP 781988;
- Lot 3 DP 781988;
- Lot 4 DP 781988;
- Lot 5 DP 781988;
- Lot 1 DP 307856;
- Lot 2 DP 307856;
- Lot 1 DP 340380
- Lot 6 DP 781988;
- Lot 7 DP 781988; and
- Lot 7 DP 152417.

Figure 1 – Site Location



Source: SIX Maps

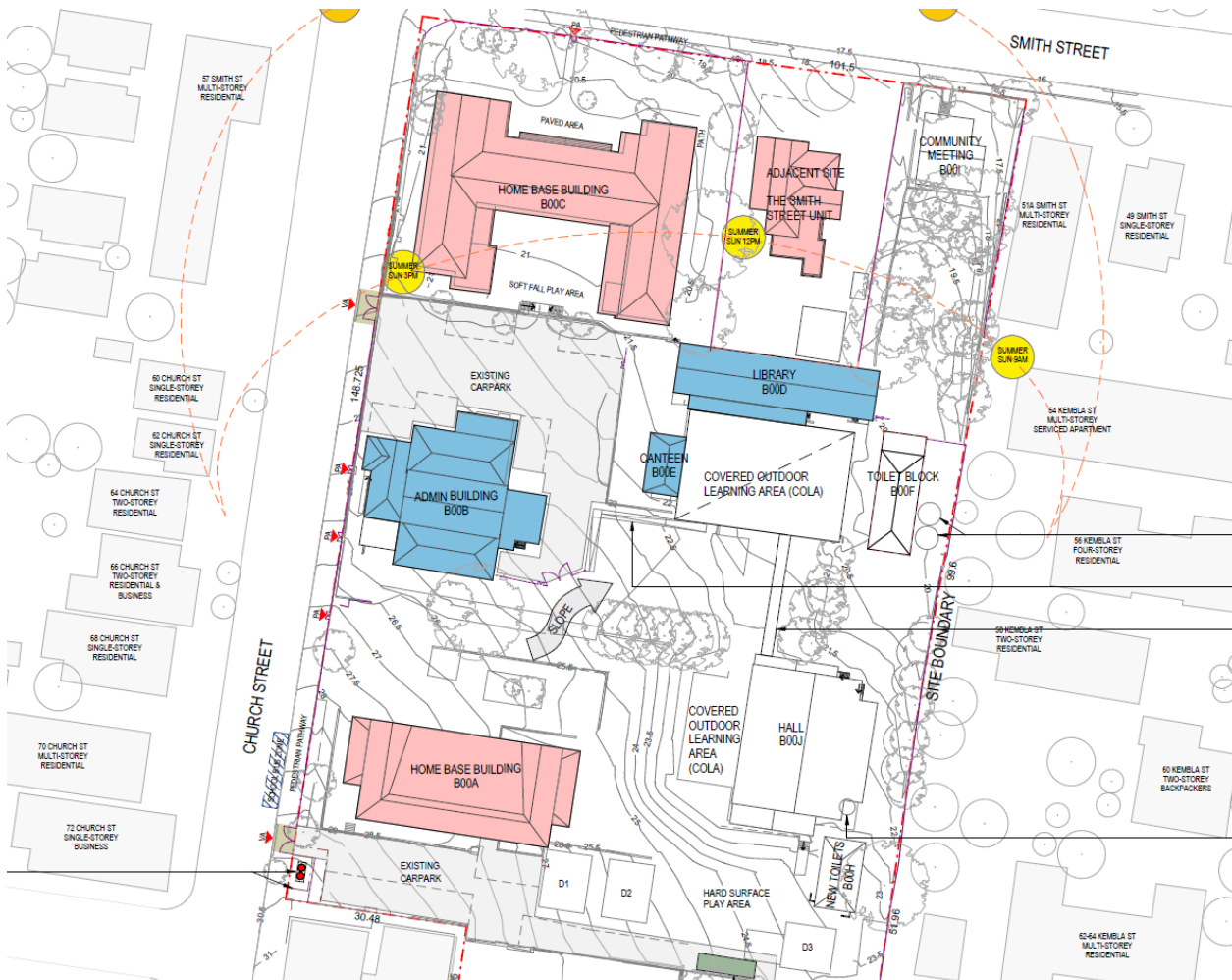
2.2. EXISTING DEVELOPMENT

The site contains an established public school with the following facilities:

- Library (Building B00D);
- Assembly Hall (Building B00J);
- Covered Outdoor Learning Areas surrounded by the classroom buildings;
- Established single and two storey school buildings (Building B00A and B002);
- Three classroom demountables;
- Basketball courts and grassed play areas;
- Community meeting space (Building B00I);
- Pedestrian access via Church Street and Smith Street; and
- Vehicular access via Church Street.

Figure 2 illustrates the existing facilities of the school. The school's current hours of operation are between 8:30am and 3:30pm.

Figure 2 – Existing School Facilities



Source: Hayball

2.3. ACCESS & PARKING

All vehicular access is available from Church Street to two on-site car parks via two separate driveways and gates.

Pedestrian access is provided from multiple main entrances on Church Street and a single secondary entrance along Smith Street. This will not change with the proposal.

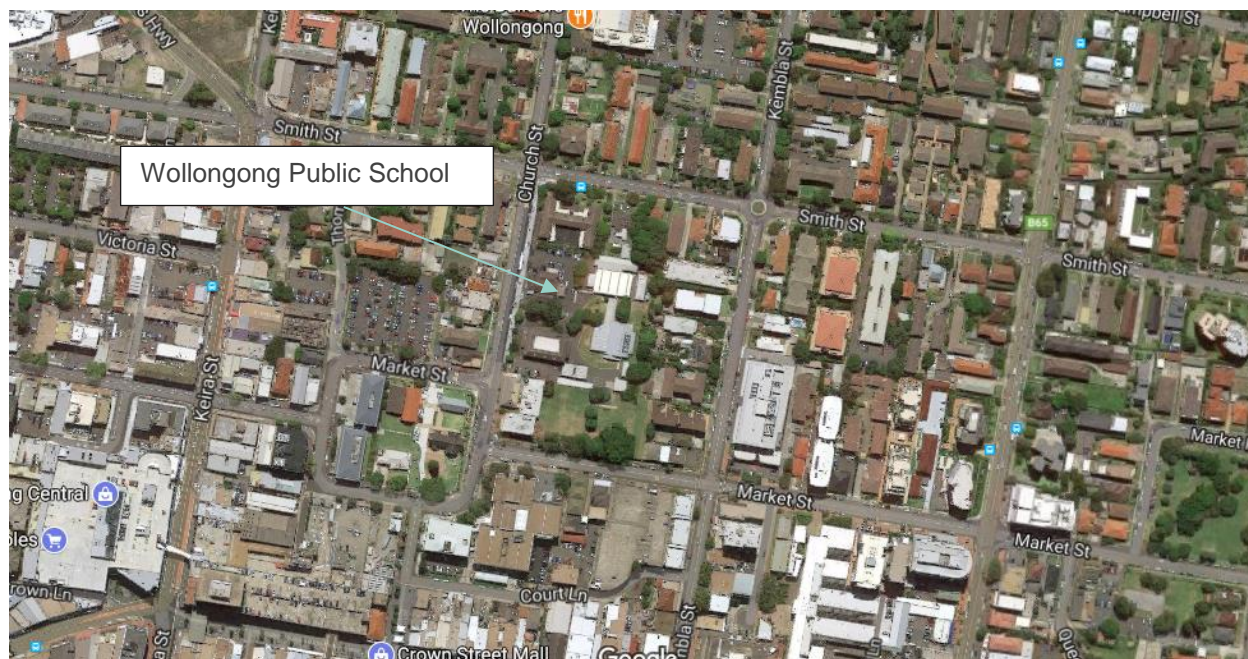
2.4. SURROUNDING DEVELOPMENT

The school is in the established central business district of Wollongong within the Wollongong Local Government Area, approximately 1.5km from Wollongong Beach and 1km from Wollongong Train Station.

The site is predominately surrounded by high density residential uses and commercial buildings. Development in the surrounding area is summarised as:

- North are residential neighbourhoods containing medium-to-high density dwellings.
- East are residential neighbourhoods containing high density dwellings and high density commercial buildings. Further east is Wollongong Beach.
- South is Wollongong's commercial core, containing medium-to-high density commercial buildings including Wollongong Local Court and Wollongong Police Station.
- West are residential neighbourhoods containing low-to-medium density dwellings. Further west is Kiera Street, a city core street of Wollongong with commercial and retail premises fronting the street.

Figure 3 – Broader Context



Source: Google Maps

3. PROPOSED DEVELOPMENT

3.1. OVERVIEW

This DA seeks consent for the following works:

- Demolition of existing covered outdoor learning area (COLA) and construction of a new COLA;
- Demolition of existing toilet block (B00F);
- Demolition of walkways and entry cover to administration buildings;
- Internal refurbishment of the existing administration building including a new entry canopy to replace the existing canopy;
- Construction of a new two-storey learning building with 11 studio spaces;
- Refurbishment of toilet block (B00H);
- Relocation of existing rainwater tanks;
- Installation of new security fences and gates;
- New landscaping around the new learning building and administration buildings; and
- Removal of 19 trees.

3.2. DEMOLITION

Numerous demolition works will be undertaken as part of this DA including the following elements:

- Toilet block (Building B00F);
- Walkways between the existing COLA and assembly hall;
- COLA; and
- The canopy above the administration building entry.

3.3. ADMINISTRATION REFURBISHMENT

The administration building (B00B) will be refurbished internally, reconfiguring the multipurpose room, clerical office, foyer, interview room and greater circulation space.

A new entry canopy will be provided off Church Street. The entry will have integrated seating and a new garden space. The canopy will replace the existing weathered canopy that will be demolished.

The school entry will be more prominent and encourage greater passive surveillance to Church Street.

3.4. LEARNING BUILDING

The learning building will be constructed along the eastern boundary. The building will be two-storeys with the aim to provide additional multifunctional spaces for learning. The learning building will provide future-focused learning spaces for primary school students and appropriate core facilities for staff and students in line with the *Education Facilities Standards and Guidelines (EFSG)*.

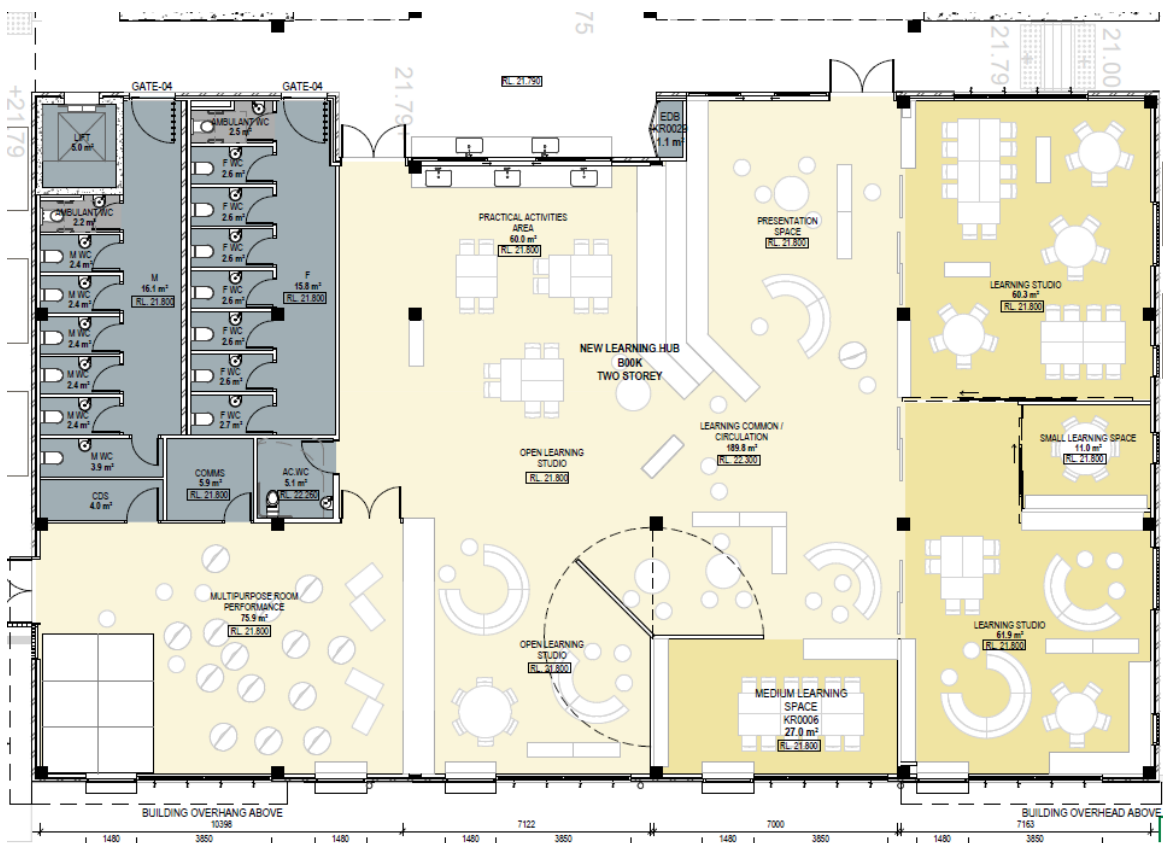
By level, the learning building will include:

- **Ground Level:** multipurpose room performance space, library, open learning studio, practical activities area, presentation space, learning common, medium learning space, learning studios, small learning space and amenities.
- **First Level:** multipurpose room performance space, open learning studio, practical activities area, presentation space, learning common, medium learning space, learning studios, small learning spaces, communication room and outdoor learning spaces.

The proposed redevelopment will increase the equivalent enrolment by 161 students from 414 to 576 students. The increase in students is expected to also increase the number of staff on-site by 23 full-time staff members, bringing the total staff number to 60.

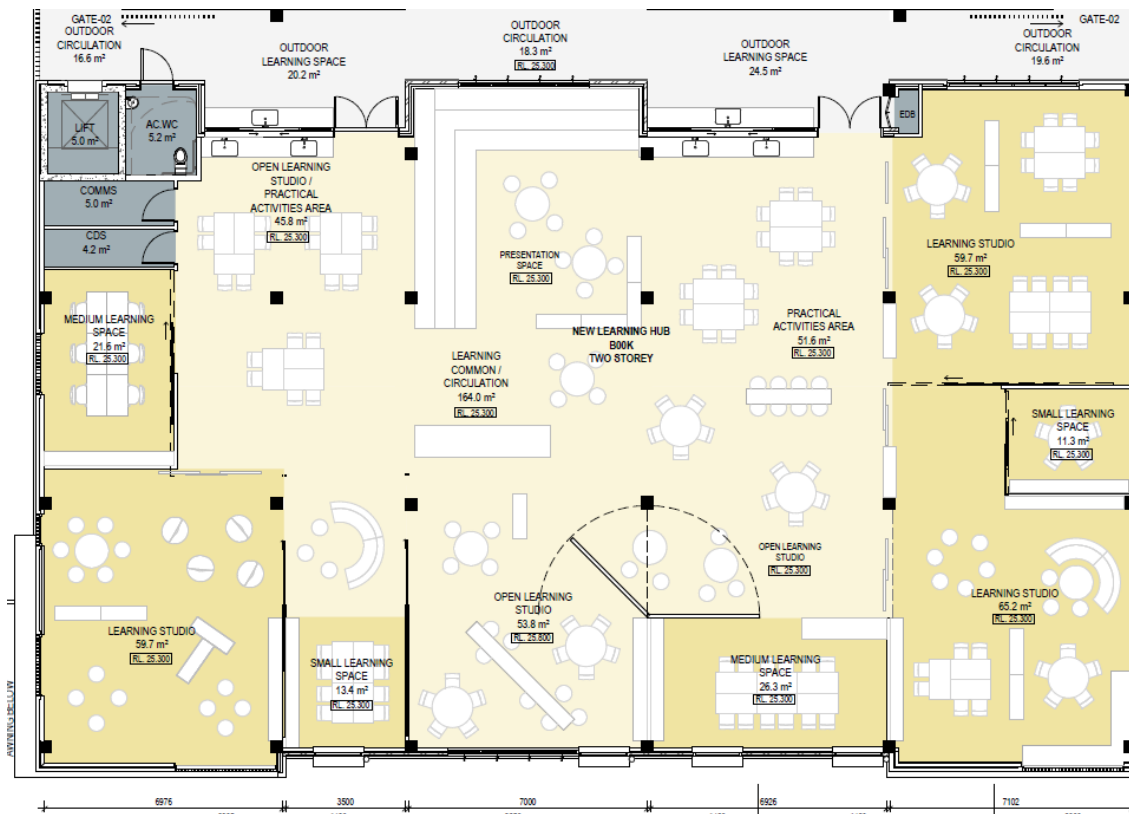
Figure 4 below illustrates the proposed ground floor plan of the education building.

Figure 4 – Learning Building ground floor plan



Source: Hayball

Figure 5 – Learning building first floor plan



Source: Hayball

3.5. COLA

The existing covered outdoor learning area (COLA) located in between the existing canteen (B00E) and toilet block (B00F) will be demolished to accommodate the new learning building.

A new COLA will be constructed along the western façade of the new learning building to provide opportunities for outdoor learning and cover during recess and lunch.

3.6. REFURBISHMENT OF TOILET BLOCK

The existing toilet block, Building B00H, will be internally refurbished. All internal partitions including doors will be demolished and reconfigured to make the cubicles more accessible and spacious.

3.7. RELOCATION OF EXISTING RAINWATER TANKS

There are two existing rainwater tanks, of approximately 20,000L each, currently located near the existing toilet block (Building B004). These two tanks are to be relocated and reused in accordance with the Department of Education's 'Environmental Education Policy for Schools.' The tanks will be relocated to the rear of the existing hall building (Building B00J).

A 150mm diameter overflow pipe will be provided from the tanks and connected to the inground drainage system.

3.8. INSTALLATION OF SECURITY FENCE & GATES

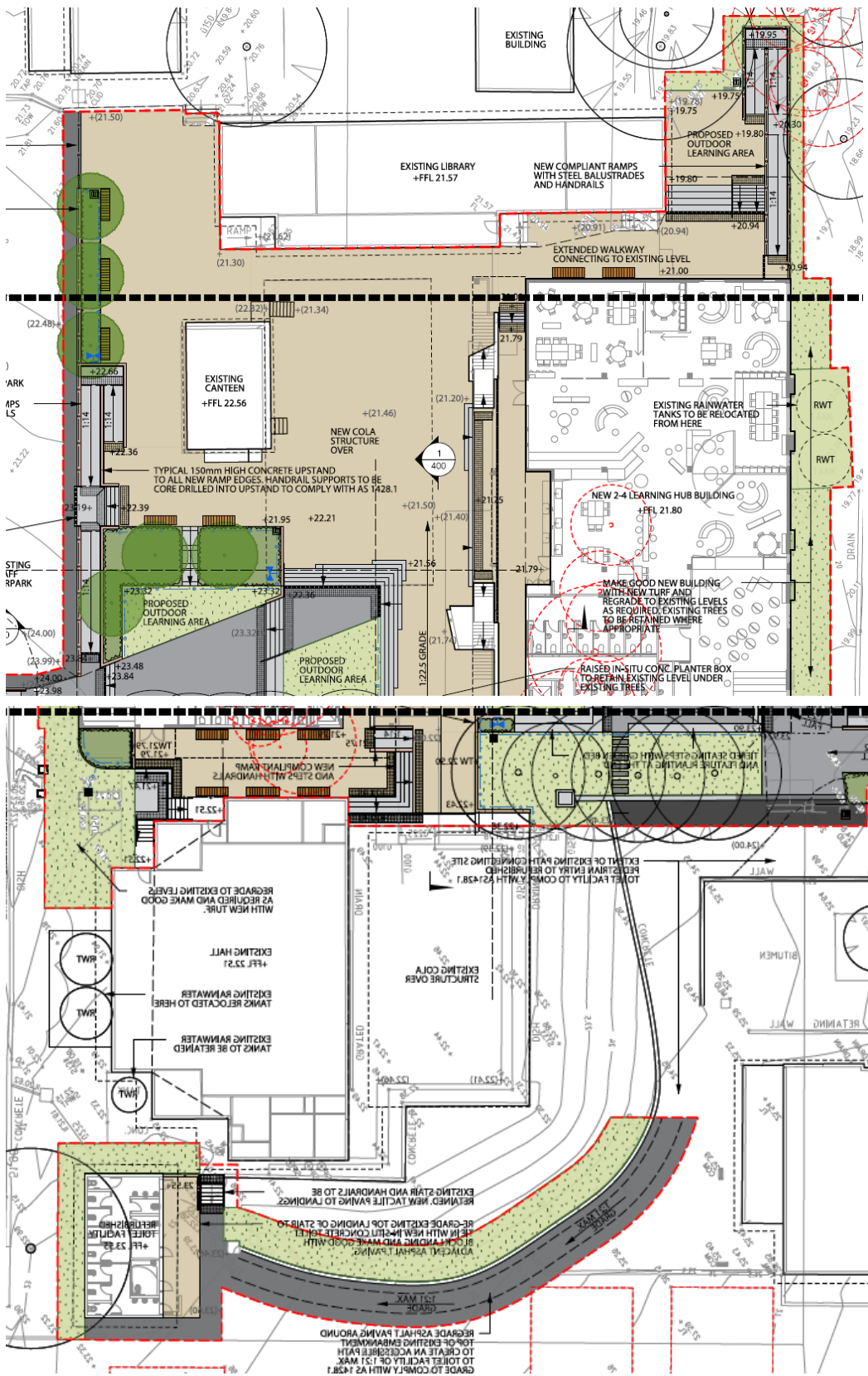
Installation of new security fence and gate to the south of the existing community meeting space (B00I) to separate the school use and community meeting space.

3.9. OPEN SPACE AND LANDSCAPE

New landscaped area and open space will be provided throughout the public school. The spaces will be provided to enhance the learning experience provided by the development. The proposed landscaping contains the following key elements:

- Low concrete retaining walls;
- Planter boxes;
- Planting beds with subsoil drainage;
- Tired seating steps with garden beds and feature planting;
- Paths connecting site pedestrian entry to refurbished toilet facilities;
- New turfed areas; and
- Regrade pavement around the top of the existing embankment to create an accessible path.

Figure 6 – Landscape Plan



Source: Hayball

3.10. WASTE

A Waste Management Plan has been prepared by MACK Group for the operation phase of the development and Hayball Architects for the demolition and construction phase and is included in **Appendix L**. The school will comply with the appropriate conditions of consent imposed in relation to waste management.

During construction, the site will be fenced to prevent illegal dumping. The contractor will manage all waste during construction.

Waste (general and recyclable/comingled waste) will be initially collected in small bins placed throughout the school. The caretaker will collect and transport this waste, on a regular basis, to the central waste enclosure, that is open, located on school grounds. It is expected that a contractor will collect the general waste twice per week, and recyclable/comingled waste once per week.

3.11. TREE REMOVAL

The proposal seeks consent to remove 19 trees within the school site, of which one is high retention value. A Preliminary Tree Assessment Report has been prepared by Paul Shearer Consulting and is included in **Appendix D**.

Remaining trees are viable for retention in the existing environment. The loss of vegetation is considered acceptable given the substantial benefits associated with the project and the extent of new planting proposed. The removal of the trees is offset by gardens and landscaped play space, approximately 6 new trees will be planted.

3.12. STORMWATER

A Stormwater Management Report and Plan have been prepared by WSP and are included at **Appendix K**. A stormwater management system has been developed to integrate with the existing system and accommodate the redevelopment works, as well as comply with Council's requirements.

On-site stormwater detention (OSD) will be provided to ensure that runoff is appropriately managed in accordance with the Wollongong DCP 2009. The proposed development provides 62m³ of OSD storage in accordance with Council's specification. The OSD volumes were ascertained in the DRAINS modelling program.

4. SECTION 79C(1) ASSESSMENT

The following assessment has been structured in accordance with section 79C(1) of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

4.1. STATE ENVIRONMENTAL PLANNING POLICY (STATE AND REGIONAL DEVELOPMENT) 2011

State Environmental Planning Policy (State and Regional Development) 2011 (SEPP State and Regional Development) provides the legislative planning framework for state and regionally significant development.

The SEPP (State and Regional Development) requires “Regional Development” as listed in Schedule 4A of the *Environmental Planning and Assessment Act 1979* to be referred to Southern Planning Panel for determination. The proposal constitutes “Regional Development” as the proposed development has a Capital Investment Value of more than \$5M and is a Crown Development.

4.2. STATE ENVIRONMENTAL PLANNING POLICY (EDUCATION ESTABLISHMENTS AND CHILD CARE FACILITIES) 2017

The NSW Department of Planning and Environment (DPE) released *State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017* (Education SEPP) in September 2017. The Education SEPP aims (amongst other things) to streamline the planning system for education and child care facilities.

4.2.1. Consultation with public authorities other than councils

Schedule 3 ‘Traffic generating development to be referred to the RTA’ stipulates that development for the purposes of an ‘educational establishment’ with 50 or more students and with access to any road will be referred to the RTA. A referral to the RMS will be undertaken in accordance with this provision.

4.2.2. Permissibility

Wollongong Local Environmental Plan 2009 (WLEP 2009) zones the site as R1 General Residential, and prohibits ‘Educational Establishments.’ However, under clause 33 of the Education SEPP, the R1 General Residential zone is listed as a ‘prescribed zone’ whereby development for the purpose of a school can be undertaken.

Clause 35(1) of the Education SEPP states that ‘*Development for the purpose of a school may be carried out by any person with development consent on land in a prescribed zone.*’ Thereby, the proposed development is permissible in the R1 General Residential zone.

4.2.3. Schedule 4 – Design Quality Principles

Schedule 4 of the Education SEPP outlines the design quality principles that are proposed for consideration. The proposal will respond to the design quality principles as follows:

- **Principle 1 – context, built form and landscape:** The proposal involves new built form elements and reuse of existing school buildings. The proposal will be in keeping with the existing built form on-site and is considered an appropriate scale for the surrounding residential context. A Landscaping Concept Plan has been provided in **Appendix K**.
- **Principle 2 – sustainable, efficient and durable:** The proposal adopts a range of ESD initiatives including solar panels and OSD. The proposal will also provide positive social and economic benefits for the local community particularly in terms of job creation and reducing pressure of surrounding public schools.
- **Principle 3 – accessible and inclusive:** The proposal is capable of complying with relevant provisions for accessibility, as outlined in the Accessibility Review attached at **Appendix E**.
- **Principle 4 – health and safety:** CPTED measures have been incorporated into the design and management of the site to ensure a high level of safety and security for students and staff. The alterations and additions to the administration building will improve passive surveillance to Church

Street. A range of open spaces and sports facilities will be available for students to encourage passive recreation. The construction of the new COLA will allow outdoor learning and undercover play during recess and lunch.

- **Principle 5 – amenity:** The proposal will contain high quality facilities, spaces and equipment for use by students and staff. These will provide students with an enhanced learning environment.
- **Principle 6 – whole of life, flexible and adaptive:** The proposal involves refurbishment of some existing school buildings and a new classroom building, which is designed to ensure flexibility and longevity.
- **Principle 7 – aesthetics:** The proposal will have high quality external finishes, which will be aesthetically pleasing. The proposal is an appropriate scale and form for the medium-to-high density residential and commercial context.

The proposal satisfies the relevant matters for consideration in the Education SEPP.

4.3. STATE ENVIRONMENTAL PLANNING POLICY NO. 55 – REMEDIATION OF LAND

State Environmental Planning Policy No 55—Remediation of Land (SEPP 55) provides a state-wide planning approach to the remediation of contaminated land. SEPP 55 requires the consent authority to consider whether the subject land is contaminated. If the land requires remediation to ensure that it is made suitable for a proposed use or zoning, Council must be satisfied that the land can and will be remediated before the land is used for that purpose.

A Preliminary Stage 1 Environmental Site Assessment and Preliminary Environment Site Investigation have been undertaken by Environmental Investigation Services (EIS) and are attached at **Appendix G**. The assessment objectives are to:

- Review the ESA Report;
- Design and implementation of a sampling, analysis and quality plan (SAQP), including sampling from three boreholes drill by JK Geotechnical.
- Assess the potential for site contamination;
- Assess the potential risk the contamination may pose to the site receptors; and
- Provide a preliminary waste classification for the off-site disposal of soil and comment on the suitability of the site for the proposed development.

Soil sampling was targeted at the three JK Geotechnical borehole locations in the centre-eastern site area. In addition, a sample of the ACM (asbestos containing materials – ACM) was collected from the southern site area. Fill was encountered at the subsurface in all three boreholes and extended to depths ranging from approximately 0.2m to 0.7m. The fill comprised silty sand and sandy gravel with inclusions of ash, slag, brick and terracotta fragments, igneous gravel and roots.

Asbestos was identified in fibre cement materials in samples HLF1. The extent of asbestos impact at the site has not been identified during the preliminary investigation. The identified asbestos material is in an area of the school site that does not form part of this DA. The Department's Asbestos Management Unit has been notified to manage the asbestos in accordance with the Department's Asbestos Management Plan.

A Hazard Materials Register is maintained by the Department which identifies all hazardous materials on the site. An Intrusive Hazard Survey has been prepared for the school to confirm the location of any hazardous building materials. There are no identified hazardous materials identified in any of the buildings being affected by the proposed development works.

Further investigation in the remaining development area is not considered to be necessary at this stage provided that all areas are inspected on the commencement of the development works (i.e. once the initial site preparation works commence).

EIS are of the opinion that the site can be made suitable for the proposed development subject to implementing the following recommendations.

- *A Stage 2 Investigation, including an asbestos quantification assessment, should be undertaken by a qualified environmental consultant to characterise the site contamination conditions;*
- *If deemed necessary, a remediation action plan (RAP) should be prepared to document the strategy required to reduce the potential risks associated with the site contamination to an acceptable level, and to render the site suitable for the proposed development and on-going use as a primary school; and*
- *An asbestos management plan should be prepared for the proposed development works.*

4.4. WOLLONGONG LOCAL ENVIRONMENTAL PLAN 2009

Wollongong Local Environmental Plan 2009 (WLEP 2009) is the primary planning instrument applying to the Wollongong Local Government Area (LGA).

Under the WLEP 2009 the site is zoned R1 General Residential and 'education establishments' are prohibited. However, under clause 33 of the Education SEPP, the R1 General Residential zone is listed as a 'prescribed zone' whereby development for the purpose of a school can be undertaken.

The objectives of the R1 zone are:

- *To provide for the housing needs of the community.*
- *To provide for a variety of housing types and densities.*
- *To enable other land uses that provide facilities or services to meet the day to day needs of residents.*

The proposal will provide important school infrastructure to accommodate the growing population of the schools' catchment area. The school maintains the existing education use and will enhance the school infrastructure through building and service upgrades.

The proposal will have no significant impacts on surrounding residential land uses, as the proposal provides adequate landscaping and design principles to protect residential privacy and amenity. The proposal is consistent with the objectives of the zone.

4.4.1. Height (clause 4.3)

The WLEP 2009 prescribes a 24m building height for the site. The proposed new learning building will have a height of 9.42m and complies.

4.4.2. Floor Space Ratio (clause 4.4)

The WLEP 2009 prescribes a 1.5:1 floor space ratio for the site. The proposal will increase the overall gross floor area by 1,085.71m² bringing the site total to 4,336.79m². The site will have a floor space ratio of 0.2:1 and complies.

4.4.3. Heritage (clause 5.10)

The Heritage Impact Statement (HIS) prepared by Urbis is provided at **Appendix H**. The northern portion of the school site is listed as a heritage item under Schedule 5 of the WLEP 2009.

The aspects of the site that are listed under Schedule 5 of the WLEP include:

- 5935: Wollongong Primary School – 67a Church Street, Wollongong; and
- Market Street Heritage Conservation Area.

The following heritage items are located in the vicinity of the site:

- 6392: School of Arts Building, 64 Smith Street;
- 6387: House, 60 Kembla Street; and
- 6389: Former Alowrie Terrace, 69-71 Church Street.

Figure 7 illustrates the location of the heritage items onsite and in the vicinity to the site, as per WLEP 2009 and **Figure 8** highlights the significant buildings on the site.

Figure 7 – Heritage Conservation



Source: WLEP 2009

Figure 8 – Significance map of the School site.



Source: SIX Maps & Urbis

The school has local historical, social, aesthetic and representative heritage significance. The following Statement of Significance is available for the Wollongong Public School on the NSW Office of Environment and Heritage inventory listing:

Wollongong Primary School is of significance for the local area for historical, social and reasons of representativeness. The site and buildings are associated with provision of public education since 1884 and have a wide appreciation in, and associations with, the local community. The complex includes a set of buildings, with a number of structures indicative of the standard design of educational facilities in NSW at the time of their creation. The main building (1884) and the bell tower (1885) are representative of the Victorian period school designs by architect William Edmund Kemp. The School demonstrates association with development of cultural values in Wollongong, and makes an important component in the townscape of Market Street Conservation Area. The school is a related place, in heritage terms, to the adjoining Headmaster's Residence.

The above statement focuses primarily on the 'main building' and associated bell tower, constructed in 1884 and 1885 respectively. A number of other buildings on site have also been identified, through a visual inspection, to have varying degrees of heritage significance and/or be aesthetically distinctive, and to contribute to the overall significance of the school site to varying degrees.

The proposed development update facilitates for the school community. All proposed works have been located away from areas of identified heritage significance. It is proposed that internal modifications and minor landscaping works are undertaken at the administration building. The proposed works are minor and would in no way detract from the established significance of the building or the site as a whole. The proposed demolition of the existing COLA and brick toilet block would have an acceptable level of impact on the site.

The scale, bulk, siting, materiality, and finishes of the new learning hub would be sympathetic to the heritage characteristics of the site. The proposed works would allow for the continued use of the site as a school, and would provide additional learning spaces and contemporary facilities for the school community.

The HIS recommends the proposed works for approval from a heritage perspective.

4.5. WOLLONGONG DEVELOPMENT CONTROL PLAN 2009

The relevant provisions of the DCP are considered below.

Table 2 – WCDP 2016 Compliance Table

Provision	Compliance	Comment
Chapter D1 – Character Statement		
3.34 Wollongong City Council	<p>The Wollongong City Centre development principles for this regional city centre include:</p> <ul style="list-style-type: none"> • Grow jobs in the heart of the city centre; • Encourage diverse precincts around the city centre; • Create a living city by encouraging mixed use development; • Develop a distinct role and character for the centre; • Ensure high quality design of buildings and public area; 	<p>The redevelopment of Wollongong Public School enhances the City Centre and is aligned with the desired future character for Wollongong CBD. The proposal will contribute to jobs in the heart of the city centre and increase the student capacity of the existing school, whilst respecting the heritage significance. Further, the new learning hub is architecturally designed to ensure high quality design and functionality to accommodate new age learning.</p>

Provision	Compliance	Comment
	<ul style="list-style-type: none"> • Enhance transport links to and from the centre; and • Improve the natural environment. 	
Chapter D13 – Wollongong City Centre Precinct		
2.2 Building to street alignment and street setbacks	Street setback – 4m minimum setback	The existing setback to Church Street will remain unchanged. The street setback is approximately 1.6m to the existing administration building.
2.10 Sun access planes	<p>Sun access plans established building heights around the following parks and community places:</p> <ul style="list-style-type: none"> • MacCabe Park on 21 June from 12 noon to 2pm. • Civic Square on 21 June from 11am to 3pm. • Market Square on 21 June from 12 noon to 2pm. • Pioneer Park on 21 June from 12 noon to 2pm. 	The proposal will not create any additional overshadowing to MacCabe Park, Civic Square, Market Square and Pioneer Park.
Chapter E1 – Access for People with Disability		
2.3 Building Code of Australia and Australian Standards AS1428.1	The proposal must contain the BCA and Australian Standards AS 1428 – design for Access and Mobility.	<p>The proposal is consistent with the BCA and Australian Standards. An Accessibility Review has been undertaken by Morris Goding Accessibility Consulting and is provided in Appendix E.</p> <p>A BCA Report has been undertaken by Steve Watson & Partners and is provided in Appendix F.</p>
Chapter E2 – Crime Prevention through Environmental Design		
3.0 General Issues	Consider the general CPTED requirements and principles including: lighting, natural surveillance and sightlines, signage, building design, landscaping, public open space and parks, community facilities and public amenities.	CPTED measures have been incorporated into the design and management of the site to ensure a high level of safety and security for students and staff. The alterations and additions to the administration building will

Provision	Compliance	Comment
		<p>improve passive surveillance to Church Street.</p> <p>A range of open spaces and sports facilities are available for students to encourage passive recreation, the proposal will not decrease the amount of open space. Further, the new COLA will provide opportunities for outdoor learning and play to improve the amenity of the school.</p>
Chapter E3 – Car Parking Access Servicing Loading Facilities		
<p>Schedule 1 – Car Parking, Bicycle, Motorcycle and Delivery Vehicle Parking Requirements</p>	<ul style="list-style-type: none"> • 1 car parking space per staff member plus 1 car parking space per 10 Year 12 students. • 1 bicycle space per 10 students above grade 4. • 1 motorcycle space per 25 car parking spaces. • Access for a large rigid vehicle. 	<p>A Traffic Assessment has been prepared by TDG and is included at Appendix H. The proposal will result in an increase of 161 students and 23 staff members on-site. Based on these rates, the proposed development generates the requirements for 23 additional car parking space.</p> <p>The car parking on-site will not change as a result of this DA. The on-site car park accommodates 31 parking spaces. The maximum parking demand recorded on-site was 29 parking spaces, leaving two vacant parking spaces.</p> <p>Section 5.4.1 of this SEE summaries the parking provisions and parking capacity surrounding the school.</p>
Chapter E11 – Heritage Conservation		
<p>20.8 Market Street Heritage Conservation Area</p>	<p>A proportion of the site is located in the Market Street Heritage Conservation Area. Any proposal affecting any heritage item or building/structure within the remainder of the heritage conservation area will require the lodgement of a DA and must be supported by a Heritage Impact Statement or Conservation Management Area.</p>	<p>The proposal will not affect the heritage item located onsite or adjacent to the school. A Heritage Impact Statement (HIS) has been prepared by Urbis and is included at Appendix I. The proposed new development has been designed to respect the heritage qualities of the site and would not detract from the setting or identified significance of the site. Section</p>

Provision	Compliance	Comment
		4.4.3 of this SEE summaries the HIS assessment and conclusions.
Chapter E15 – Water Sensitive Urban Design		
7.2 Rainwater Tanks	Rainwater tanks must be design and connected to provide water at least for site irrigation and toilet flushing.	<p>All three rainwater tanks will be retained on-site. Two of the three rainwater tanks are to be relocated and reused. The tanks will be relocated to the rear of the existing hall building (Building B00J).</p> <p>A 150mm diameter overflow pipe will be provided from the tanks and connected to the inground drainage system.</p>
Chapter E17 – Preservation and Management of trees and Vegetation		
7.1 Development Application – Lodgement Requirement	The Development Application must outline details of the proposed number, species, age and size of the trees to be removed.	A Preliminary Tree Assessment Report has been prepared by Paul Shearer Consulting at Appendix D . The proposal seeks consent to remove 19 trees within the school site. Remaining trees are viable for retention in the existing environment. The loss of vegetation is considered acceptable given the substantial benefits associated with the project and the extent of new planting proposed. The removal of the trees is offset by gardens and landscaped play space, approximately 6 substantial trees will be planted.

5. KEY IMPACTS ASSESSMENT

This section assesses the key impacts of the proposal that have not been addressed elsewhere in the SEE.

5.1. PRIVACY

To ensure that adjoin residents are provided with acceptable level of visual privacy, the following design measures have been incorporated:

- Altair glass louvres and aluminium louvres will be located on the eastern façade of the learning building windows to avoid direct or close views to private open space of adjoining dwellings.
- Provision of suitable screening structures including landscaping and solar fences to minimise overlooking, specifically along the eastern boundary adjacent to the proposed learning hub and existing hall.
- Retain the majority of large matures trees on site, to filter view to the site from adjoin residential properties.
- Provide a 5.13m setback from the learning building to the boundary.

Privacy impacts will therefore be minimised.

5.2. OVERSHADOWING

Shadow diagrams have been provided as part of the Architectural Plans attached at **Appendix B** and **Figure 9**. These illustrate the shadows which will be cast by the proposed development at the winter solstice (21 June), along with the shadows from the existing development at the same point in time. The overshadowing is summarised below:

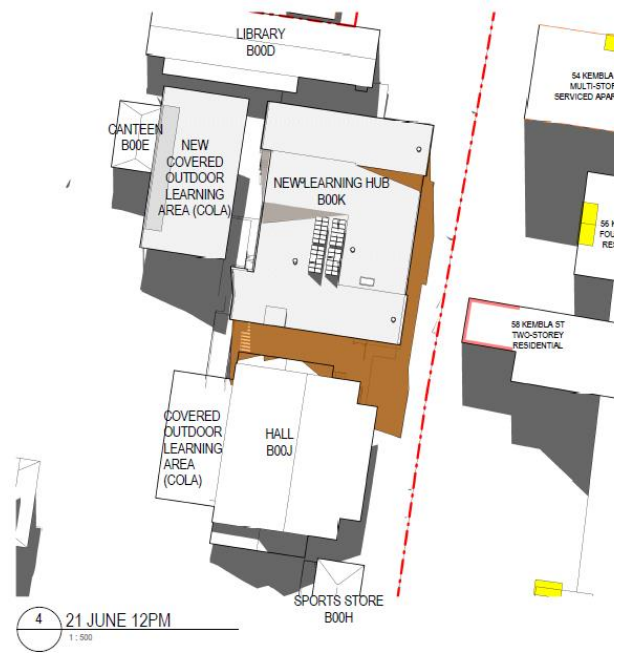
- At 9am, the learning hub overshadows the area between the proposed outdoor learning area and the hall. This area is predominately circulation space and open space. There is no overshadowing outside the school boundary.
- At midday, the learning hub overshadows a small portion of landscaping located in between the eastern boundary and learning hub as well as open space to the south of the learning hub adjacent to the existing hall. There is no overshadowing outside the school boundary.
- At 3pm, the shadow extends past the school boundary to high-density residential and commercial properties to the east. The proposal will not unduly impact private open space areas of adjacent residential properties, maintaining at least 3 hours of direct sunlight. A proportion of 58 Kembla Street will be overshadowed at 3pm. The windows of 58 Kembla Street are located at a high level; thereby, existing private open space and living areas will not be unduly impacted. This property will still have adequate solar access between 9am and 2pm.

The proposal will not unduly impact adjacent residential property's ability to receive at least 3 hours of sunlight between 9am and 3pm at the winter solstice. There is no impact at 9am and midday. Based on this, the proposed shadow impacts are acceptable.

Figure 9 – Shadow Diagrams



Picture 1 – 21 June 9am
Source: Hayball







Picture 2 – 21 June 12pm
Source: Hayball



Picture 3 – 21 June 3pm
Source: Hayball

LEGEND

-  EXISTING SHADOW
-  PROPOSED WORK SHADOW
-  PRIVATE OPEN SPACE
-  WINDOW OF EXISTING ADJACENT DWELLING (HIGH LEVEL)

5.3. ACOUSTIC

An Acoustic Report has been prepared by Acoustic Logic and is included in **Appendix C**. The surrounding area includes residential receivers to the north, east and west. Both long term unattended noise logging and attended noise measurements were conducted to quantify the existing acoustic environment at the site.

Table 4 shows the background noise level. The intrusiveness criteria permit noise generation is to be no more than 5dB(A) above existing background noise levels. Noise sources will include internal area/classrooms and mechanical service. Both the Intrusiveness and Amenity criteria (as set out below) must be complied with.

Table 3 – Long Term Noise Logging

Time of Day	Background Noise Level – dB(A)L ₉₀	Intrusiveness Noise Objectives dB(A) Leq (15mins) (Background + 5dB)
Day (7am-6pm)	43	48
Evening (6pm-10pm)	39	44

To achieve the Intrusiveness Noise Objectives and EPA Amenity Criteria, the following recommendations have been made by Acoustic Logic:

- *Detailed acoustic review of all external plant items should be undertaken following equipment selection and duct layout design. All plant items will be capable of meeting noise emissions requirements of Council and the EPA Industrial Noise Policy, with detailed design to be done at CC stage.*
- *External speakers for PA and bells should be directional facing away from residential receivers.*
- *Windows to the school buildings should be constructed of minimum 6.38mm laminated glass and should be capable of being closed during period of high noise generation.*
- *Minimum 6mm Float glazing with acoustic seals around perimeter is required, with minimum Rw of 28.*

Acoustic Logic have assessed that the proposal is considered acoustically acceptable and will not negatively impact on the acoustic amenity of the surrounding receivers. The recommendations of the acoustic report should be included in the conditions of consent.

5.4. PARKING, ACCESS & TRAFFIC

A Traffic Assessment has been prepared by TDG and is included in **Appendix H**.

5.4.1. Parking

Car Parking

In accordance with the Wollongong Development Control Plan 2009 'Educational Establishments' are required to have a minimum of 1 space per staff member. The proposal will result in an increase of 161 students and 23 staff members on-site. Based on these rates, the proposed development generates an additional requirements for 23 additional car parking space. The DCP requires 60 parking space, as there will be a total of 60 staff as a result of the proposal.

The car parking on-site will not change as a result of this development application. The on-site car park accommodates 31 parking spaces. The maximum parking demand recorded on-site was 29 parking spaces, leaving two vacant parking spaces. There will be a 29 parking space shortfall.

TDG also undertook a parking survey of the surrounding street network. The survey revealed that the parking demand slowly increases during the morning, peaking at about 10:00am, and then begins to decrease in the afternoon from around 3:00pm. Overall, the parking demand in the vicinity of the school is very high during peak school times. Notwithstanding this, there is some surplus capacity within the surrounding area to accommodate an increase in car parking during peak school times.

The shortfall of car parking is considered acceptable and aligned with the Department of Educations' guidelines, namely the *Educational Facilities Standards and Guidelines* (EFSG). The EFSG states that "In

order to ensure that the available site area for teaching learning and play is maximised, to enable community use and to encourage the use of sustainable means of transport to and from the school, on school site parking should be kept to a minimum”

In addition to the EFSG, Clause 4.8 of the Motor Vehicle Policy for NSW Government Agencies (April 2014) states ‘For 100% private use vehicles (whether owned, novated or 100% Departmental or Agency packaged) are not entitled to a parking space on Government leased or owned premises’

Therefore, the car parking on-site for staff is in line with the relevant policies and guidelines outlined above. TDG recommend that a Green Travel Plan be prepared prior to occupation of the new learning hub.

Bicycle Parking

The Wollongong Development Control Plan 2009, outlines the bicycle parking requirement for education facilities as 1 bicycle space per 10 students above grade 4. The increase in students will be split over six grades, resulting in an increase of approximately 53 students above Grade 4. Therefore, the bicycle parking requirement is five spaces. Additional bicycle parking will be provided adjacent to the new toilet block (B00H). This is compliant with the DCP.

5.4.2. Access

The development proposes no changes to the existing access to the site. All vehicular access is available from Church Street to the onsite car park via a driveway and gates. Pedestrian access is provided from multiple main entrances on Church Street and a secondary entrance along Smith Street.

In terms of the site accessibility, there are a number of public bus stops within a 400m radius of the site, which is readily walkable. The school buses drop-off and pick-up students along Church Street. The nearest train station (Wollongong Train Station) is approximately 1.1km distance from the site. Wollongong Train Station provides connections to Sydney CBD and Kiama.

5.4.3. Traffic

The proposal will result in an increase in capacity of the school by 161 students and 23 staff. The Travel Mode Survey revealed that all but one staff members currently drives to school. Therefore, the existing trip generation by staff during the morning and evening peak periods is approximately 36 vehicles. These movement will be inbound during the morning and evening peak periods is approximately 36 vehicles.

The expected increase in parent car parking on-street is 75 vehicles. Each of the vehicles will generate one inbound and one outbound movement during each of the morning and afternoon peak periods. The proposal will also marginally increase inbound and outbound movements outside of the peak periods.

Table 4 illustrated the expected increase in traffic generated by the development.

Table 4 – Expected Traffic Generation

	Morning Peak	Afternoon Peak
Inbound Trips	87	75
Outbound Trips	75	87
Total Trips	162	162

The trips are expected to be distributed between Church Street, Smith Street and Market Street where parents currently choose to drop-off and pick-up their children. TDG has assessed the road network as being able to accommodate the increase in traffic in a safe manner, without any significant change to the operating performance of the local road network or intersections.

5.5. SUITABILITY OF THE SITE

The site is suitable for the development for the following reasons:

- The site is already in use by Wollongong Public School, and is permissible in the R1 General Residential zone.
- The road network is capable of accommodating the increase in traffic in a safe manner, within any significant change to the operating performance of the local road network.
- The site can be made suitable for the proposed development on contamination grounds.
- The site is capable of accommodating upgraded education buildings with no undue impacts on surrounding residential properties and heritage buildings.
- Residential amenity and privacy to adjacent properties will be respected through the use of the landscaping and generous setbacks.
- The site is in an area of high population growth and development. The redevelopment will cater for the growth in population.

Accordingly, the site is considered suitable for the development for education purposes.

5.6. THE PUBLIC INTEREST

The proposal is in the public interest because:

- The proposed works are permissible under the WLEP 2009.
- The proposal has been prepared having regard to Council's planning policies and generally complies with the aims and objectives of the control for the site.
- The proposal is suitable for the site as evidenced by the site analysis and various site investigations, including geotechnical, site contamination and heritage.
- Subject to the various mitigation measures recommended by the specialist consultants, the proposal does not have any unacceptable impacts on adjoin or surrounding properties or the public domain.
- The proposal improves the education facilities at Wollongong Public School.
- The site is well serviced by public transport and walking and cycling routes. The proposal encourages non-private vehicle options to access the site.
- The scale of the new building is consistent with surrounding development and is well below the height and FSR standard.
- The proposal will result in a high quality educational environmental for staff and students that:
 - Retains ample open space for students and improves the amenity of existing play areas via the construction of a new COLA and landscaping;
 - Enables an excellent academic programme; and
 - Provides an inclusive, supportive and secure pastoral environment.

The proposal is an orderly development of the land and is in the public interest.

6. CONCLUSION

This SEE accompanies a DA which seeks consent to redevelop Wollongong Public School. The proposal should be supported by Council for the following reasons:

- It provides high quality teaching and learning spaces to benefit students and teachers;
- The site is suitable for the proposed development and it is entirely in the public interest;
- It improves education facilities on land zoned for this purpose;
- The proposed school buildings are future focused to enable a collaborative teaching and learning environment rather than the traditional classroom setting Wollongong currently adopts;
- It provides additional students spaces for the growing population of Wollongong and surrounding suburbs, the redevelopment responses to population demand; and
- The proposal enhances existing recreational space by improving the amenity through landscaping and providing covered outdoor learning and play spaces. The proposal will not encroach on existing recreational space for the school, leaving a large expanse of play area to the south.

The proposed development is therefore in the public interest and should be approved by Council.

DISCLAIMER

This report is dated 17 October 2017 and incorporates information and events up to that date only and excludes any information arising, or event occurring, after that date which may affect the validity of Urbis Pty Ltd's (**Urbis**) opinion in this report. Urbis prepared this report on the instructions, and for the benefit only, of NSW Department of Education (**Instructing Party**) for the purpose of Statement of Environmental Effects (**Purpose**) and not for any other purpose or use. To the extent permitted by applicable law, Urbis expressly disclaims all liability, whether direct or indirect, to the Instructing Party which relies or purports to rely on this report for any purpose other than the Purpose, and to any other person which relies or purports to rely on this report for any purpose whatsoever (including the Purpose).

In preparing this report, Urbis was required to make judgements which may be affected by unforeseen future events, the likelihood and effects of which are not capable of precise assessment.

All surveys, forecasts, projections and recommendations contained in or associated with this report are made in good faith and on the basis of information supplied to Urbis at the date of this report, and upon which Urbis relied. Achievement of the projections and budgets set out in this report will depend, among other things, on the actions of others over which Urbis has no control.

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Whilst Urbis has made all reasonable inquiries it believes necessary in preparing this report, it is not responsible for determining the completeness or accuracy of information provided to it. Urbis (including its officers and personnel) is not liable for any errors or omissions, including in information provided by the Instructing Party or another person or upon which Urbis relies, provided that such errors or omissions are not made by Urbis recklessly or in bad faith.

This report has been prepared with due care and diligence by Urbis and the statements and opinions given by Urbis in this report are given in good faith and in the reasonable belief that they are correct and not misleading, subject to the limitations above.

APPENDIX A SITE SURVEY PLAN

APPENDIX B

ARCHITECTURAL PLANS

APPENDIX C

ACOUSTIC REPORT

**APPENDIX D PRELIMINARY TREE ASSESSMENT
REPORT**

APPENDIX E

ACCESSIBILITY REVIEW

APPENDIX F

BCA REPORT

APPENDIX G

CONTAMINATION REPORT

APPENDIX H

TRAFFIC ASSESSMENT

APPENDIX I HERITAGE IMPACT ASSESSMENT

APPENDIX J

GEOTECHNICAL REPORT

APPENDIX K

LANDSCAPE CONCEPT PLANS

APPENDIX L STORMWATER MANAGEMENT PLAN

APPENDIX M WASTE MANAGEMENT PLAN



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3 May 2018

The General Manager
Wollongong City Council
Locked Bag 8821
WOLLONGONG NSW 2500

Attention: Rebecca Walsh

Dear Rebecca,

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION - WOLLONGONG PUBLIC SCHOOL (DA-2017/1553)

This submission has been prepared on behalf of the Department of Education (the applicant) for Development Application DA-2017/1553, which is currently before Wollongong City Council (the Council). This submission responds to matters raised in Council's request for additional information letter dated 7 March 2018.

Key issues raised by Council relate to traffic, parking, stormwater, landscaping, contamination, waste, hazardous materials and design principles of the Education SEPP. The following documents have been prepared to support this response:


- Wollongong City Council's Lodgement of Additional Information Form; [Appendix A]
- Amended Architectural Plans prepared by Hayball; [Appendix B]
- Amended Landscape Plans prepared by Tract; [Appendix C]
- Amended Arboricultural Impact Assessment prepared by Paul Shearer Consulting; [Appendix D]
- Accessibility Advice prepared by Morris Goding Accessibility Consultancy; [Appendix E]
- Intrusive Hazmat Survey prepared by WSP; [Appendix F]
- Amended Civil/Stormwater Plans prepared by WSP; [Appendix G]
- Green Travel Plan prepared by TDG; [Appendix H]
- Amended Traffic Assessment Report prepared by TDG; [Appendix I]
- Letter from Wollongong Public School regarding pick up/drop off zones; [Appendix J]
- Letter from Wollongong Public School regarding staffing numbers; [Appendix K]

Table 1 provides a response to the issues raised by Council and a response.

Table 1 – Response to RFI

Submission	Response
Traffic and Parking	
<p>Traffic</p> <p>Concern has been raised by Council's Traffic Division, Roads and Maritime Services and Wollongong Police over the existing traffic problems with the school, particularly the drop-off and pick-up zone on Church Street and the impacts the increased student numbers will have on these existing issues.</p>	<p>It is proposed to establish a new drop-off /pick-up zone along the southern side of Smith Street between Church Street and Kembla Street. The commitment to implementation of this new drop-off / pick-up area is outlined in a letter provided by the school, dated 16 March 2018. The zone would be located along the northern boundary of the school, allowing easy access for students.</p> <p>The drop-off / pick-up zone will provide 'No Stopping' signage from the north-eastern corner of the site to the bus stop adjacent to the north-western corner of the site. This area is shown within the amended architectural plans prepared by Hayball. The time restriction will apply from 8:00am to 9:30am and from 2:30pm to 4:00pm, and will allow parents to drop-off and pick-up their children in this area during peak school times. This signage reflects the same restrictions adopted within the existing drop-off / pick-up zone along Church Street.</p> <p>The drop-off / pick-up area will accommodate 12-13 vehicles and mitigate the impacts of the increase in parking demand associated with the increase in students at the school. In addition to the new parking zone, a Green Travel Plan has been prepared by TDG for the school. Feedback from the school community, as part of the preparation of the Green Travel Plan, indicates a desire to adopt alternative transport modes in the event that they are made more readily available and/or safer. A range of actions have been developed, supporting and encouraging initiatives to build on the travel choices of students to encourage more staff to consider active transport. There are also actions related to engaging with Council and the local bus department to promote safe, attractive and convenient walking, cycling and public transport routes to the school.</p> <p>The Green Travel Plan is expected to reduce the reliance of private vehicle use and ultimately reduce the parking demand of the school as students and staff choose to adopt alternative travel modes.</p>

Submission	Response
<p>Parking</p> <p>The proposed increase in staff and students would require 23 car parking spaces.</p>	<p>The school has clarified the proposed expected increase in staff numbers, which is outlined within their letter dated 16 March 2018. There will be an increase of eight staff, including: four full-time and two part-time teachers, and two additional admin staff.</p> <p>The Traffic Report has also been updated, which indicates the revised staff numbers will result in an off-site parking demand of six spaces (not 21).</p> <p>The adoption of the Green Travel Plan will result in a reduced parking demand for staff, and it is expected that the entire staff parking demand will be able to be accommodated on-site. In the unlikely event that there is an overflow parking demand there is some spare parking in the vicinity of the site to accommodate an increase in parking demand, including nearby public car parks.</p> <p>The staff parking demand being accommodated on-site following the adoption of the Green Travel Plan.</p>
<p>Stormwater</p>	
<p>Lot Consolidation</p> <p>Based on the site encompassing multiple lots and the stormwater design proposing to traverse multiple lots, easements are required over parts of downstream lots to allow the development site to drain in the same direction as it would have in the pre-development state or lot consolidation is required to allow the stormwater drainage system to fall within a single lot.</p>	<p>The site was considered one large consolidated lot in the design of the stormwater, individual lots were not considered as the majority of flow through the lots is overland and difficulties in the conveyance of overland flow would be encountered. Easements are therefore not necessary.</p> <p>It is expected that a condition of consent will be imposed requiring lot consolidation.</p>

Submission	Response
<p>Stormwater Pits</p> <p>The stormwater design proposes to connect to an existing stormwater pit in Smith St, whilst it was noted via a site inspection there is a stormwater inlet at the proposed discharge location Councils mapping system has no records of a stormwater line in that location.</p>	<p>The attached photo shows a kerb inlet pit in this location. The site survey shows 2 x 300mm diameter pipes leading in the direction of this pit.</p> 
<p>OSD</p> <p>It appears that the OSD system has not been designed in accordance with the OSD requirements of section 12 of Chapter E14 of the Wollongong DCP 2009.</p>	<p>OSD has been designed in DRAINS software to limit post-development discharge to pre-development limits in accordance with the DCP. OSD tank is clearly shown on civil/stormwater drawings prepared by WSP. DRAINS model has been provided for reference.</p>
<p>OSD</p> <p>With respect to the above, every effort should be made to ensure areas proposed to remain unchanged as a result of the development are not draining to the OSD system in accordance with section 12.1.3 (2) (a) of Chapter E14.</p>	<p>This is difficult to achieve as the proposed building lies within the overland flow path of the site and existing stormwater will be demolished as part of the proposed works. A catchment plan has been prepared by WSP to assist in the understanding of the calculations that were undertaken.</p>

Submission	Response
<p>Impervious Areas</p> <p>The net increase in impervious area as a result of this development is unclear; plans must be provided clearly identifying the pre and post development impervious area.</p>	<p>Refer to the amended catchment plans prepared by WSP.</p>
<p>Proposed Swale</p> <p>No details were provided of the proposed swale along the eastern side of the development.</p>	<p>The swale is trapezoidal in shape, 1.7m wide and 0.2m deep. A section has been added to the plan for clarity.</p>
<p>Swale and Landscape Plan</p> <p>With respect to the above, the Landscape plan does not identify works within the area of the proposed swale although it is identified as a 'landscaped swale'. In this regard the, the landscape</p>	<p>The Landscape Plans prepared by Tract have been amended to identify and reflect the works within the area of the proposed swale.</p>
<p>Trees and Landscape Design</p>	
<p>Arborist</p> <p>The applicant is to submit an arborist report that includes all trees that will be impacted by the development</p>	<p>An Arborist Impact Assessment (AIA) has been prepared to identify and address all trees that will be impacted by the development. The proposed development of the school will involve retainment of 29 existing trees and the removal of 24 trees in total. In addition, a Preliminary Tree Assessment Report was prepared on the 5th June 2017 and should be read in conjunction with the AIA.</p>
<p>Existing Trees on Landscape Plan</p> <p>The landscape concept plan must show all existing trees on site accurately plotted, species</p>	<p>The Landscape Concept Plan has been amended to clearly show the location of all existing trees on the site. The trees are also identified by species and numbered to correspond with the Arborist Impact Assessment. The Landscape Plans also clearly show which trees are to be retained or removed as part of this application. A total of 18 compensatory trees will be planted as part of tree replenishment for the site. Please refer to the</p>

Submission	Response
identified and numbered to correspond with the arborist report.	amended Landscape Plans prepared by Tract and Arborist Impact Assessment prepared by Paul Shearer Consulting.
<p>Drainage</p> <p>The Landscape concept plan must indicate all proposed drainage infrastructure.</p>	<p>The Landscape Concept Plan has been amended to incorporate the proposed location of drainage infrastructure. Please refer to amended Landscape Plans prepared by Tract.</p>
<p>Arborist Report</p> <p>The applicant is to submit an arborist report.</p>	<p>The Arborist Impact Assessment prepared by Paul Shearer Consulting addresses all the requirements listed.</p> <p>Paul Shearer is qualified and eligible for membership as a 'Consulting Arborist.'</p>
<p>Tree numbers</p> <p>All documentation is to include tree numbers that corresponds with the arborist report, including but not limited to the landscape plan, concept drainage plan, architectural plan, engineering plan, cut and fill plans.</p>	<p>All documentation provided includes tree numbers that correspond with the Arborist Impact Assessment prepared by Paul Shearer Consulting.</p>
Environmental issues	
<p>Stage 2 Site Investigation</p> <p>A Stage 2 – Detailed Site Investigation Report, including an Asbestos Quantification Assessment, is required to be prepared to determine the degree and extent of any contamination [within the soil strata, fill material and groundwater (if any)].</p>	<p>A Stage 2 – Detailed Site Investigation Report, including an Asbestos Quantification Assessment, will be submitted separately in mid-May as agreed to by Council on the 3rd April 2018. EIS have advised they are targeting the Site Contamination Report to be completed by 18th May.</p> <p>Regarding the above, Council stated that:</p> <p><i>'A further extension for the contamination report appears reasonable in the circumstances'.</i></p>
<p>Waste Minimisation</p> <p>The Site Waste Minimisation and Management Plan and Site Plan</p>	<p>Noted.</p> <p>A Site Waste Minimisation and Management Plan and Site Plan Cut and Fill will be provided to Council if required, subject to the</p>

Submission	Response
Cut and Fill may require updating depending on the results of the Stage 2 – Detailed Site Investigation Report	results of the Stage 2 – Detailed Site Investigation Report expected in mid-May.
<p>Hazmat Survey</p> <p>An Intrusive Hazmat Survey has been submitted with the DA. ACM, lead paint, synthetic mineral fibres (SMF) and polychlorinated biphenyls (PCBs) were identified in building B (administration building), building F (toilet block) and building H (toilet block). All three buildings will be affected by the proposed works. The SEE states that no hazardous materials were identified in any of the buildings being affected by the proposed works. This statement is incorrect and needs to be updated. The Intrusive Hazmat Survey needs to be updated to include management measures for PCBs.</p>	<p>Urbis notes the error in our SEE and acknowledges that the Intrusive Hazmat Survey prepared with the DA identified hazardous materials within buildings affected by the proposed works. The Intrusive Hazmat Survey has been amended to provide recommendations and measures for managing Asbestos containing materials, lead paints, PCBs and SMF containing materials.</p> <p>With regards to PCBs, the following management guidelines are provided:</p> <ul style="list-style-type: none"> - Material containing less than 50g of PCBs at a concentration of 50mg/kg shall, at the end of its useful life, be disposed of as scheduled PCB waste at the end of its useful life. - Waste containing less than 50g of PCBs at a concentration of 50mg/kg or greater shall be disposed of as scheduled PCB waste. - Materials containing PCBs at a concentration greater than 2 mg/kg and up to 50 mg/kg shall, at the end of its useful life, be disposed of by a method approved by the agency in accordance with Australian and New Zealand Environmental Conservation Council 'Polychlorinated Biphenyls Management Plan' November 1996 which outlines the national strategy for the management of PCBs.
SEPP (Education Establishments and Child Care Facilities) 2017	
<p>a. Clause 31(5) of the SEPP states:</p> <p>A school (including any part of its site and any of its facilities) may be used, with development consent,</p>	<p>The community currently uses the school facilities (hall/classrooms/library/playground) for recreational uses as well as for language, art and sporting classes. The School Principal and clerical staff manage access, hiring agreements</p>

Submission	Response
<p>for the physical, social, cultural or intellectual development or welfare of the community, whether or not it is a commercial use of the establishment. This clause feeds into Design Principle 3: accessible and inclusive which states: Schools should actively seek opportunities for their facilities to be shared with the community and cater for activities outside of school hours. Information addressing how the proposal meets the above requirements is required.</p>	<p>and insurances. The facilities can only be used by request however it is intended that community use will be on-going.</p> <p>The school facilities will be operated in accordance with the NSW Department of Education’s policy for <i>Community Use of School Facilities</i> (Policy). The Policy encourages schools to make their facilities available for use by the community because of the mutual benefits, including:</p> <ul style="list-style-type: none"> • Access to services to support families and communities. • Enhanced co-operation and goodwill between the community. • The provision of additional extracurricular learning opportunities. • Better access for communities and schools to state-of-the-art facilities. • Opportunities for parents and the broader community to become better informed about and participate in the school’s operation and activities. • More effective use of valuable school facilities; and • Opportunities for the community to play a positive part in school security through out-of-hours use of the facilities. <p>The Policy is implemented through the Community Use of School Facilities Implementation Procedures (Procedures). The Procedures outline direction and requirements for schools when considering community use of facilities to ensure the use is regulated. Development approval for the use of the school facilities is not required under the Education SEPP 2017 and can continue to function as per the current arrangement.</p>
<p>b. Design Principle 3 - Accessible and inclusive</p> <p>Design Principle 3 requires new school development to be</p>	<p>The proposal does not include any refurbishment scope for the existing canteen. Under the provisions of the Disability (Access to Premises – Buildings) Standard 2010 Part 2.1 (4) there is no</p>

Submission	Response
<p>accessible and inclusive. One anomaly with the proposal is the elevated canteen floor level and stair access. Given the new building, COLA and landscape works surround the existing canteen building, opportunity for providing compliant disabled access to the canteen should be considered to respond to this principal as part of the current development application.</p>	<p>legislative requirement for an access upgrade to the canteen as the canteen is not considered a “new part” of the school.</p> <p>The canteen features an existing ramp access on its southern side. Although the ramp does not fully meet current legislative standards it is acknowledged that it does offer some limited functionality. The proposal as a whole is a major improvement for accessibility with enhanced connectivity throughout, including to the existing canteen.</p> <p>Please refer to the Accessibility Statement prepared by Morris Goding Accessibility Consultancy.</p>
<p>c. Traffic issues - Design Principles 2 and 4</p> <p>The design considerations for Design Principle 2 Sustainable, efficient and durable identify that new school development should:</p> <ul style="list-style-type: none"> • Maximise opportunities for safe walking, cycling and public transport access to and from the school. <p>The design considerations for Design Principle 4 Health and Safety identify that new school development should:</p> <ul style="list-style-type: none"> • Prioritise pedestrians and avoid conflicts between vehicles and people • And support safe walking and cycling to and from school through connections to local bike and footpaths and the provision of bike 	<p>A Green Travel Plan has been prepared by TDG which highlights opportunities for safe pedestrian movements, cycling and public transport access to and from the school. The adoption of the Green Travel Plan will result in a reduction in vehicles travelling to and from the school each day and reduce demand for parking on site. Adoption of alternative transport modes to users and visitors of the school will ease congestion during drop-off / pick-up times.</p> <p>To address concerns raised by Council, it is proposed to establish a new drop-off /pick-up zone along the southern side of Smith Street between Church Street and Kembla Street. The implementation of this new drop-off / pick-up area is outlined in a letter provided by the school, dated 16 March 2018. The zone would be located along the northern boundary of the school, allowing easy access for students.</p>

Submission	Response
parking and end of journey facilities.	
Documentation	
The elevation plans of the administration building are incorrectly labelled (Dwg DA06.01). The North elevation is the West (Church St) elevation and the West Elevation should be the South Elevation. Please amend plans.	DA06.01 has been amended so that the elevations are correctly labelled. Refer to amended Architectural Plans prepared by Hayball Architects.
Consolidation of land	
The proposed learning hub building is proposed over a number of allotments. Consolidation of these lots will be required where consent is granted (NB also refer to Stormwater comments regarding lot consolidation to achieve legal means of achieving stormwater disposal).	Following the DA submission to Wollongong Council in November, Council recommended that land consolidation be undertaken for Wollongong Public School. We expect that land consolidation is likely to be part of the DA conditions.
Section 94A Exemption	
<p>Part 15 of Wollongong S94A Development Contributions Plan 2017 provides for exemption for certain developments, as outlined below:</p> <p>For an exemption to be considered based on clause 15 (a) to (h), the written application should clearly state which exemption criteria is expected to ensure it is considered</p>	<p>Section 4.33 of the <i>Environmental Planning and Assessment Act 1979</i> (EP&A Act) sets out specific provisions relating to the determination of Crown DAs. It states:</p> <p><i>(1) A consent authority (other than the Minister) must not:</i></p> <p><i>(a) refuse its consent to a Crown development application, except with the approval of the Minister, or</i></p> <p><i>(b) impose a condition on its consent to a Crown development application, except with the approval of the applicant or the Minister.</i></p>

Submission	Response
<p>and provide all relevant supporting information.</p> <p>An application by the NSW Government for public infrastructure, such as but not limited to hospitals, police stations, fire stations; education facilities (primary and secondary) and public transport infrastructure.</p> <p>A written request is required to address this requirement.</p>	<p>The consent authority has no power to issue a refusal or issue an approval subject to conditions of consent to which the Department of Education does not agree. The limitation on the power to impose a condition of consent extends to the consent authority's ability to require contributions to be paid, including contributions pursuant to Section 94 and 94A. Contributions occur by way of conditions of consent therefore neither Council nor DPE can impose conditions relating to contributions without the DoE's consent.</p> <p>Further DA-2017/1554 relating to works at Gwynneville Public School did not require a written request to address this requirement. Council's Assessment Report for DA-2017/1554 Council recommended a full exemption from the levy. We request consistency on the part of Council when applying the Section 94A Plan to Crown DAs.</p> <p>Importantly, the proposal provides social and community infrastructure to meet the needs of the growing population. It should be exempt from Section 94A contributions.</p>
<p>Public Submissions</p>	
<p>A number of public submissions have been received in response to the public exhibition process. The concerns raised identify both existing and likely future issues with traffic and parking, particularly around drop off and pick up times.</p>	<p>The submissions raised concerns relating to arrangements for pick-up and drop-off, on-site parking and noise control.</p> <p>These concerns have been addressed in this letter.</p>
<p>Heritage comments</p>	
<p>The following matters have been raised by our Heritage Division:</p> <p>The current proposal to remove the existing front entry doors to the Infants Block and to brick up the existing arched entryway is not supported. The plans should be</p>	<p>The matter that has been raised by Wollongong Council as relating to the retention of the existing front entry doors to the Admin Block have been considered. The revised design will see the front entry doors retained and permanently locked.</p> <p>Please refer to amended Architectural Plans prepared by Hayball Architects.</p>



Submission	Response
revised to consider alternative measures that allow for the retention of a doorway in this location, or at least to provide for an opening in the building which can be readily understood to have been the original opening to the school.	

We trust this information satisfies matters raised in the public submissions and by Council. Council should have all the information needed to progress the assessment of the application and set a determination meeting date with the Planning Panel. Should you wish to discuss any of the above matters, please don't hesitate to contact me on 8424 5102.

Yours sincerely,

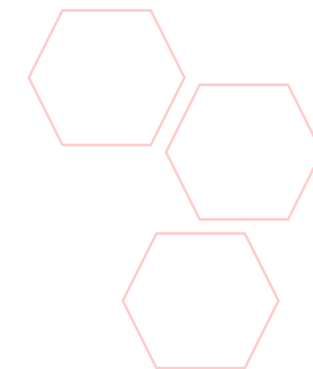
A handwritten signature in black ink, appearing to read "Chris Croucamp".

Chris Croucamp
Consultant



Arboricultural Impact Assessment Report.

Prepared for; The NSW Department of Education. I Site Address; Wollongong Public School, 67A Church Street, Wollongong NSW 2500 I Date; 23rd of April 2018



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Checked by: Rhodora Maranon.
Approved by: Paul Shearer (Author).

Report produced by:



Arboricultural Impact Assessment Report.

Overview:

Paul Shearer Consulting (PSC) was engaged by Hayball to produce this Arboricultural Impact Assessment Report on behalf of the NSW Department of Education (DoE). The subject site is Wollongong Public School which is being redeveloped as part of the NSW DoE Western Sydney and Wollongong School's project. The DoE has engaged Hayball to assist with the design and assessment process for the proposed redevelopment of the site. The purpose of this Arboricultural Impact Assessment Report is to identify and assess protected trees located within and within 5m of the proposed works area, identify potential impacts from proposed works and make recommendations for the management of trees in accordance with The Australian Standard AS4970-2009 Protection of Trees on Development Sites. A Preliminary Tree Assessment Report produced on the site by PSC dated the 5th of June 2017 should be read in conjunction with this report.

Legislation, Policy & Standards:

Where relevant this report has been produced with reference to:

- ✓ Wollongong Council LEP (2009).
- ✓ Wollongong Council Consolidated DCP (2009).
- ✓ Council's Register of Significant Trees (where applicable).
- ✓ AS4970 (2009) Protection of Trees on Development Sites.
- ✓ AS4373 (2007) Pruning of Amenity Trees.
- ✓ SEPP Educational Establishments and Childcare Facilities (2017).
- ✓ The Biodiversity Conservation Act (2016).
- ✓ The Environment Protection and Biodiversity Conservation Act (1999).
- ✓ State Environmental Planning Policy (SEPP) Vegetation in Non-Rural Areas (2017).
- ✓ The NSW Biosecurity Act (2017).

DISCLAIMER.

Limits of Scope Statement:

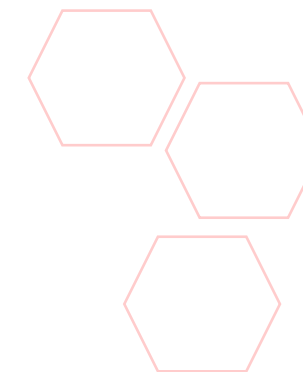
“I am not a solicitor,” There is no substitute for current professional litigation consulting agri-horticultural matters and legal advice. This publication is not intended as, and does not represent legal advice and should not be relied upon to take the place of such advice. Although every effort has been made to assure the accuracy of the information included in this publication as of the date on which it was issued, laws, court and arbitration decisions and governmental regulations in Australia and New South Wales are subject to frequent change. To be included in all the standards and duties of evaluation, investigations, interpretations, methodology and contradictions in determining the failure for claims and litigation.

Assumptions:

Care has been taken to obtain information from reliable sources. All data has been verified insofar as possible, however, Paul Shearer Consulting can neither guarantee nor be responsible for the accuracy of information provided by others.

Unless Stated Otherwise:

Information contained in this report covers only the tree/trees that were examined and reflects the condition of trees at the time of inspection.



Summary.

Paul Shearer Consulting (PSC) was engaged by Hayball to produce this Arboricultural Impact Assessment Report on behalf of the NSW Department of Education (DoE). The DoE will herein be referred to as the client. The subject site is Wollongong Public School, the school is being redeveloped as part of the NSW DoE Western Sydney and Wollongong School's project.

The existing built environment consists a library, an assembly hall, covered outdoor learning areas (COLA's), single and two storey classrooms, a community meeting building, three demountable classrooms, a basketball court and playgrounds. The client proposes to demolish a COLA, toilet block, walkways and end entry cover to the administration building. The client proposes the construction of a new two storey learning hub building and a new COLA. New hydraulics and the refurbishment of existing hydraulics are also proposed. Rainwater tanks would be relocated, security fences and gates installed and extensive hard and soft landscaping carried out.

Typically an Impact Assessment Report will identify and comment on the potential for construction impacts on all protected trees located on and within 5m of a site. However due to the physical size of the site and the location of proposed works, only trees located within or within close proximity of proposed works as specified within a site mark-up plan provided by Hayball have been surveyed. The site survey area also includes areas that are anticipated for use by site construction traffic

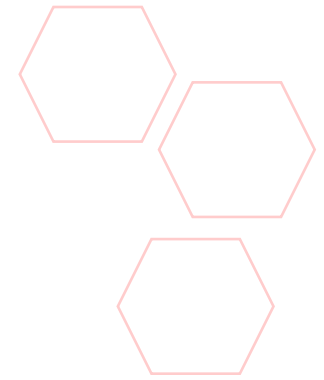
The purpose of this report is to identify protected trees located on and within 5m of a survey area as designated by Hayball, determine potential impacts on protected trees from proposed works and make recommendations for the management of protected trees in accordance with the Australian Standard AS4970-2009 Protection of Trees on Development Sites. I am an Australian Qualification Framework (AQF) Level 5 Consulting Arborist and am qualified to produce Arborist Reports within the LGA of Wollongong.

The subject site has been predominantly cleared of endemic vegetation long ago and planted out with a variety of common endemic, native and exotic plant species. Fifty three trees protected under clause 5.9 of Wollongong Council's LEP (2009) were surveyed for the purpose of producing this report. Several trees surveyed were not plotted on original plans but have been included in this report as they are associated with a heritage item or are considered significant within the context of the site for other reasons, such as landscape significance etc.

The predominant canopy species on site is Brushbox (*Lophostemon confertus*). The northern half of the site is listed as Local Heritage Item 5935 and Local Heritage Items 6387 and 6389 are located immediately adjacent to the site. However a Heritage Impact Assessment of the site has determined that, with the exception of a Ficus located on the site's southern boundary, and well away from proposed works, the assemblage of trees on site do not contribute to the heritage significance of the site.

Whilst tree retention and removal is predominantly dictated by the location of proposed works and physical considerations, the subject trees have been awarded a Hazard Rating, Significance Rating, Retention Value and useful life expectancy (ULE) Rating to assist in the process of prioritizing trees for retention or removal. The eight trees; T24, T31, T48, T49, T50, T51, T52 and T53 have been awarded a Hazard Rating of 8 out of 12. The two trees; T33 and T40 have been awarded a Hazard Rating of 7 out of 12. The eleven trees; T1, T2, T23, T25, T26, T27, T28, T29, T30, T34 and T35 have been awarded a Hazard Rating of 6 out of 12. The thirty two trees; T3, T4, T5, T6, T7, T8, T9, T10, T11, T12, T13, T14, T15, T16, T17, T18, T19, T20, T21, T22, T32, T36, T37, T38, T39, T41, T42, T43, T44, T45, T46 and T47 have been awarded a Hazard Rating of 5 out of 12.

The tree; T33 has been awarded a Significance Rating of 12 out of 12. The ten trees; T5, T7, T8, T26, T27, T28, T29, T30, T34 and T35 have been awarded a Significance Rating of 10 out of 12. The six trees; T1, T3, T11, T22, T23 and T25 have been awarded a Significance Rating of 9 out of 12. The twelve trees; T6, T9, T10, T16, T18, T19, T48, T49, T50, T51, T52 and T53 have been awarded a Significance Rating of 8 out of 12. The



fourteen trees; T2, T4, T12, T13, T14, T15, T17, T20, T24, T31, T32, T45, T46 and T47 have been awarded a Significance Rating of 7 out of 12. The three trees; T21, T36 and T37 have been awarded a Significance Rating of 6 out of 12. The seven trees; T38, T39, T40, T41, T42, T43 and T44 have been awarded a Significance Rating of 5 out of 12.

The three trees; T5, T7 and T35 have been awarded a High Retention Value. The twenty eight trees; T1, T3, T6, T8, T10, T13, T14, T15, T20, T22, T23, T24, T26, T27, T28, T29, T30, T32, T33, T34, T38, T39, T41, T42, T43, T44, T45 and T46 have been awarded a Moderate Retention Value. The twenty two trees; T2, T4, T9, T11, T12, T16, T17, T18, T19, T21, T25, T31, T36, T37, T40, T47, T48, T49, T50, T51, T52 and T53 have been awarded a Low Retention Value.

The thirty seven trees; T1, T3, T5, T6, T7, T8, T9, T10, T13, T14, T15, T20, T22, T23, T24, T25, T26, T27, T28, T29, T30, T32, T33, T34, T35, T41, T42, T43, T44, T45, T46, T48, T49, T50, T51, T52 and T53 have been awarded a Medium ULE Rating of 15 - 40 years. The ten trees; T11, T12, T16, T18, T19, T21, T36, T38, T39 and T47 have been awarded a Short ULE Rating of 5 - 15 years. The six trees; T2, T4, T17, T31, T37 and T40 have been awarded a Removal ULE Rating.

I have concluded that the trees T12, T13, T14, T15, T16, T17, T18, T19, T20 and the stand of trees identified as T32 are located within the proposed building footprint. The four trees; T9, T10, T46 and T47 are located within the building footprint of proposed subgrade hydraulics. I have concluded that Major incursions from proposed works would occur within the TPZ of the fourteen trees; T1, T5, T7, T8, T9, T11, T21, T29, T35, T48, T50, T51, T52 and T53.

I have recommended that the twenty nine trees; T1, T3, T7, T21, T22, T23, T24, T25, T26, T27, T28, T30, T33, T34, T35, T36, T38, T39, T41, T42, T43, T44, T45, T48, T49, T50, T51, T52 and T53 should be retained and incorporated into the site redevelopment. I have made recommendations for changes to the development layout so that the nine trees; T1, T7, T21, T35, T48, T50, T51, T52 & T53 may be retained.

I have recommended that the twenty four trees; T2, T4, T5, T6, T8, T9, T10, T11, T12, T13, T14, T15, T16, T17, T18, T19, T20, T29, T31, T32, T37, T40, T46 & T47 be removed to accommodate proposed works. I have concluded that the five trees; T2, T4, T31, T37 and T40 will not be impacted upon by proposed works. These trees are recommended for removal due to existing Health and/or Condition issues and removal of trees is at the discretion of the client.

I have provided a sensitive construction methodology to minimize the potential for long term negative impacts on trees. I have provided a generic pruning specification to minimize long term negative impacts associated with the pruning of trees. I have provided a Tree Protection Plan in accordance within AS4970 -2009. I have made recommendations for landscaping and installation of subgrade services to minimize tree impacts. I have provided recommendations for tree replenishment for trees removed and landscaping.

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1.0 Observations.

1.1 The Site.

The subject site is located at 67A Church Street, Wollongong NSW. (Figure 1) Site usage is as a Public School, the school was established in 1885. The site is located within the LGA of Wollongong, approximately 0.4 kilometres to the north east of the Wollongong CBD. Figure 3 (following page) is provided to assist with the local site context.

Figure 1. Site Location Map Wollongong Public School, 67A Church Street, Wollongong NSW. (Image Source; Google Maps 2018)



1.1.1 10/50 Bushfire Mapping.

The site is not identified as containing Bushfire Prone Land. (NSW RFS 2018)

1.1.2 DEC Declared Site Heritage Significance.

The site is listed on the NSW DEC Schools Heritage Register (Inventory No. 4640447). (NSW Govt. 2014)

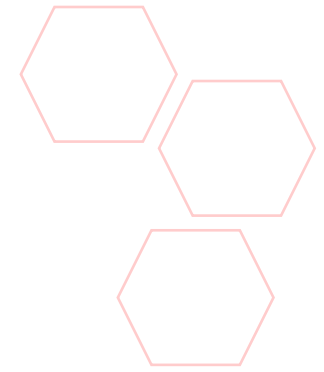
1.1.3 Physical Site Description.

The naturally occurring site topography slopes to the north east with a fall of approximately 13m between the south west and north east corners of the site. (Google Earth 2018) The site is irregular in shape and covers an area of 18,410m². The site is bounded by Smith Street to the north, Market Street and commercial premises to the south, commercial and private properties to the east and Church Street to the west. Vehicular access to the site is currently by two driveways off Church Street. The site has several retained areas due to the sloping topography. An old open concrete drain runs parallel with the sites eastern boundary at an approximate depth of 300mm.

- † Topography; the site topography slopes to the north east. (Google Earth 2017)
- † Aspect; the site aspect is north east.
- † Elevation; the site elevation is 30m at the highest point (south west corner of site). (Google Earth 2018)
- † Drainage; the site drains to the north east.

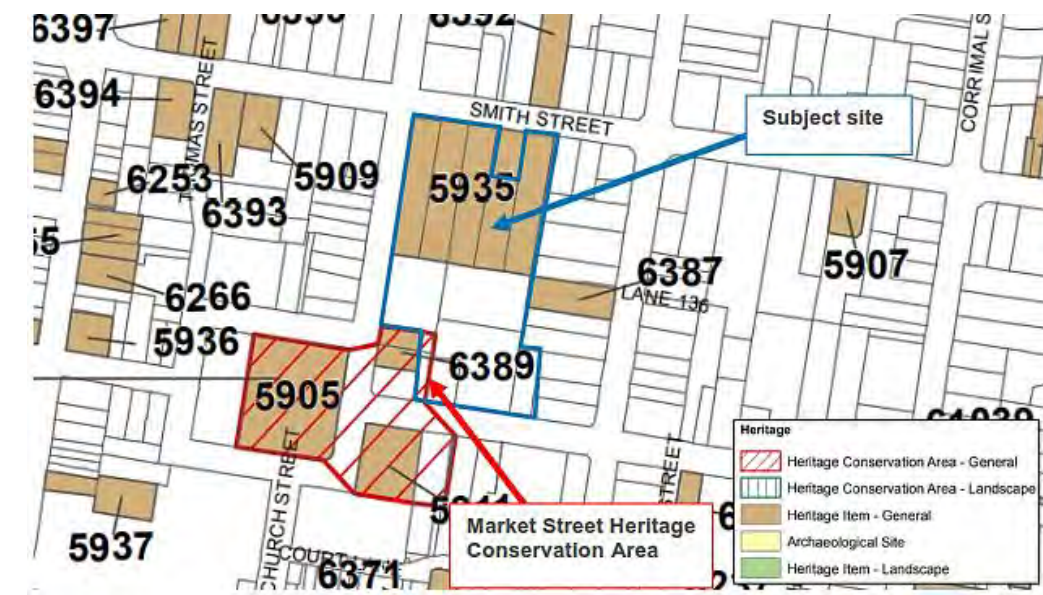
1.1.4 Relevant LGA Site Information. (Wollongong LEP 2009)

- † The site is located on Sheet 25 of the Wollongong LEP (2009) Planning Maps.



- † The Lot/Section/ Plan No. is; 4/-/DP781988. (NSW Planning Hub 2018)
- † The south west corner of the site is located within the Market Street Heritage Conservation Area. (Figure 2)
- † The northern half of the site is listed as Local Heritage Item 5935. (Figure 2)
- † Local Heritage Items 6387 and 6389 are located immediately adjacent to the site.
- † The site is not located within a designated Natural Resource Sensitivity area.

Figure 2. Site & Adjacent Heritage Listings. (Urbis 2018)



1.1.5 Relevant State Environmental Protection Policy (SEPP) Information. (NSW Planning Hub 2018)

- † SEPP Policy 44 Koala Habitat Protection (1995) applies to the site.
- † SEPP Policy 71 Coastal Protection (1995) applies to the site.
- † SEPP Policy Vegetation in Non-Rural Areas (2017) applies to the site.
- † SEPP Policy Educational Establishments and Child Care Facilities (2017) applies to the site.

1.1.6 The Existing Built Site Environment.

The existing built environment consists of a public school with the following:

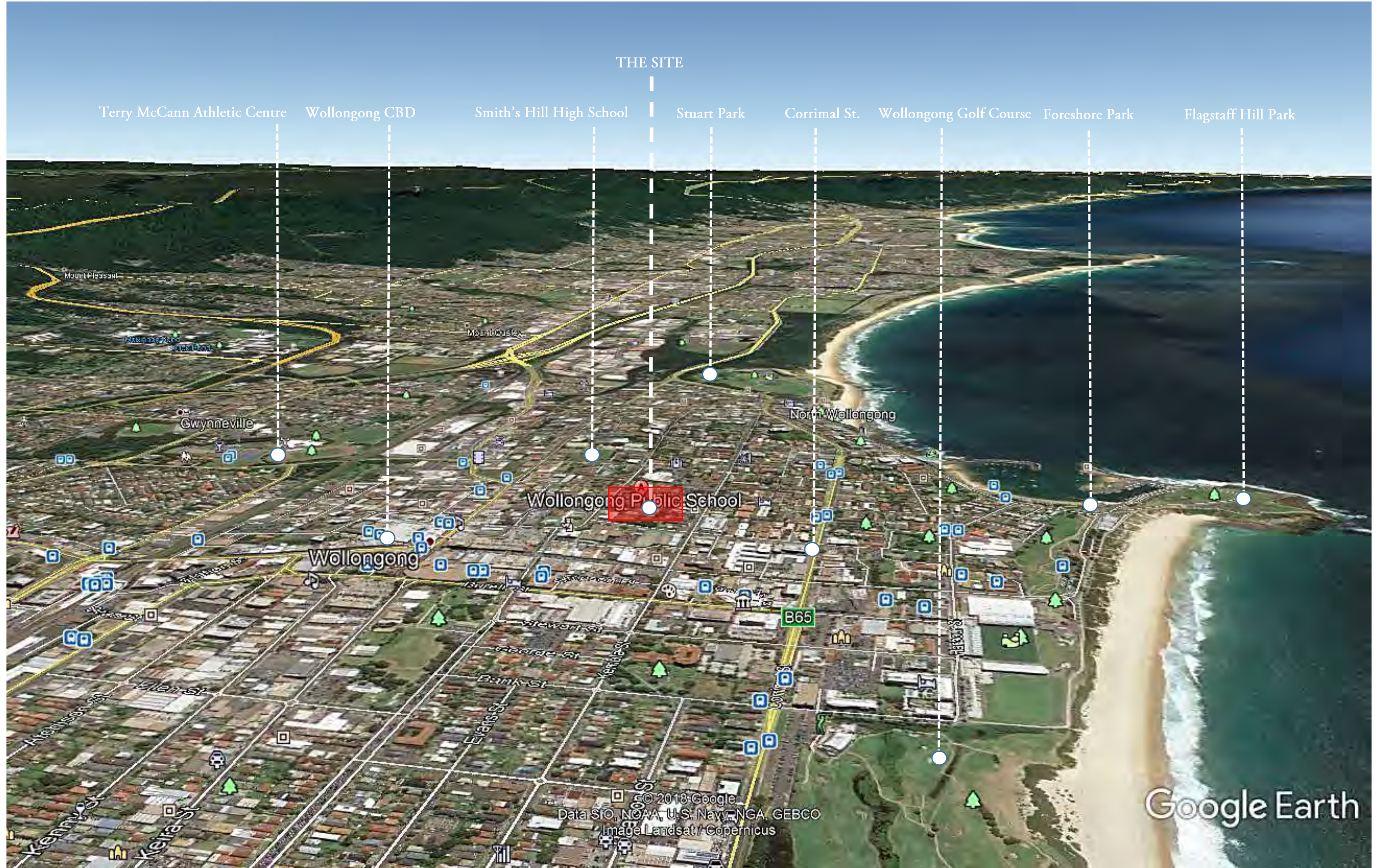
- † A library - building B00D on site plans.
- † An assembly hall - building B00J on site plans.
- † Covered outdoor learning areas - (COLA) on site plans.
- † Single and two storey classrooms - buildings B00A and B002 on site plans.
- † Community meeting space - building B00I on site plans.
- † Three demountable classrooms.



Figure 3. Site Location Context. (South aspect). (Image Source; Google Earth 2018).

Local Government Area: Wollongong.

Site Address: 67A Church Street, Wollongong NSW.



- † Basketball courts and grass playgrounds.
- † Pedestrian access via Church Street and Smith Street.
- † Vehicular access via two driveways off Church Street

1.2 Flora.

1.2.1 Vegetation Communities.

The site has been predominantly cleared of endemic vegetation long ago. The assemblage of plant species located on and adjacent to the site is not representative on an endemic vegetation community.

1.2.2 The Subject Trees & the Survey Area.

Fifty three trees protected under clause 5.9 of Wollongong Council’s LEP (2009) were surveyed for the purpose of producing this report. Several trees surveyed were not plotted on original plans but have been included in this report as they are located within a designated heritage area or are considered significant within the context of the site. The tree T32 is a stand of six trees, dimensions for these six trees have been provided as an average based on the dimensions of a Jacaranda (*Jacaranda mimosifolia*) specimen located within the stand.

An Impact Assessment Report will identify and comment on the potential for construction impacts on all protected trees located on and within 5m of a site. However due to the physical size of the site and the location of proposed works, only trees located within the works area or within 5m of proposed works have been surveyed. The site works area is illustrated as specified within a site mark-up plan provided by Hayball. (Figure 4) Figure 5 illustrates the site survey area.

The mark-up plan illustrates areas of proposed works including; demolition, construction, hard and soft landscaping, subgrade hydraulics, construction vehicle routes. Based on site documents referenced the mark-up plan appears to provide an accurate account of the proposed works area which may have the potential to impact on trees.

Figure 4. Site Mark-up indicating the Area of Proposed Works. (Hayball 2017) The site plan used to collect field notes is supplied as Figure 6.

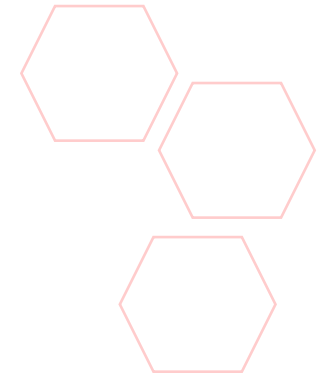


Figure 5. Site Survey Area. (Image Source; Google Maps 2018)



1.2.3 Provenance.

(i) Exotic Species.

The neighbour’s tree; T21 is of exotic climatic origin and may have been planted or self-sown.

(ii) Introduced Native Species.

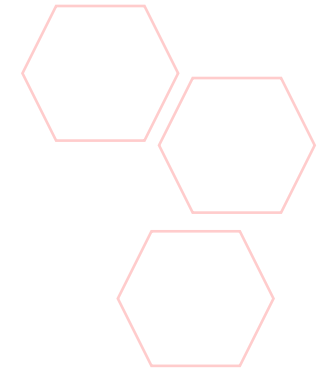
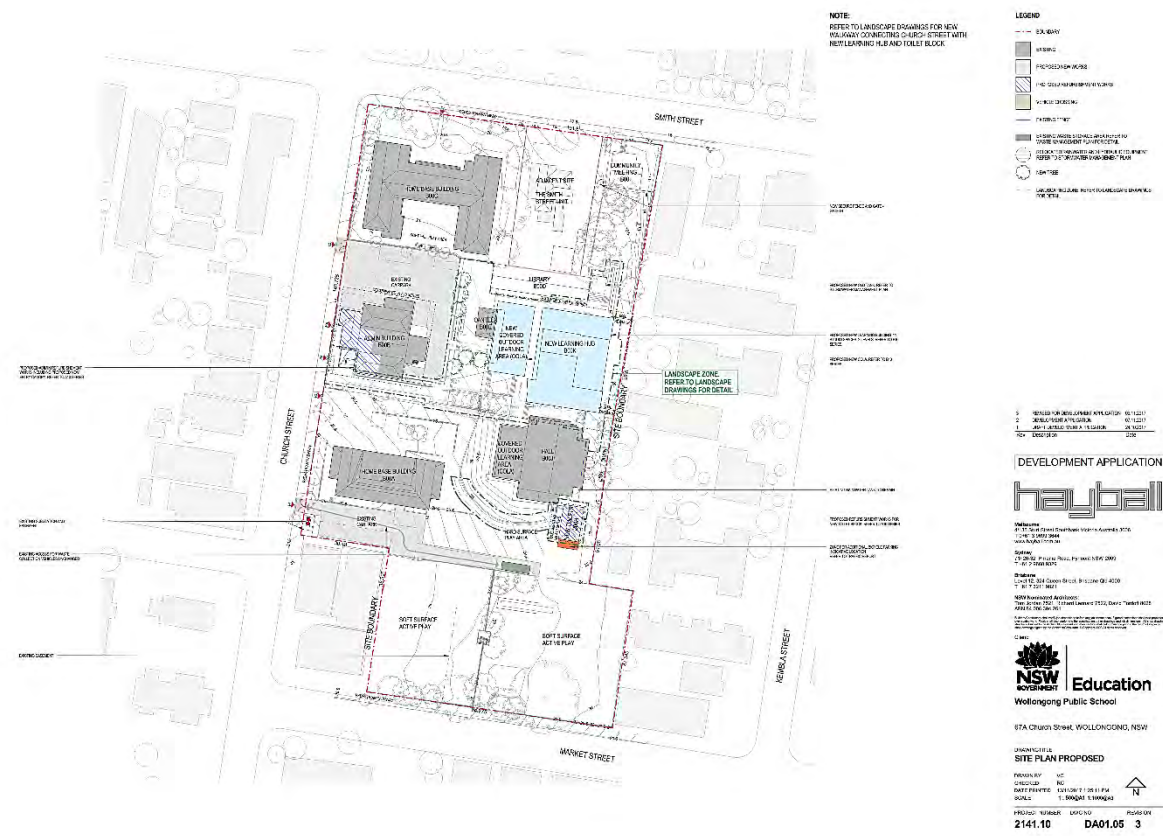
The thirty nine trees; T1, T2, T3, T4, T12, T13, T14, T15, T17, T20, T22, T23, T24, T25, T26, T27, T28, T29, T30, T31, T32, T36, T37, T38, T39, T40, T41, T42, T43, T44, T45, T46, T47, T48, T49, T50, T51, T52 and T53 are introduced native species and have no doubt been planted as part of the school landscaping. (The tree T32 is a stand of six trees including five introduced native species and one exotic species).

(iii) Endemic Species.

The twelve trees; T5, T6, T7, T8, T9, T10, T11, T16, T18, T19, T33, T34 and T35 are endemic to the Wollongong City Council LGA. It is likely that the trees; T5, T6, T7, T8, T9, T10, T11, T16, T18 and T19 have been planted or have been self-sown. The trees; T33, T34 and T35 have no doubt been planted as part of the school landscaping.

Figure 6. Site Plan used to Collect Field Notes. (Hayball 2017)

This plan was utilized for the purpose of collecting field notes (numbering trees). This plan was used as it indicated the location of proposed works and my brief was to include protected trees located within the works area and trees located within 5m of proposed works. A number of trees included in the survey were not plotted on this plan.



1.2.4 Tree Hazard Ratings.

The eight trees; T24, T31, T48, T49, T50, T51, T52 and T53 have been awarded a Hazard Rating of 8 out of 12. The two trees; T33 and T40 have been awarded a Hazard Rating of 7 out of 12. The eleven trees; T1, T2, T23, T25, T26, T27, T28, T29, T30, T34 and T35 have been awarded a Hazard Rating of 6 out of 12. The thirty two trees; T3, T4, T5, T6, T7, T8, T9, T10, T11, T12, T13, T14, T15, T16, T17, T18, T19, T20, T21, T22, T32, T36, T37, T38, T39, T41, T42, T43, T44, T45, T46 and T47 have been awarded a Hazard Rating of 5 out of 12.

Hazard Ratings have been calculated using the methodology by Harris, Clarke & Matthey (2004) and have been calculated using the following three categories:

- † Failure Potential. (Refers to a tree’s potential for failure based on the defect present, as well as other relevant factors, such as species characteristics and site exposure).
- † Size of Defective Part. (Refers to the diameter of the defective part which is most likely to fail).
- † Target Rating. (Refers to the presence of targets and rates the use and occupancy of the target that would be struck by the defective part, should the tree fail).

(Tree Hazard Rating definitions and calculations are provided in Attachment 2).

1.2.5 Tree Significance Ratings.

The tree; T33 has been awarded a Significance Rating of 12 out of 12. The ten trees; T5, T7, T8, T26, T27, T28, T29, T30, T34 and T35 have been awarded a Significance Rating of 10 out of 12. The six trees; T1, T3, T11, T22,

T23 and T25 have been awarded a Significance Rating of 9 out of 12. The twelve trees; T6, T9, T10, T16, T18, T19, T48, T49, T50, T51, T52 and T53 have been awarded a Significance Rating of 8 out of 12. The fourteen trees; T2, T4, T12, T13, T14, T15, T17, T20, T24, T31, T32, T45, T46 and T47 have been awarded a Significance Rating of 7 out of 12. The three trees; T21, T36 and T37 have been awarded a Significance Rating of 6 out of 12. The seven trees; T38, T39, T40, T41, T42, T43 and T44 have been awarded a Significance Rating of 5 out of 12.

Tree Significance Ratings have been calculated using the following 4 categories;

- † Provenance. (Refers to a trees geographical point of origin).
- † Landscape Significance. (Refers to how prominent a tree is the landscape).
- † Streetscape Significance. (Refers to how prominent a tree is in the streetscape).
- † Heritage Significance. (Refers to a trees heritage, natural heritage, cultural or archaeological status).

(Tree Significance Rating definitions and calculations are provided in Attachment 2).

1.2.6 Tree Retention Values.

The three trees; T5, T7 and T35 have been awarded a High Retention Value. The twenty eight trees; T1, T3, T6, T8, T10, T13, T14, T15, T20, T22, T23, T24, T26, T27, T28, T29, T30, T32, T33, T34, T38, T39, T41, T42, T43, T44, T45 and T46 have been awarded a Moderate Retention Value. The twenty two trees; T2, T4, T9, T11, T12, T16, T17, T18, T19, T21, T25, T31, T36, T37, T40, T47, T48, T49, T50, T51, T52 and T53 have been awarded a Low Retention Value.

Tree Retention Values have been calculated using the following 4 categories;

- † Tree Health. (Refers to tree vigour)
- † Tree Condition. (Refers to tree form/structure).
- † Situation. (Refers to a tree’s location and the potential for tree/building conflicts).
- † Ecology. (Refers to the ecological significance or value of a tree).

(Tree Retention Value definitions and calculations are provided in Attachment 2).

Tree Retention Values have been calculated using the following 4 categories;

- † Tree Health. (Refers to tree vigour)
- † Tree Condition. (Refers to tree form/structure).
- † Situation. (Refers to a tree’s location and the potential for tree/building conflicts).
- † Ecology. (Refers to the ecological significance or value of a tree).

(Tree Retention Value definitions and calculations are provided in Attachment 2).

Figure 7. Tree Location Schedule. Wollongong Public School. (Image Source; Google Earth 2018).

Client: NSW Department of Education.

Comments: The subject trees have been tagged and numbered. Tree locations are approximate.



1.2.7 Tree Useful Life Expectancy (ULE) Ratings. *(After Barrell, J. 2001).*

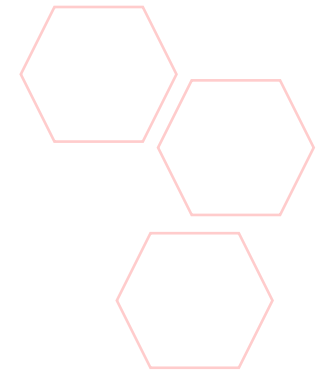
The thirty seven trees; T1, T3, T5, T6, T7, T8, T9, T10, T13, T14, T15, T20, T22, T23, T24, T25, T26, T27, T28, T29, T30, T32, T33, T34, T35, T41, T42, T43, T44, T45, T46, T48, T49, T50, T51, T52 and T53 have been awarded a Medium ULE Rating of 15 - 40 years. The ten trees; T11, T12, T16, T18, T19, T21, T36, T38, T39 and T47 have been awarded a Short ULE Rating of 5 - 15 years. The six trees; T2, T4, T17, T31, T37 and T40 have been awarded a Removal ULE Rating. (ULE Rating definitions are provided in Appendix 3).

1.2.8 Threatened Species & Significant Tree Considerations. *(NSW Dept. of Environment & Heritage 2017).*

The trees surveyed have not been declared under the *Biodiversity Conservation Act (2016)*. The site is not located within a designated Natural Resource Sensitivity area on the Wollongong (LEP 2005) planning maps. The forty four trees; T1, T2, T3, T4, T5, T6, T7, T8, T9, T10, T11, T12, T13, T14, T15, T16, T17, T18, T19, T20, T21, T22, T23, T24, T25, T26, T27, T28, T29, T30, T31, T32, T33, T34, T35, T45, T46, T47, T48, T49, T50, T51, T52 and T53 are located within the area identified as local heritage item 5935. A Heritage Impact Statement has stated that with the exception of a large *Ficus* specimen located on the site's southern boundary and well clear of proposed works, the assemblage of trees on site do not contribute to the heritage significance of the site. *(Urbis 2017)* (Photographs illustrating the subject trees and their landscape/streetscape significance are provided in Attachment 1. Detailed information for individual trees is provided in Attachment 3).

1.3 The Soil. *(JK Geotechnics 2017).*

A geotechnical report was carried out on the site in 2017 and included three borehole sites. The geotechnical report notes that the site is underlain by sandstone, shale, tuff, conglomerate and coal. Fill is present between depths of 0.2-0.7m above residual silty clay and sandstone bedrock at a relatively shallow depths. Outcrops of weathered sandstone are present near the existing gymnasium building. The silty clay exhibits variable to high plasticity and is stiff to strong at depths >0.3m. The silty clay is reactive with moderate to high shrink-swell reactivity.



2.0 Discussion.

2.1 Tree Survival on Construction Sites. (After; Matheny & Clarke 1998)

Sometimes the impacts associated with a development on trees is obvious and sometimes it is not. With the exception of careless construction activity or development design which does not adequately consider impacts to trees, projects which consider tree preservation during the early stages of the design process rarely result in short-term tree death.

Trees may take some to die as a result of adjacent construction work. Often these trees decline slowly as a result of indirect impacts that cause stress. If a tree cannot adapt to impacts from construction work, long term or chronic stress may weaken a tree to a point where it is pre-disposed to secondary issues such as disease or insect attack. Disease or insect attack invariably exacerbates the trees' weakened condition and this may result in tree decline.

The following site changes which may cause chronic stress to trees have been considered:

- † Changes in hydrology of site.
- † Changes in soil quality.
- † Changes in soil surface (crusting, hydrophobia, erosion, etc.)
- † Restrictions in soil area available for root development.
- † Addition of toxic materials to the soil.
- † Direct injury to root system.
- † Increased exposure to sun and/or wind.
- † Excessive reduction in leaf area, such as from heavy pruning.
- † Large mechanical wounds, which interrupt sap flow and lead to decay.

The long term survival of trees after site changes involves the interaction of biological, physical and environmental factors, and in many cases appears to be dependent on a trees' ability to tolerate water stress and regenerate new roots. Mechanical damage to trees from construction activities may eventually result in decay and a tree's ability to overcome injury by compartmentalizing decay is also important. Table 1 provides information that may affect a tree's ability to tolerate the impacts from construction works.

2.2 Evaluation of Construction Impacts. (After; Matheny & Clarke 1998)

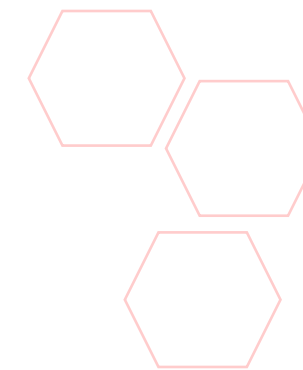
Evaluating the impacts of construction works on trees requires an understanding of the changes that will occur on the site and the trees' ability to tolerate resulting impacts. The following factors have been considered:

Direct Injury to the Tree:

- † Changes to the crown, primarily from pruning to provide clearance and access.
- † The extent of injury to roots caused by creation of a stable building base, excavation, grading, and installation of pavement, utilities, and irrigation systems.

Indirect Injury to the Tree:

- † Diversion of runoff.
- † Diversion of streams.
- † Stream improvements.
- † Changes in water table.
- † Change in capacity for soil water recharge.
- † Removal of adjacent vegetation.
- † Damming of underground water flow.



“Tree response to a given impact varies widely depending on the species, age, and condition. That variability makes it difficult to develop quantitative measures for tree survival that are applicable to a wide range of species and site conditions. The consultant must combine knowledge of tree biology, site influences, and construction practice to evaluate impacts on trees. If the impacts are determined to be too severe, the plans must either be redesigned to reduce, injury, or the tree removed.” (1)

Table 1. Consideration for Construction Impact Tolerances. (After; Matheny & Clarke 1998)

The following factors have been considered with regard to the ability of the tree/s to tolerate construction impacts.

Consideration for Construction Impact Tolerances	
Specific Tree:	
†	Age.
†	Health.
†	Structure.
†	Species tolerance.
†	Previous exposure to wind & sun.
†	Vigor.
Changes That Will Occur:	
†	Amount of root injury.
†	Degree of restriction of root area.
†	Amount of reduction in leaf area.
†	Degree of change in soil structure, moisture & drainage.
†	New exposure to sun & wind.
†	Change in microclimate.
†	Exposure to toxic chemicals.
†	Competition with other plants.
†	Number and depth of mechanical wounds.
Ability to Ameliorate Impacts:	
†	Possibility for irrigation.
†	Potential for reducing compaction.
†	Potential for increasing soil aeration.
†	Potential to protect from stress-related insects & diseases.
†	Potential for improving drainage.

2.3 Tree Impact Evaluation Checklist. (After; Matheny & Clarke 1998)

The following checklist (Table 2), whilst not exhaustive, details a range of tree characteristics, site development and site disturbance factors that have been considered;

Table 2. Tree Impact Evaluation Checklist.

Tree Impact Evaluation Checklist	
Tree Characteristics:	
†	Species tolerance to impacts.
†	Tree age/longevity.
†	Tree health & vigor.
†	Root depth & extent.
†	Conformation of canopy.
†	Structural stability.
Site Development:	
†	Disturbance that will occur within root areas.
†	Distance from trunks and depth of excavations (e.g., grade changes, underground utilities, pavement section, footings & foundations).
†	Root areas exposed to compaction.
†	Root area covered by pavement.
†	Pruning requirements (e.g., building clearance & overhead utilities).
†	Irrigated landscape (compatibility with trees & trenching for irrigation system).
†	Removal of adjacent vegetation (root damage, changing microclimate & increased exposure).
Disturbance to the Overall Site that Could Affect Trees:	
†	Diversion of runoff (to or from trees).
†	Installation of sub-drains or drainage swales (lowering the water table).
†	Altered drainage patterns that increase erosion.
†	Altered drainage patterns or vegetation removal that increases siltation.
†	Walls or foundations damming underground water flow.
†	Road fill over streams and check dams that alter water flow and sedimentation.
†	Change in capacity for soil water recharge.

2.4 AS4970 (2009) Protection of Trees on Development Sites. (After; AS4970-2009)

The Australian Standard AS4970-2009 and its methodology has been used as a benchmark in the preparation of this report. The scope of AS4970 is to provide guidance on the protection of trees throughout the various stages of a development from the initial planning process through to implementation. The Standard provides information to guide not only the property developer but all relevant stakeholders who are concerned with trees in relation to development. The Standard provides guidance on determining which trees are appropriate for retention and how to protect them throughout the site construction process.

The Standard is not in favour of, or against development and it does not argue for the removal or retention of trees. Section 3 of the Standard describes 2 x root zone areas for the purpose of tree protection. It specifies the Tree Protection Zone (TPZ) as a radial offset of 12 x the stem diameter of a tree measured at 1.4m above ground level or (DBH) measured from the centre of the tree stem. The TPZ is described as; a specified area above and below ground required to maintain the viability and stability of a tree. The minimum TPZ is 2m. It specifies the Structural Root Zone (SRZ) as the area measured immediately above the root buttress or (DAB) applied to the following formula; $SRZ \text{ Radius} = (DAB \times 50)^{0.42} \times 0.64$. The minimum SRZ is 1.5m.

The Standard specifies an incursion within the Structural Root Zone (SRZ) or an incursion > 10% of the Tree Protection Zone (TPZ) as a Major incursion. It specifies that where a Major incursion is to occur the Project Arborist must demonstrate the viability of the affected tree or trees. As the methodology used to determine the

TPZ and SRZ are generic in nature, and tree root growth may be affected by many factors, demonstrating that a tree would remain viable would generally be carried out by a detailed root-mapping investigation. This type of detailed inspection can determine the actual location and size of tree roots and the extent of root damage that will occur. Of course additional potentially impacting factors must also be considered. The Standard specifies that where an incursion is <10% of the TPZ and outside of the SRZ it is classified as a Minor incursion and is considered tolerable. (AS4970 2009)

2.5 The Application of AS4970. (After; AS4970-2009)

Mature trees do not adapt as well as young trees to changes within their immediate environment and the zoning of land for development and reduced allotment sizes has created a situation whereby the retention of significant mature trees may, on occasions, be impossible. Recommending that a proposed development be modified to retain a tree/s only for the tree/s to die soon after as a result of construction impacts is not reasonable or practical and does not provide for the best long term outcome. This report will, where reasonably practical, recommend the retention and protection of trees. This report will consider all potential tree impacts and where it is viewed that medium to long term tree retention is viable then a tree will be recommended for retention and protection.

Where a significant modification of a development is not required trees may also, on occasions, be recommended for short term retention. Trees located within the proposed building footprint will generally be recommended for removal. Recommending that a proposed development be modified to retain a tree/s may however be recommended if a tree/s or site have an official cultural, heritage or significance designation.

2.6 Wollongong City Council DCP & Heritage Provisions.

2.6.1 Wollongong DCP (2009).

Wollongong City Council has established tree protection and management controls, including a list of undesirable species which are exempt under the planning controls. Part E, Chapter 17 of the Wollongong DCP (2009) applies to all land within the Wollongong LGA and describes a tree as;

- † Having a height of three or more metres or,
- † Having a stem diameter of 200mm measured at one metre above ground or,
- † Having a canopy spread of three metres or more.

The objectives of the DCP are to:

- † Protect trees within the City of Wollongong Local Government Area.
- † Protect and enhance native vegetation, habitat for native fauna and biodiversity.
- † Protect and enhance native vegetation for its scenic values and to retain the unique visual identity of the landscape.
- † Conserve trees of ecological, heritage, aesthetic and cultural significance.

- † Conserve significant stands of remnant vegetation.
- † Manage non-native vegetation in accordance with its cultural heritage and landscape significance.
- † Ensure that any new development considers and maximises the protection of existing vegetation in the site planning, design, development, construction and operation of the development.
- † Identify trees and other vegetation that may be pruned or removed without the necessity for a Tree Management Permit or development consent.

The proposed redevelopment of the site will require the removal and pruning of a number of trees. Section 1 of Part E, Chapter 17 of the DCP describes two standard local government application processes relating to the removal and pruning of trees within the Wollongong LGA. The DCP specifies that a Tree Management Permit is generally required for tree removals and pruning in urban areas (generally relates to individual/small scale pruning and removal). The DCP specifies that a Development Application is required where tree pruning or removal relates to a development consent either via the Complying Development or Development Application process. The DCP also states that clauses (5.10) Heritage conservation, (5.11) Bush fire hazard reduction work and (7.2) Natural resource sensitivity - biodiversity of the Wollongong LEP (2009) must also be considered. (*Wollongong DCP 2009*)

I have confirmed that the subject trees are not exempt under Section 6 of Chapter 17 of the DCP. I have determined that the subject site is not located within a designated 10/50 Bushfire Prone Area or a Natural Resource Sensitivity Area. I have also determined that the subject trees are not located within a designated Heritage Conservation Area. However as mentioned a number of the subject trees are associated with Local Heritage Item (5935).

2.6.2 Heritage Provisions.

Clause 2 (a) (iii) of 5.10 of the LEP states that development consent is required for the removal or moving of a building, relic or tree within a heritage conservation area. I am not a heritage consultant however a Heritage Impact Assessment Report by (Urbis 2017) states; *“The trees that are proposed to be removed are located on the eastern boundary of the site. The trees that are proposed to be removed do not contribute to the heritage significance of the site.”* (2)

Claus 5.10 of the Wollongong LEP (2009) (Heritage Conservation) describes the following objectives:

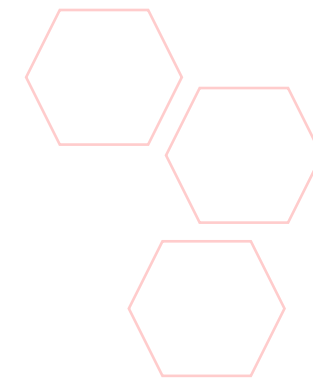
- † To conserve the environmental heritage of Wollongong.
- † To conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and views.
- † To conserve archaeological sites.
- † To conserve Aboriginal objects and Aboriginal places of heritage significance.

2.7 SEPP Policy Educational Establishments and Child Care Facilities (2017).

The State Environmental Protection Policy (SEPP) Educational Establishments and Child Care Facilities (2017) applies to child care facilities, schools, TAFE's and Universities across NSW. The objectives of the SEPP are to;

- † Simplify and standardise planning approval pathways for educational establishments and child care facilities (including allowing certain development as exempt and complying development).
- † Establish consistent State-wide assessment requirements and controls.
- † Align the National Quality Framework for Early Childhood Education and Care Facilities with the NSW planning system.

Clause 3a of Council's RFI acknowledges that the SEPP makes provisions for the removal of trees being exempt in certain circumstances. The exempt provision (Clause 38-1-b) reads; 'the removal or pruning of a tree that has been assessed by a Level 5 qualified arborist as posing a risk to human health or safety or of damage to infrastructure.' Whilst the SEPP for Exempt and Complying Development allows for the removal of trees within 3m of buildings the Education SEPP does not. The SEPP states that a permit for tree pruning or removal may be granted under a LEP.



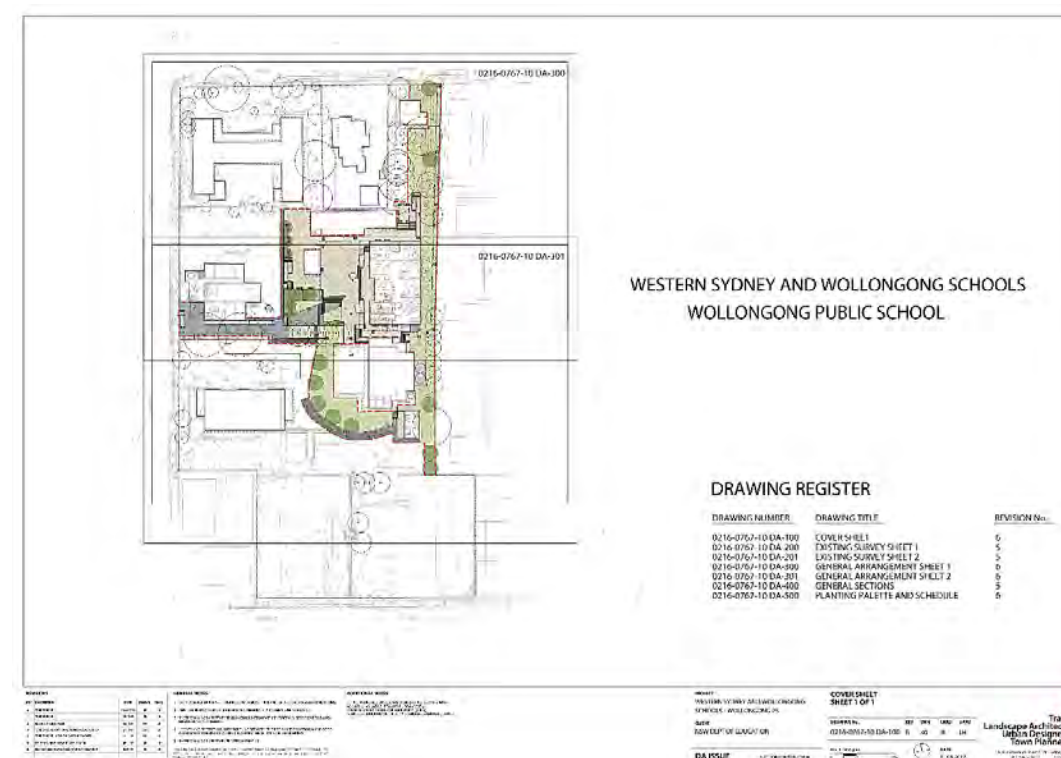
2.8 Proposed Works & Impact Assessment.

2.8.1 Proposed Works.

(i) Demolition.

The proposed redevelopment of the site would involve demolition of a COLA, toilet block B00F, walkways and cover to administration building, fences, gates, a ramp and walkways between the existing COLA and assembly hall. The trees; T5, T6, T8, T9, T10, T12, T13, T14, T15, T16, T17, T18, T19, T20, T21, T24, 29 and the stand of trees T32 are proposed for removal in the Landscaping Cover Sheet (Figure 8) and General Arrangement Plans 1 and 2 by Tract Landscape Architects (2017).

Figure 8. Landscaping Cover Sheet. NTS. (*Tract 2017*)



(ii) New Construction.

The proposed redevelopment of the site would include; a new two storey learning hub B00K, COLA, refurbishment of toilet block B00H and administration building B00B. Bulk earthworks including excavation and fill would be carried out to construct the learning hub and COLA. (Figures 9 & 10) Proposed works would also include the installation of new hydraulics (stormwater lines) and extensive hard and soft landscaping. (Figures 10 & 11) Footings for the learning hub B00K and COLA would consist of a slab on ground with filled areas being retained.

Figure 9. Illustrating Proposed Bulk Earthworks for Buildings. NTS. (Hayball 2018)



Legend: Grey - cut.
Blue - fill.

Figure 10. Illustrating Existing/New Buildings & Extent of Landscaping. NTS. (Hayball 2018)

The extent of the proposed building footprint is highlighted in blue. The extent of landscaping is highlighted with a green dashed line. New trees are highlighted in green.

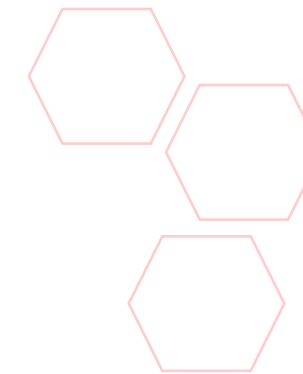
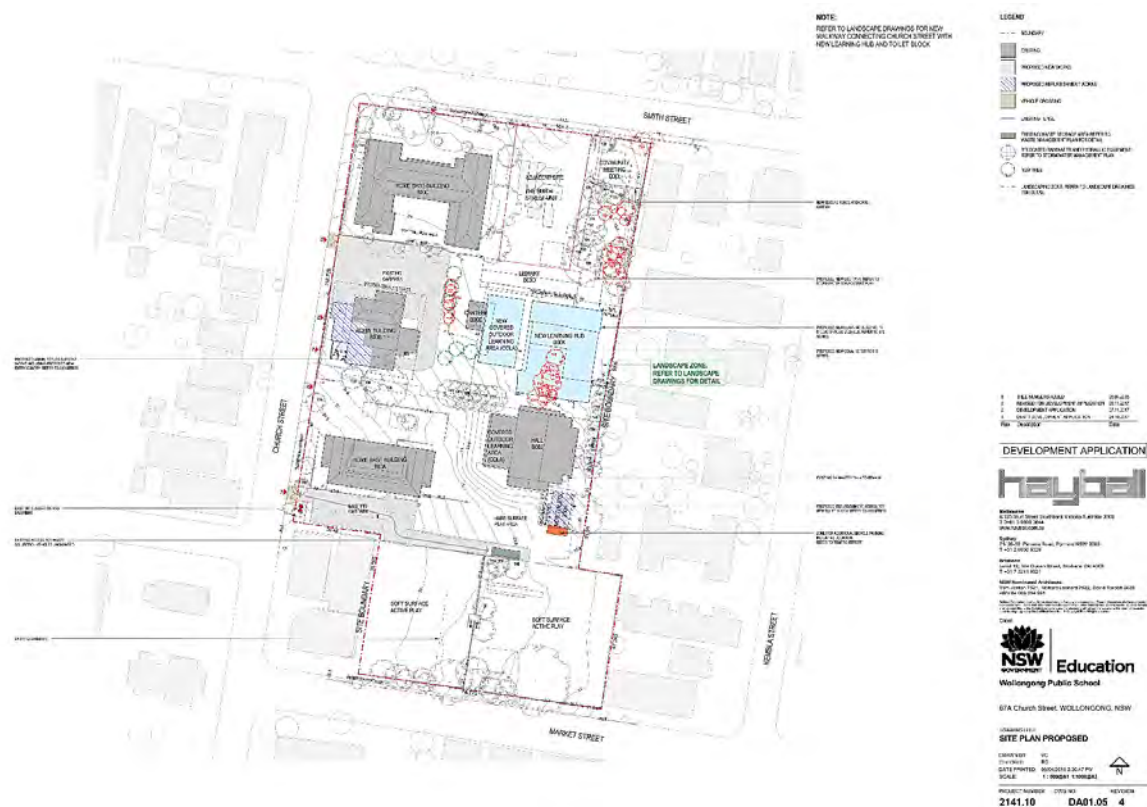
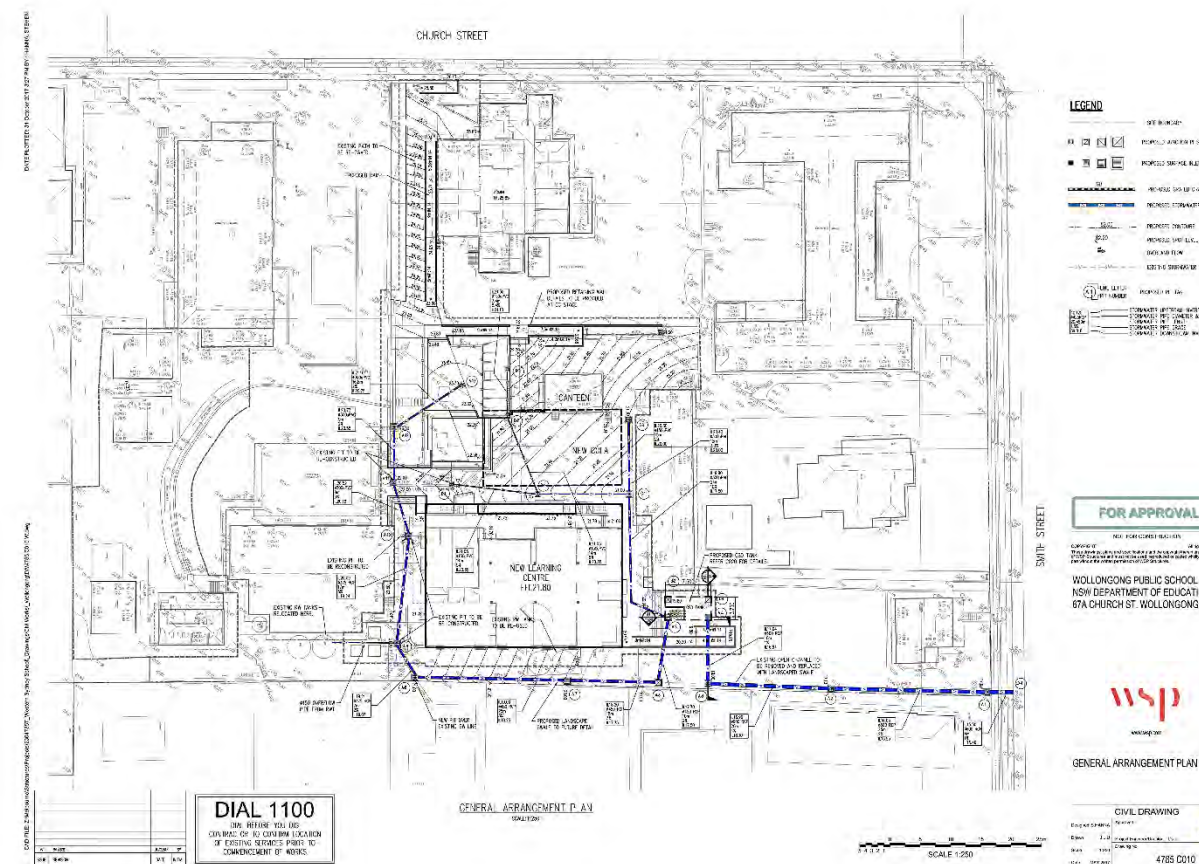


Figure 11. Proposed Stormwater Arrangement. NTS. (WSP 2017)



2.8.2 Impact Assessment Summary.

Landscape plans indicate that the trees; T5, T6, T8, T9, T10, T12, T13, T14, T15, T16, T17, T18, T19, T20, T21, T24, 29 and the stand of trees T32 are proposed for removal. The trees T12, T13, T14, T15, T16, T17, T18, T19, T20 and the stand of trees identified as T32 are located within the proposed building footprint. The four trees; T9, T10, T46 and T47 are located within the building footprint of proposed subgrade hydraulics.

Although not indicated on site plans, the client’s architect has advised that; “a construction site access route would be constructed to facilitate the site redevelopment process. The accesses route would be constructed to allow egress to the site via Smith Street and would run parallel with the site’s eastern boundary. Site construction access is not viable via Church Street” (3) It appears that the seven trees plotted for removal in landscape plans; T5, T6, T8, T9, T10, T24 and T29 are to be removed due to their location within, or within close proximity of, the proposed building footprint and/or the proposed construction site access route. I have concluded that, of the seven trees proposed for removal to facilitate site construction access, proposed construction works would not have long term negative impacts on the single tree; T24.

I have concluded that Major incursions from proposed works would occur within the TPZ of the fourteen trees; T1, T5, T7, T8, T9, T11, T21, T29, T35, T48, T50, T51, T52 and T53.

2.8.3 Construction Impact Assessment.

I have concluded that construction impacts are not anticipated on the twenty trees; T2, T3, T4, T24, T30, T31, T33, T34, T35, T36, T37, T38, T39, T40, T41, T41, T43, T44, T45 and T49.

The following lists the calculated TPZ incursions for each affected tree:

The Tree T1.

- (i) Construction of a new Outdoor Learning Centre, with OSD tank under, stormwater line and concrete access ramp would result in a Major TPZ incursion of (17.4%). The incursion would also occur within the SRZ.

The total TPZ incursion calculated for this tree is; (17.4%) (Major). (Attachment 5)

It is possible that pruning (Crown lifting-Class C) of the southern canopy quadrant may be required to provide clearance for proposed works. It is anticipated that pruning <10% of the overall tree canopy is required. (This tree is located within 3m of a proposed OSD tank).

The Tree T3.

- (i) Construction of a new Outdoor Learning Centre and concrete access ramp would result in a Minor TPZ incursion of (6.7%).
- (ii) Installation of proposed subgrade hydraulics (stormwater) would result in a Minor TPZ incursion of (0.4%) within the TPZ of this tree.

The total TPZ incursion calculated for this tree is; (7.1%) (Minor).

It does not appear that pruning of this tree will be required to facilitate proposed works or provide clearance for construction site access.

The Tree T5.

- (i) Construction of a concrete access ramp would result in a Major TPZ incursion of (11.4%). The incursion would also occur within the SRZ.

The total TPZ incursion calculated for this tree is; (11.4%) and within the SRZ (Major).

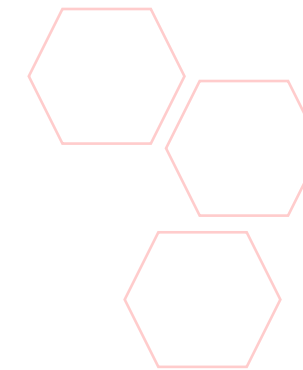
It is possible that pruning (Crown lifting-Class C) of the south west canopy quadrant may be required to provide clearance for proposed works. It is anticipated that pruning <10% of the overall tree canopy is required. (This tree is located within 3m of a proposed structure).

The Tree T7.

- (i) Installation of proposed subgrade hydraulics (stormwater) would result in a Major TPZ incursion of (10.9%) within the TPZ of this tree. The incursion would also occur within the SRZ.

The total TPZ incursion calculated for this tree is; (19.9%) and within the SRZ (Major).

It does not appear that pruning of this tree will be required to facilitate proposed works. It is possible that pruning (Crown lifting-Class C) of the western canopy quadrant may be required to provide clearance for construction site access. It is anticipated that pruning <10% of the overall tree canopy is required.



The Tree T8.

- (i) Construction of a concrete access ramp would result in a Minor TPZ incursion of (5.1%). The incursion would also occur within the SRZ.

The total TPZ incursion calculated for this tree is; (5.1%) and within the SRZ (Major).

It is possible that pruning (Crown lifting-Class C) of the south west canopy quadrant may be required to provide clearance for a concrete access ramp. It is possible that pruning (Crown lifting-Class C) of the eastern west canopy quadrant may be required to provide clearance for site construction access. It is anticipated that pruning <10% of the overall tree canopy is required. (This tree is located within 3m of a proposed structure).

The Tree T9.

- (i) Construction of a concrete access ramp would result in a Major TPZ incursion of (25.6%). The incursion would also occur within the SRZ.
- (ii) The tree is located within the building footprint of a proposed subgrade hydraulics (stormwater) line.

The total TPZ incursion calculated for this tree is; (25.6%) and within the SRZ (Major).

It is possible that pruning (Reduction pruning-Class R) of the western canopy quadrant may be required to provide clearance for a concrete access ramp. It is anticipated that pruning >10% of the overall tree canopy is required. (This tree is located within 3m of a proposed structure).

The Tree T10.

- (i) Construction of a concrete access ramp would result in a Minor TPZ incursion of (6.1%).
- (ii) The tree is located within the building footprint of a proposed subgrade hydraulics (stormwater) line.

The total TPZ incursion calculated for this tree is; (6.1%) (Minor).

It does not appear that pruning of this tree will be required to facilitate proposed works. (This tree is located within 3m of a proposed structure).

The Tree T11.

- (i) Construction of a concrete access ramp would result in a Minor TPZ incursion of (4.7%).
- (ii) Installation of proposed subgrade hydraulics (stormwater) would result in a Major TPZ incursion of (44.0%) within the TPZ of this tree. The incursion would also occur within the SRZ.

The total TPZ incursion calculated for this tree is; (48.7%) and within the SRZ (Major).

It is possible that pruning (Crown lifting-Class C) of the western canopy quadrant may be required to provide clearance for construction site access. It is anticipated that pruning <10% of the overall tree canopy is required.

The Tree T21.

- (i) Installation of proposed subgrade hydraulics (stormwater) would result in a Major TPZ incursion of (34.6%) within the TPZ of this neighbour's tree. The incursion would also occur within the SRZ.

The total TPZ incursion calculated for this tree is; (34.6%) and within the SRZ (Major).

It is possible that pruning (Reduction pruning-Class R) of the western canopy quadrant may be required to provide clearance for the new learning hub. It is anticipated that pruning >15% of the overall tree canopy is required.

The Tree T29.

- (i) Installation of proposed subgrade hydraulics (stormwater) would result in a Major TPZ incursion of (13.7%) within the TPZ of this tree. The incursion would also occur within the SRZ.

The total TPZ incursion calculated for this tree is; (25.6%) and within the SRZ (Major).

It is possible that pruning (Reduction pruning-Class R) of the western canopy quadrant may be required to provide clearance for a concrete access ramp. It is anticipated that pruning >10% of the overall tree canopy is required.

The Tree T33.

- (i) Construction of a concrete access ramp would result in a Minor TPZ incursion of (9.5%).

The total TPZ incursion calculated for this tree is; (9.5%) (Minor).

It does not appear that pruning of this tree will be required to facilitate proposed works.

The Tree T34.

- (i) Construction of a concrete access ramp would result in a Minor TPZ incursion of (9.0%).

The total TPZ incursion calculated for this tree is; (9.0%) (Minor).

It does not appear that pruning of this tree will be required to facilitate proposed works.

The Tree T35.

- (i) Construction of a concrete access ramp would result in a Major TPZ incursion of (22.6%).

The total TPZ incursion calculated for this tree is; (22.6%) (Major).

It does not appear that pruning of this tree will be required to facilitate proposed works.

The Tree T46.

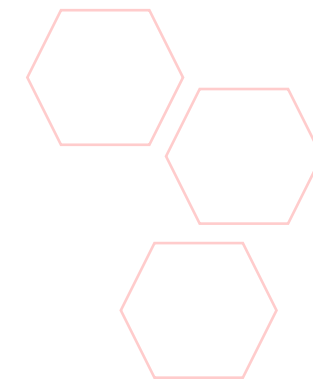
- (i) This tree is located within the proposed building footprint of proposed subgrade hydraulics (stormwater).

It does not appear that pruning of this tree will be required to facilitate proposed works.

The Tree T47.

- (i) This tree is located within the proposed building footprint of proposed subgrade hydraulics (stormwater).

It does not appear that pruning of this tree will be required to facilitate proposed works.



The Tree T48.

- (i) Construction of tiered seating and paving would result in a Major TPZ incursion of (17.5%).

The total TPZ incursion calculated for this tree is; (17.5%) (Major).

It does not appear that pruning of this tree will be required to facilitate proposed works.

The Tree T49.

- (i) Construction of tiered seating and paving would result in a Minor TPZ incursion of (9.7%).

The total TPZ incursion calculated for this tree is; (9.7%) (Minor).

It does not appear that pruning of this tree will be required to facilitate proposed works.

The Tree T50.

- (i) Construction of tiered seating and paving would result in a Minor TPZ incursion of (10.0%).
- (ii) Installation of proposed subgrade hydraulics (stormwater) would result in a Minor TPZ incursion of (2.5%) within the TPZ of this tree.

The total TPZ incursion calculated for this tree is; (12.5%) (Major).

It does not appear that pruning of this tree will be required to facilitate proposed works.

The Tree T51.

- (i) Construction of tiered seating and paving would result in a Major TPZ incursion of (10.5%).
- (ii) Installation of proposed subgrade hydraulics (stormwater) would result in a Major TPZ incursion of (32.4%) within the TPZ of this tree. The incursion would also occur within the SRZ.

The total TPZ incursion calculated for this tree is; (42.9%) (Major).

It does not appear that pruning of this tree will be required to facilitate proposed works.

The Tree T52.

- (i) Construction of tiered seating and paving would result in a Major TPZ incursion of (12.1%).
- (ii) Construction of paving would result in a Major TPZ incursion of (12.0%).
- (ii) Installation of proposed subgrade hydraulics (stormwater) would result in a Major TPZ incursion of (45.8%) within the TPZ of this tree. The incursion would also occur within the SRZ.

The total TPZ incursion calculated for this tree is; (69.9%) (Major).

It does not appear that pruning of this tree will be required to facilitate proposed works.

The Tree T53.

- (i) Construction of tiered seating, planter box and paving would result in a Major TPZ incursion of (23.9%).
- (ii) Installation of proposed subgrade hydraulics (stormwater) would result in a Major TPZ incursion of (45.8%) within the TPZ of this tree. The incursion would also occur within the SRZ.

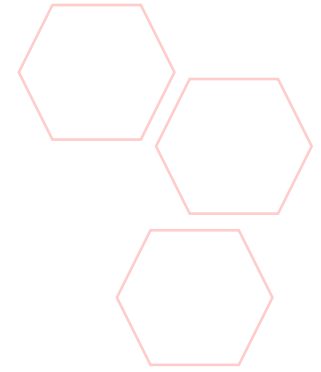
The total TPZ incursion calculated for this tree is; (69.9%) (Major).

It does not appear that pruning of this tree will be required to facilitate proposed works.

2.9 Understanding & Using the Tree Rating Methodologies.

A Hazard Rating, Tree Significance Rating, Tree Retention Value and useful life expectancy (ULE) Rating has been provided for each tree to assist in prioritizing trees for retention or removal.

Tree Significance Ratings are based on geographic point of origin (provenance), tree appearance and contribution to the streetscape, landscape and declared or observed heritage issues. Tree Retention Values are based on practical tree retention issues such as tree vigour, form/structure, the potential for conflict with the built environment and the potential ecological benefits the tree may provide, such as habitat for native wildlife or continuation of a species within its naturally occurring area. It is therefore possible for a tree to have a high Significance Rating and Low Retention Value or vice versa. All four categories of Hazard Rating, Significance Rating, Retention Value and Useful Life Expectancy (ULE) Rating as well as potential construction impacts have been considered when prioritizing trees for retention or removal.



3.0 Recommendations.

3.1 Trees to be Retained & Protected.

The trees; T1, T3, T7, T21, T22, T23, T24, T25, T26, T27, T28, T30, T33, T34, T35, T36, T38, T39, T41, T42, T43, T44, T45, T48, T49, T50, T51, T52 & T53.

If practical the twenty nine trees; T1, T3, T7, T21, T22, T23, T24, T25, T26, T27, T28, T30, T33, T34, T35, T36, T38, T39, T41, T42, T43, T44, T45, T48, T49, T50, T51, T52 and T53 should be retained, protected and incorporated into the site redevelopment.

3.2 Trees to be Removed or Retained & Protected.

Removal of the five trees; T2, T4, T31, T37 and T40 is at the client's discretion. (Council approval required).

3.3 Trees Requiring Further Assessment.

No trees requiring further more detailed assessment were observed at the time of the site inspection.

3.4 Trees to be Removed.

The Trees T2, T4, T5, T6, T8, T9, T10, T11, T12, T13, T14, T15, T16, T17, T18, T19, T20, T29, T31, T32, T37, T40, T46 & T47.

It is recommended that the twenty four trees T2, T4, T5, T6, T8, T9, T10, T11, T12, T13, T14, T15, T16, T17, T18, T19, T20, T29, T31, T32, T37, T40, T46 & T47 be removed.

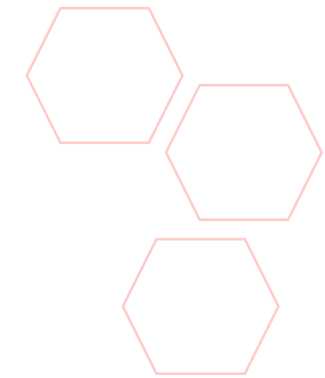
I have concluded that the five trees; T2, T4, T31, T37 and T40 will not be impacted upon by proposed works. These trees are recommended for removal due to existing Health and/or Condition issues and their removal is at the discretion of the client. The seven trees; T12, T13, T14, T15, T16, T17 and T18 are located within the building footprint of the proposed New Learning Hub. The stand of trees; T32 is located within the building footprint of a proposed concrete ramp and Major TPZ incursions are anticipated from hard landscaping. Construction of a concrete ramp will result in a Major incursion within the TPZ/SRZ of the three trees; T5, T8 and T9 and these trees are located within 3m of a proposed structure.

The tree; T10 is located within the building footprint of a proposed stormwater line, is located within 3m of a proposed structure and is located within the proposed site access route. The tree; T11 has been awarded a Short ULE Rating, installation of a stormwater line would result in a Major incursion within the TPZ/SRZ of this tree and the tree is located within the proposed site access route. No construction impacts are anticipated on the tree; T6 however this semi-mature specimen is located within the proposed site access route. The two trees; T19 and T20 are located within the building footprint of a paved area and within 3m of the proposed New Learning Hub. Major incursions will occur from the New Learning Hub within the TPZ/SRZ of these two trees.

Construction of a stormwater line would result in a Major incursion within the TPZ/SRZ of the tree T29. This tree is also located within the proposed site access route. The two trees; T46 and T47 are located within the building footprint of a proposed stormwater line. (It is a requirement under Wollongong City Council's tree management guidelines require that a DA be submitted to Council for the removal of trees associated with a heritage item. Site landscape plans must be amended to illustrate trees to be removed and trees to be retained).

3.5 Consideration for Minimizing Tree Impacts & Removals.

I have considered that the nine trees; T12, T13, T14, T15, T16, T17, T18, T19 and T20 may be retained, however this would require that the proposed New Learning Hub be relocated. I have considered that the stand of trees T32 may be retained if the proposed concrete ramp and adjacent hard landscaping be relocated/reconfigured



so that an incursion <10% of the TPZ occurs, however these trees are not considered significant within the context of the site.

I have considered that the trees; T5, T8 and T9 may be retained if an incursion <10% of the TPZ can be achieved, however this would require relocating/reconfiguring the proposed adjacent concrete ramp and possibly the attached proposed Outdoor Learning Centre. I have considered that the concrete ramp may be constructed on piers to minimize the TPZ/SRZ incursion, however these trees are also located within the proposed site access route.

I have considered that the tree; T10 may be retained if the proposed stormwater line be rerouted or installed via directional drilling, however this would also require relocating/reconfiguring the proposed adjacent concrete access ramp and possibly the attached proposed Outdoor Learning Centre. I have considered that the concrete ramp may be constructed on piers to minimize the TPZ/SRZ incursion, however this tree is also located within the proposed site access route.

I have considered that the tree; T11 may be retained if the proposed stormwater line be rerouted or installed via directional drilling. However this tree has been awarded a Short ULE Rating and is located within the proposed site access route. No construction impacts are anticipated on the tree; T6 and I have considered that the tree may be retained if a different site construction access route was available, however the client has advised that construction site access via Church Street is not a viable option.

I have considered that the tree; T29 may be retained if the proposed stormwater line was rerouted or installed via directional drilling, however this tree is located within the proposed site access route. I have considered that the two trees; T46 and T47 may be retained if the proposed stormwater line was rerouted or installed via directional drilling, however these two semi-mature trees are not considered significant within the context of the site.

3.6 Stump Removals.

The stumps and surface roots of trees removed should be ground to a maximum depth. The location of subgrade services must either be provided to the contractor prior to the commencement of works by the client or Dial Before You Dig. Stump grinding must be carried out by a minimum Cert 3 qualified Arborist to; AS 4373-2007 pruning of Amenity Trees, The Work Health and Safety Act and The Workcover Code of Practice; Amenity Tree Industry.

3.7 Pruning.

The Trees T1, T7, T21 & T28.

I have concluded that the four trees; T1, T7, T21 and T28 may require pruning to accommodate proposed works or construction site access. If required, pruning (Crown lifting-Class C) of the southern canopy quadrant of the tree; T1 may be carried to provide clearance for proposed works. It is anticipated that pruning <10% of the overall tree canopy is required. If required, pruning (Crown lifting-Class C) of the western

canopy quadrant of the tree; T7 may be carried to provide clearance for construction site access. It is anticipated that pruning <10% of the overall tree canopy is required. If required, (Reduction pruning-Class R) of the western canopy quadrant of T21 may be required to provide clearance for the new learning hub. It is anticipated that pruning >15% of the overall tree canopy is required. As this tree is owned by a neighbour they should be informed about the pruning works before proceeding. If required, pruning (Crown lifting-Class C) of the eastern canopy quadrant of the tree; T28 may be carried to provide clearance for construction site access. It is anticipated that pruning <10% of the overall tree canopy is required. (It is a requirement under Wollongong City Council's tree management guidelines require that a DA be submitted to Council for the pruning of trees associated with a heritage item).

3.8 Generic Pruning Specification.

Where possible tree branches/canopies should be temporarily tied back rather than pruned. If a tree needs to be pruned, the following generic guidelines must be followed: Pruning must not alter the height or shape of a tree and no more than 10% of the overall tree canopy should be removed unless specified within this report. Pruning must be carried out by a Cert III minimum level Arborist in accordance with AS4373-2007 Pruning of Amenity Trees.

3.9 Selecting a Professional Tree Contractor.

The tree contractor selected should be a member of, or be eligible for membership with, The Tree Contractors Association or Arboriculture Australia. Recommended tree works should be carried out by a minimum Cert 3 qualified Arborist to; AS 4373-2007, The Work Health and Safety Act and The Workcover Code of Practice; Amenity Tree Industry.

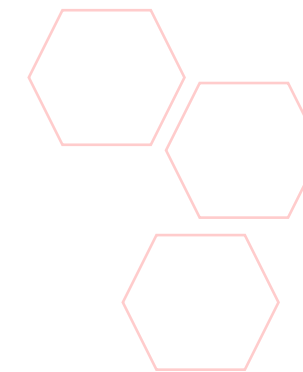
3.10 Design Changes to Minimize Tree Impacts.

The Trees T1, T7, T21, T35, T48, T50, T51, T52 & T53.

Construction of a proposed Outdoor Learning Centre with OSD tank under, and installation of a stormwater line would result in a Major incursion of the TPZ/SRZ of the tree T1. This tree has been awarded a Moderate Retention Value, is considered significant within the landscape due to its scale, and as a number of adjacent trees are to be removed, and the trees in this area provide screening for neighbours to the east, it is therefore preferred if practical that this tree be retained.

It is recommended that the proposed stormwater line be rerouted so that a TPZ incursion <10% of the TPZ and outside of the SRZ occurs, or the stormwater line be installed via directional drilling so that this tree may be retained. A specification for the installation of hydraulics via directional drilling is provided in (Section 3.12/Hydraulics & Services). It is also recommended that the proposed OSD tank be relocated outside of the SRZ of this tree and so an incursion < 10% of the TPZ is to occur. The location of the Outdoor Learning Centre and ramp may be maintained however it is to be supported on piers as specified in (Section 3.11.3). If this is not practical the proposed Outdoor Learning Centre and ramp should be relocated/reconfigured so that an incursion < 10% of the TPZ of T1 is to occur.

The proposed installation of a stormwater line would result in a Major incursion of the TPZ/SRZ of the tree T7 and would require removal of this tree. This tree has been awarded a High Retention Value, is considered significant within the landscape due to its scale, and as a number of adjacent trees are to be removed, and the trees in this area provide screening for neighbours to the east, it is therefore preferred if practical that this tree be retained. This tree is located within close proximity of the proposed construction site access route, however it appears that there is adequate space for traffic to negotiate around the tree. It is recommended that the proposed stormwater line be rerouted so that a TPZ incursion <10% of the TPZ and outside of the SRZ occurs, or the stormwater line be installed via directional drilling so that this tree may be retained. A specification for the installation of hydraulics



via directional drilling is provided in (Section 3.12/Hydraulics & Services).

The proposed installation of a stormwater line would result in a Major incursion of the TPZ/SRZ of the neighbour's tree T21 and would require removal of this tree. This tree has been awarded a Low Retention Value however as it is owned by a neighbour, it is therefore preferred, if practical, that this tree be retained. It is recommended that the proposed stormwater line be rerouted so that a TPZ incursion <10% of the TPZ and outside of the SRZ occurs, or the stormwater line be installed via directional drilling so that this tree may be retained.

The proposed installation of a concrete ramp at the southern side of the Administration Building would result in a Major incursion of the TPZ of the tree T35 and would require removal of this tree. This tree has been awarded a High Retention Value and is considered significant within the context of the site, it is therefore preferred, if practical, that this tree be retained. It is recommended that the proposed concrete ramp within the TPZ area of the tree be constructed on piers so that the TPZ incursion be reduced and this tree retained. A sensitive piercing construction specification is provided in (Section 3.10/Sensitive Construction Methodology).

The proposed construction of tiered seating and paving will result in a Major incursion within the TPZ of the trees T48 and T50-T53. The proposed tiered seating should be relocated/reconfigured to reduce the incursion on these trees to < 10% of the TPZ. Installation of a stormwater line will result in a Major incursion within the TPZ/SRZ of the trees T51-T53. The stormwater line should be rerouted to reduce the incursion on these trees to < 10% of the TPZ. Alternatively the stormwater line may be installed via direction drilling as specified in Section 3.13.2 Hydraulics and Services.

3.11 Sensitive Construction Methodology.

3.11.1 Temporary Construction Utilities.

The site covers a large physical area and temporary construction utility items such as site sheds and site stockpile areas should be located outside of the TPZ of trees. If construction utility items must be located within the TPZ of trees they should ideally be situated on the downhill slope of the tree and located so that an incursion of <10% of the TPZ occurs.

3.11.2 Demolition.

Demolition within the TPZ of trees must be carried out by hand and the access of demolition machinery within the TPZ of trees is to be avoided. Tree roots with a stem $\varnothing > 30\text{mm}$ shall not be severed as part of the demolition process. Demolition works within the TPZ of retained trees must be supervised by the Project Arborist. Demolition refuse is not to be stockpiled within the TPZ of retained trees. (To be supervised by the Project Arborist).

3.11.3 Piering.

If the construction of piers is to occur within the TPZ of trees; excavation must be carried out by hand for the first 500mm. No tree roots >30mm in \varnothing are to be damaged during the excavation process. If tree roots with a

stem $\varnothing > 30\text{mm}$ are encountered then excavation must stop and more suitable location sought. The excavated pier hole should be lined with a heavy gauge plastic prior to the pouring of concrete to minimize the likelihood of lime present in the concrete altering soil pH. (To be supervised by the Project Arborist).

3.11.4 Paving.

Paving within the TPZ of trees must be carried out using a permeable product to allow for soil moisture and oxygen infiltration. Compaction of the paving sub-base must be kept to a minimum. (It is allowable for soil levels to be raised by no more than 100mm within the TPZ of trees however soil levels must not be lowered). (To be supervised by the Project Arborist).

3.11.5 Fencing.

Fencing within the TPZ of trees must be carefully installed to avoid damage to trees and tree roots. Excavation within the TPZ of trees must be carried out by hand to a depth of 500mm. Excavation beyond 500mm may be carried out by mechanical means if required. Roots with a stem $\varnothing > 30\text{mm}$ must not be severed when carrying out excavation for fence footings or installing fences. If a root with a stem $\varnothing > 30\text{mm}$ is encountered during the excavation process then another more suitable location must be sought. In some cases it may be necessary to design fencing in a manner so that exposed tree roots are not disturbed. (To be supervised by the Project Arborist).

3.11.6 Irrigation.

The installation of irrigation within the TPZ of trees should be carried out to avoid damaging exposed roots. Roots with a stem $\varnothing > 30\text{mm}$ must not be severed when installing irrigation. (To be supervised by the Project Arborist).

3.11.7 Turf.

The installation of turf within the TPZ of trees should be carried out to avoid damaging exposed roots. If required to install turf, soil levels may be raised to a height of no greater than 100mm within the TPZ of trees. Turf should not be installed hard up against the stems of existing trees as this will result in mechanical damage to tree stems by mowing equipment. The area around tree stems should be mulched in lieu of applying turf. Turf should also be kept away from new plantings to reduce the impact of completion and enhance vigour in new plantings

3.12 Tree Replenishment & Landscaping.

Tree replenishment must be carried out for trees removed. Wollongong Council does not provide a tree replenishment ratio specification for trees removed. The proposed site redevelopment will require the removal of twenty four lower and upper canopy trees and landscape plans indicate that tree replenishment will be carried out with eighteen (18) upper and lower canopy trees as well as planting with a selection of shrubs and groundcovers.

The landscape plans carrying out planting primarily with native plant species however the use of Callery Pear (*Pyrus calleryana* 'Bradford') is also proposed. As anecdotal evidence suggests that this species is prone to branch failure in storm events and is known to exude an unpleasant odour, the use of this species is not supported. If a deciduous species, such as Callery Pear (*Pyrus calleryana* 'Bradford') is preferred for certain areas of the site, the client may wish to consider Manchurian Pear (*Pyrus ussuriensis*) or Jacaranda (*Jacaranda mimosifolia*) in lieu of Callery Pear (*Pyrus calleryana* 'Bradford'). Manchurian Pear (*Pyrus ussuriensis*) and Jacaranda (*Jacaranda mimosifolia*) are listed on the planting palette of 'Landscape Management in NSW Schools' are rated as low allergenic, are generally relatively free from defects and should perform well at the subject site. Other than the suggested use of Callery Pear (*Pyrus calleryana* 'Bradford') the ratio and species of plants selected appears suitable for the site and is supported.

Plant stock must be grown to the Australian Standard AS 2303-2015 Tree Stock for Landscape Use or NATSPEC and be planted in locations that can accommodate their potential physical dimensions both above and below ground level at maturity. (A planting guide is provided as Figure 9).

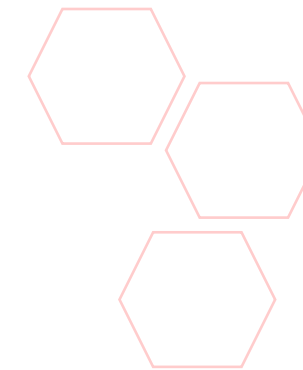
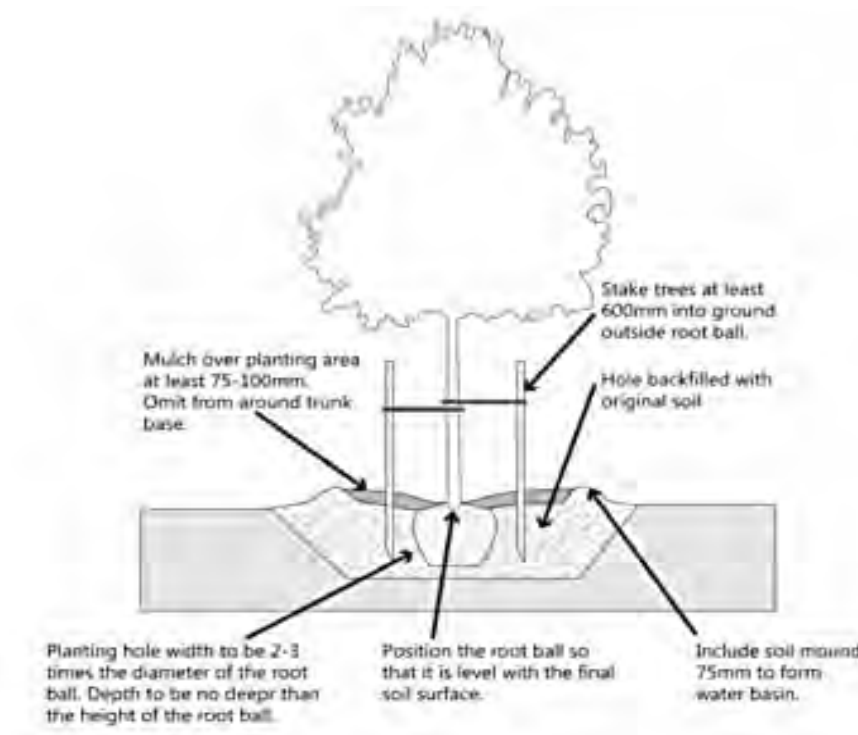


Figure 12. Tree Planting Guide. (Image Source; NUFA).



3.13 Tree Protection Plan. (After; AS4970 2009).

The Tree Protection Plan should be included as part of the site induction process for construction workers. The Tree Protection Plan is to be kept on site so it may be referenced as required. An AQF level 5 project Arborist is to be engaged to oversee the management of trees throughout the site redevelopment process. The Project Arborist contact information is to be recorded in Table 3.

Table 3. Project Arborist Contact Information. Please insert Project Arborist information.

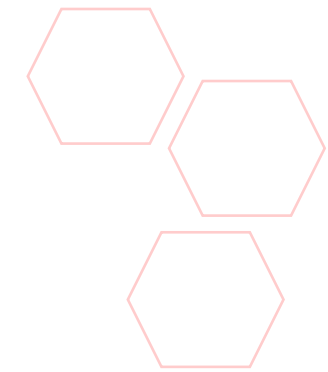
Project Arborist	Contact Information

3.13.1 Tree Protection.

The trees; T1, T3, T7, T21, T22, T23, T24, T25, T26, T27, T28, T30, T33, T34, T35, T41, T42, T43, T44, T45, T48, T49, T50, T51, T52 and T53

The seven trees; T30, T31, T36, T37, T38, T39 and T40 do not require protection.

Protection for the trees; T1, T3, T7, T21, T22, T23, T24, T25, T26, T27, T28, T33, T34, T35, T41, T42, T43, T44, T45, T48, T49, T50, T51, T52 and T53 should consist of protective fencing and ground



protection. Ground protection within the fenced TPZ area shall consist of mulch over geotextile fabric. Ground protection for the TPZ of the tree; T7 and outside of the fenced TPZ areas of T1, T22 and T28 shall consist of rumble boards.

3.13.2 Tree Protection Specifications.

Stem Protection.

Stem protection shall consist of 3.6m long timber batons placed over a layer of 20mm deep (when pushed flat) carpet under lay or similar. Batons are to be held in place with wire and nothing is to be nailed or screwed into trees.

Protective Fencing.

Protective fencing shall consist of 1.8m high chainwire mesh fencing on above ground concrete supports. (The location of protective fencing is provided in Attachment 6).

Ground Protection.

Ground protection within the TPZ is to consist of a 75mm deep layer of mulch over a sheet of geotextile fabric. The mulch should consist of a blend of native, aged, weed and seed free leaf mulch. The mulch must be maintained at a depth of 75mm. Rumble boards are to consist of boards strapped together over mulch or crushed aggregate over geotextile fabric.

Signage.

Signage with ‘Tree Protection Zone No Entry’ or similar and the Project Arborist’s contact details must be attached to protective fencing. Access to the TPZ fenced area is forbidden without approval by the Project Arborist.

Sediment Fencing.

Sediment fencing must be installed in accordance with Council specifications. The location of sediment fencing is provided in Attachment 6. The Sediment and Erosion Control Plan should be amended to reflect the location of the silt fencing. (Generic tree protection measures are illustrated in Attachment 7).

Hydraulics and Services.

If installed; stormwater detention tanks should be relocated and constructed outside of the TPZ of retained trees. The installation of hydraulics and services should also be routed outside the TPZ of retained trees. If underground services must be routed within the TPZ of a tree, and result in a Major incursion, they should be installed by directional drilling or manually excavated trenches at a depth of at least 1m. (Directional drilling to be supervised by the Project Arborist.) Entry and exit pits will be positioned outside the designated TPZ of each tree. This requirement should apply unless root sympathetic exploratory investigations have been undertaken and it has been determined that access within the TPZ will not significantly affect the tree.

3.13.3 Maintaining the TPZ’s.

Watering.

Retained tree/s should be watered twice a week, and altered in accordance with normal rainfall patterns, for the duration of site works. Soil moisture levels should be regularly monitored by the Project Arborist.

Weed removal.

All weeds within the TPZ’s, and on the site, should be removed by hand without soil disturbance or should be controlled with the appropriate use of a systemic herbicide such as Roundup™.

Activities generally excluded from TPZ’s include but are not limited to;

- † Lighting of fires.
- † Dumping of waste.
- † Machine excavation including trenching.
- † Excavation for silt fencing.
- † Cultivation.
- † Wash down and cleaning of equipment.
- † Refuelling.
- † Preparation of chemicals, including preparation of cement products.
- † Parking of vehicle and plant.
- † Soil level changes.
- † Placement of fill.
- † Temporary or permanent installation of utilities and signs.
- † Physical damage to the tree.

3.13.4 Monitoring Construction Work.

The Project Arborist must supervise any works within TPZs, including retaining walls, irrigation and works lighting installation, top-dressing, planting and paving. The Project Arborist should specify any remedial work above or below ground. Monitoring is to be recorded for inclusion in certification at practical completion. The Project Arborist will monitor the impacts of general construction works on retained trees. Ideally monitoring should be done at monthly intervals. Monitoring is to be recorded for inclusion in practical completion. (Table 4) Critical stages typically include installation of services, footings and slabs, scaffolding, works within the TPZ and at completion of building works. (Table 5)

Table 4. Project Arborist Site Inspection Record.

Site Inspection Date	Purpose of Inspection	Time on Site (Hours)	Arborist Signature

3.14 The Arboricultural Audit Process.

† Site Establishment Audit Report.

The construction management plan shall be provided to the Project Arborist. The Project Arborist will ensure that the construction management plan will not impact on protected tree assets. (At the completion of site establishment the Project Arborist will certify that tree protection measures are in place and that completed site establishment works will not impact on tree assets.)

† Site Works Audit Report/s.

The Project Arborist will supervise all works within the TPZ of retained trees. The Project Arborist will ensure that the approved works do not impact on protected tree assets. (At the completion of work the Project Arborist will certify that he was present to supervise works and that work was carried out in accordance with approved specifications.)

† Final Audit Report.

The Project Arborist will assess the condition of trees and their growing environment, and make recommendations for any necessary remedial actions. Following the final inspection and the completion of any remedial works, the Project Arborist will certify (as appropriate) that the completed works have been carried out in compliance with the approved plans and specifications for tree protection.

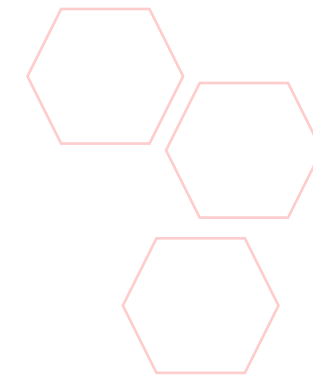
Table 5. Indicative Arboricultural Audit Report Time Line.

Procedure	Inspection Timing	Compliance Certificate Received Y/N
Tree protection measures	Upon completion of installation	
Supervise site works	As required within TPZ's	
Final certification	Post construction	

Yours sincerely,

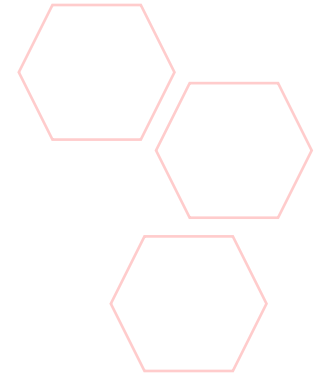


Paul Shearer (Director)
Dip. Hort. (Arb.)
Cert. III Hort. (Arb.)
ISA Tree Risk Assessment (TRAQ) Cert.
ISA Professional Member No: 229686.



References.

- (1) Matheny N. & Clark R., (1998), *Trees & Development*. ISA PO Box 3129 Champaign Illinois USA. (Page 93)
- (2) Paterson, K. & Eisemann A. (2017). *Heritage Impact Statement Wollongong Public School 67A Church St. Wollongong. Urbis Pty. Ltd.* (Page 37)
- (3) Chan, R. Hayball Architects. *Telephone Conversation (05.04.2018)*



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<http://www.wollongong.nsw.gov.au/council/governance/Policies/Wollongong%20DCP%202009%20Chapter%20E17%20-%20Preservation%20and%20Management%20of%20Trees%20and%20Vegetation.pdf> (Viewed 05.04.2018)

Request for Further Information DA-2017/1553. Wollongong City Council 07.03.2018.

Appendices.

1 Methodology.

2 Assumptions & Limitations.

3 Tree Useful Life Expectancy.

4 Generic Glossary.

Appendix 01. Methodology.

- † A site inspection for the purpose of gathering field notes was conducted on Thursday the 22nd of March 2018. Approximately 5 hours was spent on-site for the purpose of gathering field notes.
- † The Hazard Rating, Significance Rating and Retention Value awarded the subject trees was calculated off-site by utilising field notes and photographic evidence. The Hazard Rating has been adopted from (*Harris Clarke & Matheny 2004.*) As there is currently no industry standard for assessing tree Significance Ratings and Retention Values; the methodologies used to assess tree significance and retention values have been produced by Paul Shearer Consulting® 2017. (Attachment 2)
- † The subject tree/s were assessed using VTA (Visual Tree Assessment) at ground level. VTA methodology was applied as per the model produced by *Mattheck and Breloer (1994)*.
- † Site documents were referenced for the purpose of producing this report. (Table 6) Consultants reports referenced are detailed in Table 7. (The base drawing used for drawings is provided as Attachment 4).

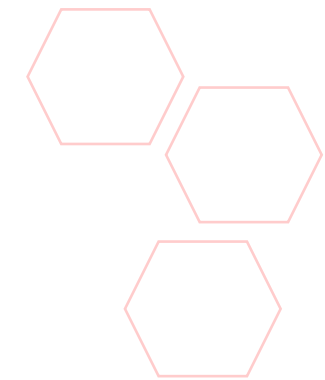
Table 6. Site Documents Referenced.

Drawing Name	Drawing No.	Scale	Produced By	Date Produced
Site Plan Existing & Demolition	DA01.01-Rev 03	1:500@A1	Hayball	06.04.2018
Site Plan Proposed	DA01.05-Rev 04	1:500@A1	Hayball	06.04.2018
Site Plan Cut & Fill	DA01.06-Rev 03	1:500@A1	Hayball	09.11.2017
Proposed Elevations & Sections	A10.DA06.01-Rev 02	1:100@A1	Hayball	09.11.2017
Sections	B10.DA06.03-Rev 02	1:100@A1	Hayball	07.11.2017
Sections-2	B10.DA06.04-Rev 02	1:100@A1	Hayball	07.11.2017
General Arrangement Plan (Stormwater)	4785C010-P1	-	WSP	May 2017
Sediment & Erosion Control Plan	4785C060-P2	-	WSP	May .2017
Cover Sheet (Landscaping)	0216-0767-10DA-100-Rev 06	-	Tract	16.04.2018
General Arrangement Plan (Sheet 1 of 2)	0216-0767-10DA-300-Rev 06	1:200@A1	Tract	16.04.2018
General Arrangement Plan (Sheet 2 of 2)	0216-0767-10DA-301-Rev 06	1:200@A1	Tract	16.04.2018

Table 7. Consultants Reports Referenced.

Report	Produced By	Reference No.	Date Produced
Heritage Impact Statement	Urbis	02	20.11.2017
Geotechnical Investigation	JK Geotechnics	29857Zrpt	09.01.2017
Preliminary Tree Assessment	Paul Shearer Consulting	Rev 01	22.11.2017

- † This report is not a comprehensive tree hazard or risk assessment. I did not; conduct a tree structural assessment, I did not conduct an aerial inspection; I did not send tree tissue or soil for pathology analysis.
- † Any radial offsets described have been measured from the centre of the tree stems.
- † The subject tree/s have been tagged and numbered with galvanized nails and alloy tags.
- † The Diameter above Buttress (DAB) of the trees was measured above the buttress flare.
- † AS4970-2009 defines the Structural Root Zone (SRZ) as the area of root zone required for tree stability.



The SRZ of the tree/s has been determined by measuring the trunk/s Diameter above the Buttress (DAB) and applying the following formula; $SRZ (r) = D \times 50^{0.42} \times 0.64$ (where D = DAB). An SRZ of 1.5m has been provided for trees with a DAB 0.15m or less. SRZ's have been calculated as a radial offset from the centre of the stem base of the tree/s.

- † SRZ Calculations.

Structural Root Zones (SRZ's) have been calculated for Major incursions as follows:

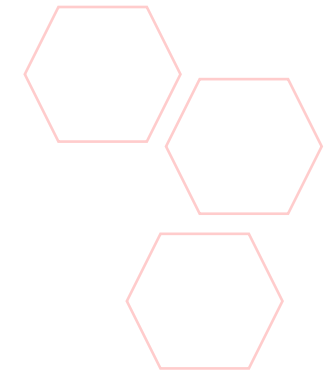
(T1) $(DAB = 1250mm \times 50) = 62.5^{0.42} \times 0.64 = 2.00m$
 (T5) $(DAB = .300mm \times 50) = 15^{0.42} \times 0.64 = 2.00m$
 (T7) $(DAB = .450mm \times 50) = 22.5^{0.42} \times 0.64 = 2.37m$
 (T8) $(DAB = .210mm \times 50) = 10.5^{0.42} \times 0.64 = 1.71m$
 (T9) $(DAB = .280mm \times 50) = 14^{0.42} \times 0.64 = 1.93m$
 (T11) $(DAB = .380mm \times 50) = 19^{0.42} \times 0.64 = 2.20m$
 (T21) $(DAB = .550mm \times 50) = 27.5^{0.42} \times 0.64 = 2.57m$
 (T29) $(DAB = .540mm \times 50) = 27^{0.42} \times 0.64 = 2.55m$
 (T35) $(DAB = 1070mm \times 50) = 53.5^{0.42} \times 0.64 = 3.40m$
 (T35) $(DAB = 1070mm \times 50) = 53.5^{0.42} \times 0.64 = 3.40m$
 (T48) $(DAB = .600mm \times 50) = 30^{0.42} \times 0.64 = 2.67m$
 (T50) $(DAB = .600mm \times 50) = 30^{0.42} \times 0.64 = 2.67m$
 (T52) $(DAB = .600mm \times 50) = 30^{0.42} \times 0.64 = 2.67m$
 (T53) $(DAB = .600mm \times 50) = 30^{0.42} \times 0.64 = 2.67m$

- † The Diameter at Breast Height (DBH) of the trees was measured at 1400mm above ground level. Each stem of multiple stemmed specimens was measured and calculated using the Queensland online TPZ Calculator for a DBH total.
- † AS4970-2009 defines the Tree Protection Zone (TPZ) as area of the root zone and tree canopy (above and below ground) required for a tree to remain viable. The TPZ of the tree/s has been determined by measuring the (DBH) and applying the following formula; $TPZ = DBH \times 12$. The DBH of multiple stemmed specimens is calculated by applying the following formula; $\sqrt{(DBH_1)^2 + (DBH_2)^2 + (DBH_3)^2}$ etc. The TPZ of palms, other monocots, cycads or tree ferns has been estimated 1m beyond the crown projection. A minimum TPZ of 2m has been provided for trees with a DBH of <0.17m. TPZ's have been calculated as a radial offset from the centre of the stem base of the tree/s.
- † Drawings detailing tree SRZ's/TPZ's, and incursions have been produced to scale using ArborCAD® software. Root zones and incursions have been calculated by the ArborCAD® software program.
- † Where relevant the canopy projection of trees located within the proximity of construction works have been estimated at the four cardinal points. Where necessary the height of lower tree limbs that may be impacted upon by proposed works has been estimated.

Appendix 02. Assumptions & Limitations of This Report.

The comments and recommendations made in this report assume the following:

- † Any health or condition issues relating to the subject trees needed to be identified.
- † The amenity of adjoining neighbours needed to be considered.
- † The retention of the subject trees and preservation of the streetscape and landscape character was desired.
- † Removal of trees is considered a last resort option.
- † Consideration for potential wildlife habitat and related ecological issues was to be considered.
- † Issues of significance associated with the subject site such as, heritage items and relevant environmental protection mechanisms were to be considered.
- † Loss of this report or alteration of any part of this report not undertaken by the author invalidates the entire report.
- † Possession of this report or a copy thereof does not imply right of publication or use for any purpose by anyone but the client or their directed representatives, without the prior consent of the author.
- † This report and any values expressed herein represent the opinion of the author and the consultant's fee is in no way conditional upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.
- † Sketches, diagrams, graphs and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural drawings, reports or surveys.
- † To the author's knowledge all facts, matter and all assumptions upon which the report proceeds have been stated within the body of the report and all opinion contained within the report have been fully researched and referenced and any such opinion not duly researched is based upon the writers experience and observations.
- † There is no warranty or guarantee, expressed or implied by the author that the problems or deficiencies of the plants or site in question may not arise in the future.
- † All instructions (verbal or written) that define the scope of the report have been included in the report and all documents and other materials that the author has been instructed to consider or to take into account in preparing this report have been included or listed within the report.



Appendix 03. Useful Life Expectancy. (ULE).

Categories (after Barrell 1996, Updated 07/04/01.) The five categories and their sub-groups are as follows:

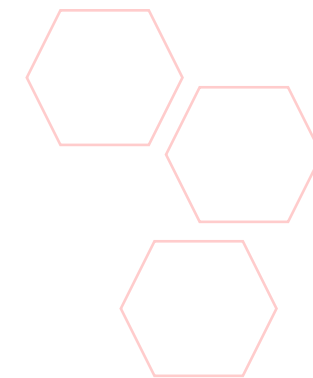
1. **Long ULE** - tree appeared retainable at the time of assessment for over 40 years with an acceptable degree of risk, assuming reasonable maintenance;
 - A. Structurally sound trees located in positions that can accommodate future growth.
 - B. Trees which could be made suitable for long term retention by remedial care
 - C. Trees of special significance which would warrant extraordinary efforts to secure their long term retention.

2. **Medium ULE**- tree appeared to be retainable at the time of assessment for 15 to 40 years with an acceptable degree of risk, assuming reasonable maintenance;
 - A. Trees which may only live from 15 to 40 years.
 - B. Trees which may live for more than 40 years but would be removed for safety or nuisance reasons.
 - C. Trees which may live for more than 40 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting.
 - D. Trees which could be made suitable for retention in the medium term by remedial care.

3. **Short ULE** - tree appeared to be retainable at the time of assessment for 5 to 15 years with an acceptable degree of risk, assuming reasonable maintenance:
 - A. Trees which may only live from 5 to 15 years.
 - B. Trees which may live for more than 15 years but would be removed for safety or nuisance reasons.
 - C. Trees which may live for more than 15 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting.
 - D. Trees which require substantial remediation and are only suitable for retention in the short term.

4. **Removal** - trees which should be removed within the next 5 years;
 - A. Dead, dying, suppressed or declining trees.
 - B. Dangerous trees through instability or recent loss of adjacent trees.
 - C. Dangerous trees because of structural defects including cavities, decay, included bark, wounds or poor form.
 - D. Damaged trees that are clearly not safe to retain.
 - E. Trees which may live for more than 5 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting.
 - F. Trees which are damaging or may cause damage to existing structures within the next 5 years.
 - G. Trees that will become dangerous after removal of other trees for the reasons given in (a) to (f).
 - H. Trees in categories (a) to (g) that have a high wildlife habitat value and, with appropriate treatment, could be retained subject to regular review.

5. **Small, young or regularly pruned** - Trees that can be moved or replaced;
 - A. Small trees less than 5m in height.
 - B. Young trees less than 15 years old but over 3m in height.
 - C. Formal hedges and trees intended for regular pruning to artificially control growth.



Appendix 04. Generic Glossary.

Age Classes;

- (S) Semi-mature refers to a tree between immaturity and maturity.
- (M) Mature refers to a full sized tree with some capacity for further growth.
- (LM) Late Mature refers to a tree that is entering decline.
- (O) Over-mature refers to a tree already in decline.

Health; Refers to the tree's vigour as exhibited by the crown density, leaf colour, presence of epicormic shoots, ability to withstand disease invasion, and the degree of dieback. Classes are Good (G), Fair (F), Declining (D), and Poor (P).

Condition; Refers to the tree's form and growth habit, as modified by its environment (Aspect, suppression by other trees, soils) and the state of the scaffold (i.e. trunk and major branches), including structural defects such as cavities, crooked trunks or weak trunk/branch junctions. These are not directly connected with health, it is possible for a tree to be healthy but in poor condition. Classes are Good (G), Fair (F), Declining (D), and Poor (P).

DBH (Diameter at Breast Height); Tree stem diameter measured at 1.4 metres above ground level.

DAB (Diameter at Buttress); Tree stem diameter measured at commencement of basal flare.

Lopped; Refers to a tree which has been pruned contrary to AS4373 (2007.) This type of pruning may be harmful to the health or condition of a tree.

AS4373; Refers to Australian Standard for Pruning of Amenity Trees. This certification commenced in 1996 (updated 2007) and is a standard for correct arboricultural techniques. The standard takes into account tree biology/health and tree worker safety issues.

Structural Root Zone (SRZ); As detailed in AS4970-2009 Protection of Trees on Development Sites, refers to the area of root zone measured as a radial offset from the centre of the tree stem required for tree stability. SRZ calculation; $(D \times 50)^{0.42} \times 0.64$. D = trunk diameter in metres measured above the root buttress. It is important to note that the SRZ is calculated as a radial average and biological root growth is affected by many factors. It may therefore be necessary, in certain cases, to undertake root mapping via physical or non-invasive means to determine the exact location of structural tree roots. AS4970-2009 only requires SRZ calculations when a major encroachment into the TPZ (>10%) or inside the SRZ is proposed.

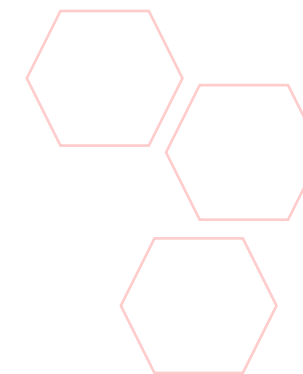
Tree Protection Zone (TPZ); As detailed in AS4970-2009 Protection of Trees on Development Sites, the TPZ includes the SRZ and is the combination of root and canopy area required to maintain tree stability and health/viability. TPZ calculation; twelve (12) times the trunk DBH measured as a radial offset from the centre of the tree stem. The TPZ indicates the location where protective fencing should be installed to create an exclusion zone around a protected tree.

Aerial Inspection; Refers to climbing a tree to obtain more accurate information on the tree canopy or scaffold.

Crown; Refers to the position of the tree consisting of branches and leaves and any part of the trunk from which branches arise.

Stem; Refers to a major supporting branch or limb.

Endemic; Refers to locally indigenous species.



Indigenous; Refers to Australian native plants which are not endemic.

Epicormic Shoots; Trees have epicormic buds which in times of stress may grow to increase the foliage on a tree. An increase in the photosynthetic production of sugar (energy) may assist in overcoming a tree's stressed condition. The presence of epicormic shoots on a tree is therefore a sign of stress in tree health.

Tree Hazard Ratings; Refers to three separate categories; Failure Potential, Size of Defective Part and Target Rating. A tree is given a score of 1 to 4 in each individual category. A score of 12 would rate as an extreme Hazard Rating; a score of 3 would rate as a very low Hazard Rating. (After; Harris Clarke & Matheny 2004.)

Tree Significance Ratings; Refers to four separate categories; Origin, Streetscape Significance, Landscape Significance and Heritage Significance. A tree is given a score of 1 to 3 in each individual category. A score of 12 would rate a tree as being of high significance and a score of 3 would rate a tree as being of low significance. (Paul Shearer Consulting 2017©) The three Significance Rating Categories are as follows:

- † High Significance Rating - (11-12).
- † Moderate Significance Rating - (9-10).
- † Low Significance Rating - (4-8).

Tree Retention Values; Refers to four separate categories; Health, Condition, Situation and Ecology. (It is therefore possible for a tree with a high Significance Rating to have a low Retention Value). Tree Retention Values are a guide only and should be considered in conjunction with other categories including; Hazard Rating, Significance Rating and ULE Rating, as well as potential construction impacts where applicable, when prioritizing trees for removal or retention. (Paul Shearer Consulting 2017©)

Useful Life Expectancy (ULE) Rating; In a planning context, the time a tree can expect to be usefully retained is the most important long-term consideration. The five ULE categories are; (1 Long – Over 40 years), (2 Medium – 15 – 40 years), (3 Short – 5-15 years), (4 Removal – Trees which should be removed) and (5 – Trees that can be moved or replaced). ULE i.e. a system designed to classify trees into a number of categories so that information regarding tree retention can be concisely communicated in a non-technical manner. ULE categories are easily verifiable by experienced personnel without great disparity. A tree's ULE category is the life expectancy of the tree modified first by its age, health, condition, safety and location (to give safe life expectancy. (Adapted from Barrell 1996. Updated April 2001)

Attachments.

- 1 Photographs.
- 2 Hazard, Significance & Retention Definitions & Calculations.
- 3 Summary of Tree Observations Table.
- 4 Base Drawing Referenced.
- 5 Drawings Illustrating Root Zones & Incursions.
- 6 Drawing Illustrating Tree Protection.
- 7 Drawing Illustrating Tree Protection Measures.

Attachment 01. Photographs.

Photograph 1. (North aspect). This photograph illustrates the subject site heading south along Church Street at the intersection of Smith Street. The tree T33 is visible from this aspect.



Photograph 2. (West aspect). This photograph illustrates the site heading east along Smith Street. The trees T25, T26, T29 and T30 can be seen from this aspect.



Photograph 3. (East aspect). This photograph illustrates the site heading west on Smith Street. The trees T29, T30 and the trees T25-T28 (red arrow) can be seen from this aspect.



Photograph 4. (North aspect). This photograph was taken from opposite the site on Smith Street. The trees T27, T28, T29 and T30 can be seen from this aspect. The approximate location of the proposed site construction access road is illustrated with a (red dashed rectangle).



Photograph 4. (South aspect). This photograph illustrates the site heading north on Church Street. The trees T33 and T36 can be seen from this aspect.



Photograph 5. (North West aspect). This photograph was taken from opposite the site on Church Street. The trees T33-T35 can be seen from this aspect.



Photograph 6. (West aspect). This photograph illustrates the stand of six trees identified as T32.



Photograph 7. (South aspect). This photograph illustrates the stand of trees located to the north east of the library. The trees T1-T11 and T21-T28 are located in this stand. Trees in this stand generally consist of Brushbox (*Lophostemon confertus*) which have been planted and Spotted Gums (*Corymbia maculata*) which seem to be naturally occurring. The neighbour's tree T21 is on the right.



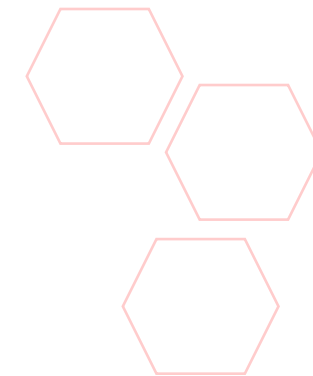
Photograph 8. (East aspect). This photograph illustrates the trees T12 – T20.



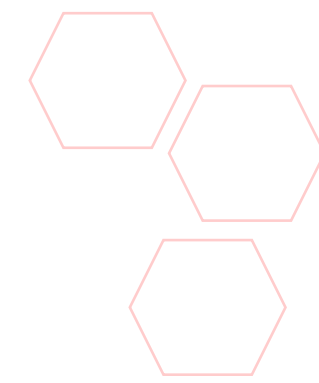
Attachment 02. Hazard Rating, Significance Rating & Tree Retention Value Definitions & Calculations.

TABLE 8. Hazard Rating, Significance Rating & Tree Retention Value Definitions.

<p>Hazard Rating: Refers to three separate categories; Failure Potential, Size of Defective Part and Target Rating. A tree is given a score of 1 to 4 in each individual category. A score of 12 would rate as an extreme Hazard Rating; a score of 3 would rate as a very low Hazard Rating. (After; Harris Clarke & Matheny 2004.)</p>
<p>(Failure Potential) – Identifies the most likely failure and rates the likelihood that the structural defect will result in failure.</p> <ol style="list-style-type: none"> 1. Low - defects are minor (e.g. dieback of twigs, small wounds with good wound wood development) 2. Medium – defects are present and obvious (e.g. cavity encompassing 10-25% of stem circumference). 3. High – numerous and or significant defects present (e.g. cavity encompassing 30-50% of stem circumference or major bark inclusions). 4. Severe – defects are very severe (e.g. heart rots fruiting bodies, cavity encompassing more than 50% stem circumference).
<p>(Size of Defective Part) – Rates the size of the part most likely to fail. The larger the part that may fail, the greater the potential for damage.</p> <ol style="list-style-type: none"> 1. Most likely failure less than 150mm in diameter. 2. Most likely failure 150mm – 450mm in diameter. 3. Most likely failure 450mm – 750mm in diameter. 4. More than 750mm in diameter.
<p>(Target Rating) – Rates the use and occupancy of the area that would be struck by the defective part.</p> <ol style="list-style-type: none"> 1. Occasional use (e.g. jogging/cycle track). 2. Intermittent use (e.g. picnic area/day use parking). 3. Frequent use, secondary structure (e.g. seasonal camping area/storage facilities). 4. Constant use, structures (e.g. year-round use for a number of hours each day/residences).
<p>Hazard Rating = Failure Potential + Size of Part + Target Rating. (Add each of these categories for a rating out of 12).</p>



<p>Significance Rating: Refers to four separate categories; Provenance, Streetscape Significance, Landscape Significance and Heritage Significance. A tree is given a score of 1 to 3 in each individual category. A score of 12 would rate a tree as being of high significance and a score of 4 would rate a tree as being of low significance. (Paul Shearer Consulting 2017©)</p>
<p>(Provenance) – Refers to the geographical origin of a tree and whether the tree was likely to be naturally occurring, planted or introduced to the site by other means.</p> <ol style="list-style-type: none"> 1. Low - Refers to a tree which is most-likely to have been introduced by 'other means' (such as via bird droppings etc.) 2. Moderate - Refers to a tree which is most-likely to have been planted. 3. High - Refers to a tree which is an endemic species and is most-likely to be naturally occurring.
<p>(Streetscape Significance) - Refers to the size, scale and prominence of a tree in the streetscape, generally when viewed from street level.</p> <ol style="list-style-type: none"> 1. Low - Refers to trees that are inconspicuous in the streetscape and have little influence or impact on the streetscape character. 2. Moderate - Refers to trees that are moderately significant in the streetscape and have a moderate influence on the streetscape character. 3. High - Refers to trees that are highly significant in the streetscape, have a significant influence on the landscape character or create a 'sense of place.'
<p>(Landscape Significance) - Refers to the size, scale and prominence of a tree in the landscape, generally when viewed from a distance.</p> <ol style="list-style-type: none"> 1. Low - Refers to trees that are inconspicuous in the landscape and have little influence or impact on the landscape character. 2. Moderate - Refers to trees that are moderately significant in the landscape and have a moderate influence on the landscape character. 3. High - Refers to trees that are highly significant in the landscape and have a significant influence on the landscape character.
<p>(Heritage/Cultural/Natural Heritage Significance) - Details the heritage, cultural or natural heritage significance of a tree either formally recognized or in the view of the author.</p> <ol style="list-style-type: none"> 1. Low - Refers to trees that have no Heritage/Cultural/Natural Heritage Significance. 2. Moderate - Refers to species which are representative of a cultural planting period or have Heritage/Cultural/Natural Heritage Significance. 3. High - Refers to trees of state or national cultural or historical significance or trees with Heritage/Cultural/Natural Heritage Significance.
<p>Significance Rating = Provenance + Streetscape Significance + Landscape Significance + Heritage Significance. (Add each of these four categories together for a score out of 12.)</p>



<p>Retention Value: Refers to four separate categories; Health, Condition, Situation & Ecology. A tree is given a score of 1 to 4 in each individual category. A score of 12 would rate a tree as having a high retention value and a score of 4 would rate a tree as having a low retention value. (Paul Shearer Consulting 2017©)</p> <p>(Health) - Refers to the tree's vigor as exhibited by the crown density, leaf color, presence of epicormic shoots, ability to withstand disease invasion, and the degree of dieback. (After; Matheny & Clarke 1994)</p> <ol style="list-style-type: none"> Poor-Declining. Fair. Good. <p>(Condition) - Refers to the tree's form and growth habit, as modified by its environment (Aspect, suppression by other trees, soils) and the state of the scaffold (i.e. trunk and major branches), including structural defects such as cavities, crooked trunks or weak trunk/branch junctions. These are not directly connected with health as it is possible for a tree to be healthy but in poor condition. (After; Matheny & Clarke 1994)</p> <ol style="list-style-type: none"> Poor-Declining. Fair. Good. <p>(Situation) - Refers to the physical location of a tree on a site and its potential for future growth taking into account any physical restrictions, (e.g. position of house.)</p> <ol style="list-style-type: none"> Refers to a tree that is causing damage to property. Refers to a tree that has outgrown its situation and may cause damage to the built environment within the next 5 years. Refers to a tree located in a situation that can accommodate further growth with regular maintenance. <p>(Ecology) - Refers to the ecological significance or value of a tree.</p> <ol style="list-style-type: none"> Refers to a tree of exotic climatic origin which that offers little in the way of ecological significance or benefits. Refers to a tree, endemic, indigenous or exotic, which may provide ecological benefits. Refers to a tree which forms part of an endangered vegetation community or provides significant ecological benefits such as hollows for habitat. <p>Retention Value = Tree Health + Tree Condition + Tree Situation + Ecology. (Add each of these four categories together for a score out of 12. Species which are exempt under Council's planning provisions and designated noxious weeds surveyed are automatically awarded a Low Retention Value).</p>

TABLE 9. Hazard Assessment, Significance Rating & Retention Value Calculations. Please refer to table 8 for an explanation of values used in this table. Calculations based on observations made at time of inspection.

Information Category	Tree No.									
Hazard Rating (1-12)	1	2	3	4	5	6	7	8	9	10
Failure Potential 1, 2, 3, 4.	1	1	1	1	1	1	1	1	1	1
Size of Defective Part 1, 2, 3, 4.	1	1	1	1	1	1	1	1	1	1
Target Rating 1, 2, 3, 4.	4	4	3	3	3	3	3	3	3	3
Total	6	6	5	5	5	5	5	5	5	5
Significance Rating (1-12)										
Provenance 1, 2, 3.	2	2	2	2	3	3	3	3	3	3
Streetscape Significance 1, 2, 3.	1	1	1	1	1	1	1	1	1	1
Landscape Significance 1, 2, 3.	3	1	3	1	3	1	3	3	1	1
Heritage Significance 1, 2, 3.	3	3	3	3	3	3	3	3	3	3
Total	9	7	9	7	10	8	10	10	8	8
Retention Value (1-12)										
Health 1, 2, 3.	2	1	3	1	3	3	3	3	2	3
Condition 1, 2, 3.	3	1	2	2	3	3	3	2	2	3
Situation 1, 2, 3.	3	3	3	3	3	3	3	3	3	3
Ecology 1, 2, 3.	2	1	2	1	2	1	2	2	1	1
Total	10	6	10	7	11	10	11	10	8	10

Information Category	Tree No.																																												
Hazard Rating (1-12)	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53		
Failure Potential 1, 2, 3, 4.	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	4	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	
Size of Defective Part 1, 2, 3, 4.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	3	3	3	3	3	3
Target Rating 1, 2, 3, 4.	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	3	3	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4
Total	5	5	5	5	5	5	5	5	5	5	5	5	5	6	8	6	6	6	6	8	5	7	6	6	5	5	5	5	7	5	5	5	5	5	5	5	8	8	8	8	8	8			
Significance Rating (1-12)																																													
Provenance 1, 2, 3.	3	2	2	2	2	3	2	3	3	2	1	2	2	2	2	2	2	2	2	2	2	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Streetscape Significance 1, 2, 3.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	3	3	1	1	3	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Landscape Significance 1, 2, 3.	2	1	1	1	1	1	1	1	1	1	1	3	3	1	2	3	3	3	2	2	1	1	3	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	
Heritage Significance 1, 2, 3.	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
Total	9	7	7	7	7	8	7	8	8	7	6	9	9	7	9	10	10	10	10	10	7	7	12	10	10	6	6	5	5	5	5	5	5	5	5	7	7	7	8	8	8	8	8		
Retention Value (1-12)																																													
Health 1, 2, 3.	2	2	3	3	3	2	1	2	2	3	2	2	3	3	2	3	2	3	3	3	3	3	3	3	3	2	3	2	2	2	3	3	3	3	3	3	3	2	2	2	2	2	2	2	
Condition 1, 2, 3.	2	2	2	2	2	2	1	2	2	2	2	3	2	2	2	2	3	2	2	3	1	2	2	2	3	2	2	3	3	1	3	3	3	3	3	3	2	2	2	2	2	2	2		
Situation 1, 2, 3.	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
Ecology 1, 2, 3.	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	2	2	2	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Total	8	8	9	9	9	8	6	8	8	9	8	10	10	9	8	10	10	10	9	10	8	9	10	10	11	8	7	9	9	7	10	10	10	10	10	10	8	8	8	8	8	8	8		

* Indicates an exempt or noxious weed species which are automatically awarded a Low Retention Value, unless located on a neighbouring site.



Attachment 03. Summary of Tree Observations Table.



Table 10. Summary of Tree Observations.

Client: NSW Department of Education.

Address: Wollongong PS, 67A Church Street, Wollongong NSW.

Date Observations Recorded: 22.03.2018.

Tree Retention Values have been calculated based on the following 4 categories;

1. Tree Health.
2. Tree Condition.
3. Tree Situation (location).
4. Ecological considerations.

Tree Retention Value Categories are as Follows:

- 11-12 = High Retention Value.
9-10 = Moderate Retention Value.
4-8 = Low Retention Value.

Retain Tree		Pruning Required		Further Assessment Required				Retain or Remove Tree				Remove Tree		Comments	Development Impact Summary
Tree No.	Species	Tree Age	Tree Height (m)*	Canopy Spread (R m)*	DBH/DAB (mm)	TPZ (R m)	SRZ (R m)	Tree Health (Vigor)	Tree Condition (Structure)	Hazard Rating (1-12)	Significance Rating (1-12)	Retention Value (1-12)	ULE Rating		
1	Brush Box (<i>Lophostemon confertus</i>)	M	20	N4/S7/E7/W7	1200/1250	14.40	3.63	F	G	6	9	10	2A	Two codominant stems, small areas of bark dieback on western stem.	Major TPZ/SRZ incursions from Outdoor Learning Centre, concrete ramp & stormwater. Within 3m of OSD tank.
2	Brush Box (<i>Lophostemon confertus</i>)	M	6	4 x 1	120, 110/210	2.00 [†]	-	P	P	6	7	6	4A	Has been outcompeted.	No construction impacts anticipated.
3	Brush Box (<i>Lophostemon confertus</i>)	M	18	4 x 4	650/950	7.80	-	G	F	5	9	10	2A	Intermediate habit, three codominant stems.	Minor TPZ incursions from Outdoor Learning Centre, concrete ramp & stormwater.
4	Brush Box (<i>Lophostemon confertus</i>)	M	8	4 x 1	180/270	2.16	-	P	P	5	7	7	4A	Has been outcompeted.	No construction impacts anticipated.
5	Spotted Gum (<i>Corymbia maculata</i>)	M	20	N4/S2/E1/W3	240/300	2.88	2.00	G	G	5	10	11	2A		Major TPZ/SRZ incursion from concrete ramp, < 3m bldg. offset.
6	Spotted Gum (<i>Corymbia maculata</i>)	S	15	4 x 1	180/200	2.16	-	G	G	5	8	10	2A		No construction impacts anticipated. WBF site access.
7	Spotted Gum (<i>Corymbia maculata</i>)	M	20	4 x 5	360/450	4.32	2.37	G	G	5	10	11	2A		Major TPZ/SRZ incursion from stormwater.
8	Spotted Gum (<i>Corymbia maculata</i>)	M	20	N0/S7/E5/W4	180/210	2.16	1.71	G	F	5	10	10	2A	Asymmetrical canopy to south.	Major TPZ/SRZ incursion from concrete ramp. WBF site access & < 3m bldg. offset.
9	Lilly Pilly (<i>Syzygium smithii</i>)	M	7	N2/S1/E1/W2	220/280	2.64	1.93	F	F	5	8	8	2A	Asymmetrical canopy to west, basal suckering.	Major TPZ/SRZ incursion from concrete ramp. WBF stormwater & < 3m bldg. offset.
10	Lilly Pilly (<i>Syzygium smithii</i>)	M	8	4 x 2	260/400	3.12	-	G	G	5	8	10	2A		Minor TPZ/SRZ incursion from concrete ramp. WBF stormwater & < 3m bldg. offset.
11	White Feather Honey Myrtle (<i>Melaleuca decora</i>)	M	12	4 x 3	410/380	4.92	2.20	F	F	5	9	8	3A	Average specimen with reduced canopy area due to adjacent trees.	Minor TPZ/SRZ incursion from concrete ramp. Major TPZ/SRZ incursion from stormwater.
12	Brush Box (<i>Lophostemon confertus</i>)	M	8	4 x 4	300/500	3.60	-	F	F	5	7	8	3A	Dieback 10%, leader removed or snapped out long ago.	WBF New Learning Hub.
13	Brush Box (<i>Lophostemon confertus</i>)	M	9	N3/S0/E3/W3	290/320	3.48	-	G	F	5	7	9	2A	Intermediate habit.	WBF New Learning Hub.
14	Brush Box (<i>Lophostemon confertus</i>)	M	8	N1/S1/W2/W2	110,130,240 /270	3.54	-	G	F	5	7	9	2A	Multiple codominant stems.	WBF New Learning Hub.
15	Brush Box (<i>Lophostemon confertus</i>)	M	10	4 x 4	320,130,200 /600	4.79	-	G	F	5	7	9	2A	Basal flaring.	WBF New Learning Hub.
16	Willow-leaved Hakea (<i>Hakea Salicifolia</i>)	M	6	4 x 2	120,140,190 /310	3.18	-	F	F	5	8	8	3A		WBF New Learning Hub.
17	Brush Box (<i>Lophostemon confertus</i>)	M	8	4 x 1	120/210	2.00 [†]	-	P	P	5	7	6	4A	Has been outcompeted.	WBF New Learning Hub.
18	Willow-leaved Hakea (<i>Hakea Salicifolia</i>)	M	6	N1/S1/E3/W1	140/210	2.00 [†]	-	F	F	5	8	8	3A	Asymmetrical canopy to east.	WBF New Learning Hub.
19	Willow-leaved Hakea (<i>Hakea Salicifolia</i>)	M	5	N1/S1/E2/W0	140,90/270	2.83	-	F	F	5	8	8	3A	Asymmetrical canopy to east.	WBF paving, & < 3m bldg. offset.
20	Brush Box (<i>Lophostemon confertus</i>)	M	7	N2/S0/E2/W2	280/340	3.36	-	G	F	5	7	9	2A	Asymmetrical canopy to north.	WBF paving, & < 3m bldg. offset.
21	Nettle Tree Celtis australis	M	9	4x9	300,300/550 *	5.10	2.57	F	F	5	6	8	3A	Exempt species but owned by neighbor.	Major TPZ/SRZ incursion from stormwater.
22	Brush Box (<i>Lophostemon confertus</i>)	M	20	N8/S5/E9/W9	920,280/100 0	11.55	-	F	G	5	9	10	2A	Minor crown lifting, poor pruning response, minor dead wood, good foliage density.	No construction impacts anticipated.

Tree No.	Species	Tree Age	Tree Height (m)*	Canopy Spread (R m)*	DBH/DAB (mm)	TPZ (R m)	SRZ (R m)	Tree Health (Vigor)	Tree Condition (Structure)	Hazard Rating (1-12)	Significance Rating (1-12)	Retention Value (1-12)	ULE Rating	Comments	Development Impact Summary
23	Brush Box (<i>Lophostemon confertus</i>)	M	18	N9/S2/E5W7	450,250/700	6.20	-	G	F	6	9	10	2A	Asymmetrical canopy to north.	No construction impacts anticipated.
24	Brush Box (<i>Lophostemon confertus</i>)	M	11	4x4	150,140/320	2.45	-	G	F	8	7	9	2A	Two codominant stems with minor inclusion.	No construction impacts anticipated.
25	Brush Box (<i>Lophostemon confertus</i>)	M	15	N5/S5/E2/W4	420/480	5.05	-	F	F	6	9	8	2A	Fluting at stem base, excessively crown lifted, reduced pruning response, good foliage density.	No construction impacts anticipated.
26	Brush Box (<i>Lophostemon confertus</i>)	M	18	4x3	300/340	3.60	-	G	F	6	10	10	2A	Moderate crown lifting, Two codominant stems at 2m.	No construction impacts anticipated.
27	Brush Box (<i>Lophostemon confertus</i>)	M	18	N9/S8/E3/E5	400/600	4.80	-	F	G	6	10	10	2A	Moderate crown lifting, reduced pruning response, fair foliage density.	No construction impacts anticipated.
28	Brush Box (<i>Lophostemon confertus</i>)	M	18	N9/S9/E11/W3	280,270,340/900	6.20	-	G	F	6	10	10	2A	Three codominant stems from 500mm, asymmetrical canopy to east.	No construction impacts anticipated. Prune for site construction access.
29	Brush Box (<i>Lophostemon confertus</i>)	M	14	N5/S5/E5/W2	340/540	4.10	2.55	G	F	6	10	9	2A	Asymmetrical canopy to east.	Major TPZ/SRZ incursion from stormwater.
30	Brush Box (<i>Lophostemon confertus</i>)	M	14	4x6	360/570	4.35	-	G	G	6	10	10	2A		No construction impacts anticipated.
31	Weeping Bottlebrush (<i>Callistemon viminalis</i>)	M	6	4x3	180,180,200,200/420	4.55	-	G	P	8	7	8	4E	Multiple failures, inclusions throughout.	No construction impacts anticipated.
32	Six x Weeping Bottlebrush (<i>Callistemon viminalis</i>) & one x Jacaranda (<i>Jacaranda mimosifolia</i>)	M	6	4x3	230,300/500	4.55	-	G	F	5	7	9	2A	Not plotted on site plans, surveyed as a stand, average dimensions provided based on the Jacaranda. No tags in trees.	WBF concrete ramp.
33	Spotted Gum (<i>Corymbia maculata</i>)	M	22	4x7	570/840	6.85	-	G	F	7	12	10	2A	Atypical fluting type formations in bark, dead wood >30mm dia.	Minor TPZ incursion from concrete ramp.
34	Spotted Gum (<i>Corymbia maculata</i>)	M	22	4x4	380/490	4.55	-	G	F	6	10	10	2A	Atypical fluting type formations in bark.	Minor TPZ incursion from concrete ramp.
35	Forest Red Gum (<i>Eucalyptus tereticornis</i>)	M	22	N9/S9/E8/W5	700/1070	8.40	3.40	G	G	6	10	11	2A	Lowest branch on northern stem at 4m.	Major TPZ incursion from concrete ramp.
36	Brush Box (<i>Lophostemon confertus</i>)	M	7	4x3	180,130,200/570	3.60	-	F-D	F	5	6	8	3A	Reduced foliage density, stunted foliage, dieback of branchlets.	No construction impacts anticipated.
37	Brush Box (<i>Lophostemon confertus</i>)	M	7	4x2	240/370	2.90	-	G	F	5	6	7	4F	Damaging fence, deviation in stem.	No construction impacts anticipated.
38	Brush Box (<i>Lophostemon confertus</i>)	M	9	4x4	350/500	4.20	-	F	G	5	5	9	3A	Dieback.	No construction impacts anticipated.
39	Brush Box (<i>Lophostemon confertus</i>)	M	9	4x4	300,180,180/580	4.70	-	F	G	5	5	9	3A	Dieback.	No construction impacts anticipated.
40	Brush Box (<i>Lophostemon confertus</i>)	M	6	4x3	320/400	3.85	-	F	P	7	5	7	4E	Vertical scar from below ground, atypical habit, poor specimen.	No construction impacts anticipated.
41	Brush Box (<i>Lophostemon confertus</i>)	S	7	4x2	110/170	2.00 ^f	-	G	G	5	5	10	2A		No construction impacts anticipated.
42	Brush Box (<i>Lophostemon confertus</i>)	S	7	4x2	110/170	2.00 ^f	-	G	G	5	5	10	2A	Dimensions applied from T41.	No construction impacts anticipated.
43	Brush Box (<i>Lophostemon confertus</i>)	S	7	4x2	110/170	2.00 ^f	-	G	G	5	5	10	2A	Dimensions applied from T41.	No construction impacts anticipated.
44	Brush Box (<i>Lophostemon confertus</i>)	S	7	4x2	110/170	2.00 ^f	-	G	G	5	5	10	2A	Dimensions applied from T41.	No construction impacts anticipated.
45	Brush Box (<i>Lophostemon confertus</i>)	S	7	4x2	110/170	2.00 ^f	-	G	G	5	7	10	2A	Dimensions applied from T41.	No construction impacts anticipated.
46	Brush Box (<i>Lophostemon confertus</i>)	S	7	4x2	110/170	2.00 ^f	-	G	G	5	7	10	2A	Dimensions applied from T41.	WBF stormwater.
47	Brush Box (<i>Lophostemon confertus</i>)	S	5	4x1	80/110	2.00 ^f	-	F	F	5	7	8	3A	Underperforming.	WBF stormwater.

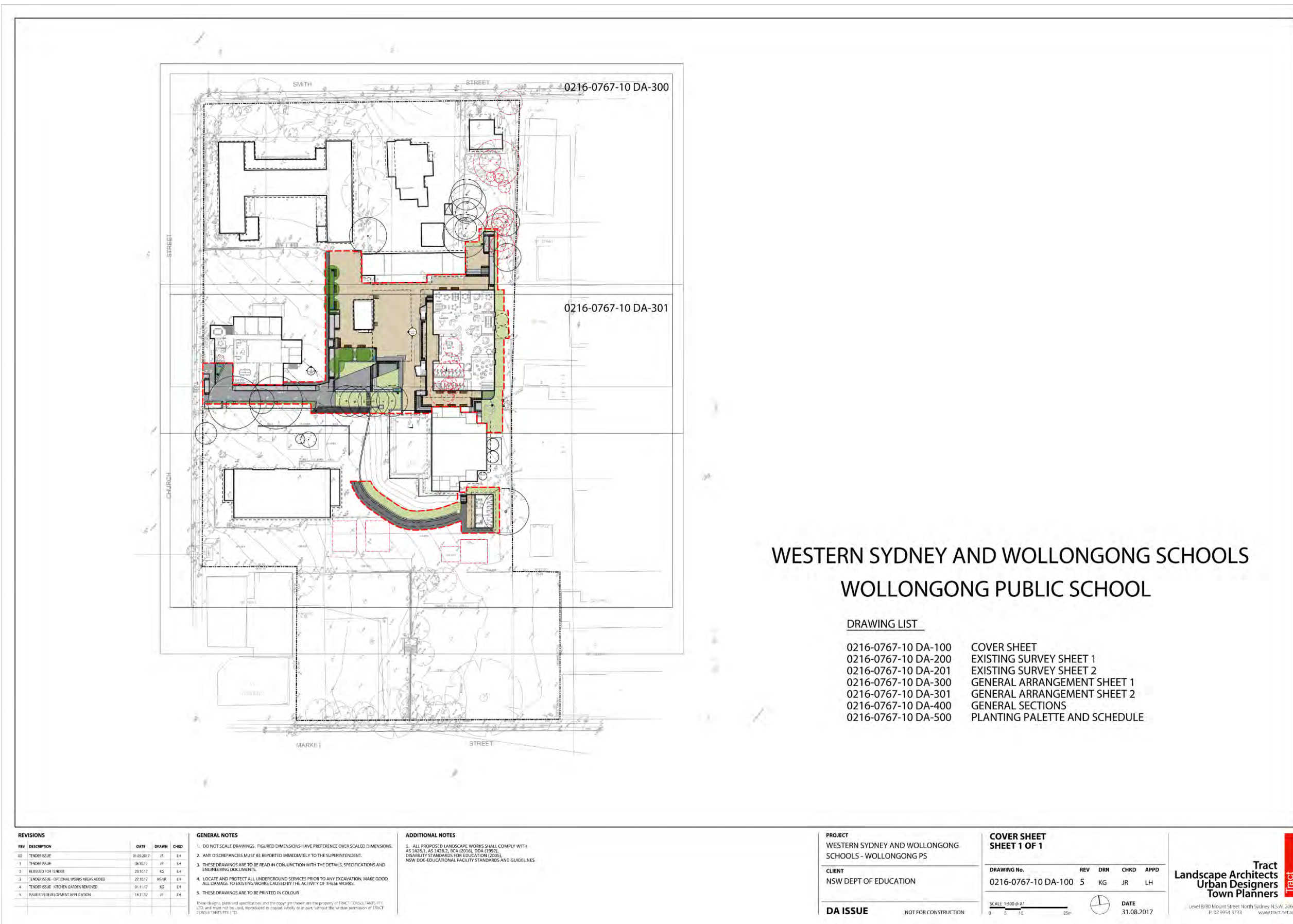
Tree No.	Species	Tree Age	Tree Height (m)*	Canopy Spread (R m)*	DBH/DAB (mm)	TPZ (R m)	SRZ (R m)	Tree Health (Vigor)	Tree Condition (Structure)	Hazard Rating (1-12)	Significance Rating (1-12)	Retention Value (1-12)	ULE Rating	Comments	Development Impact Summary
48	Brush Box (<i>Lophostemon confertus</i>)	M	12	4x3	390/600	4.70	2.67	F	F	8	8	8	2A	Exposed root-plate, has not reached full potential, old charring on stem.	Major TPZ incursion from tiered seating & paving.
49	Brush Box (<i>Lophostemon confertus</i>)	M	12	4x3	390/600	4.70	-	F	F	8	8	8	2A	Exposed root-plate, has not reached full potential, old charring on stem.	Minor TPZ incursion from tiered seating & paving.
50	Brush Box (<i>Lophostemon confertus</i>)	M	12	4x3	390/600	4.70	2.67	F	F	8	8	8	2A	Exposed root-plate, has not reached full potential, old charring on stem.	Major TPZ incursion from tiered seating & paving.
51	Brush Box (<i>Lophostemon confertus</i>)	M	12	4x3	390/600	4.70	2.67	F	F	8	8	8	2A	Exposed root-plate, has not reached full potential, old charring on stem.	Major TPZ incursion from tiered seating & paving. Major TPZ/SRZ incursion from stormwater.
52	Brush Box (<i>Lophostemon confertus</i>)	M	12	4x3	390/600	4.70	2.67	F	F	8	8	8	2A	Exposed root-plate, has not reached full potential, old charring on stem.	Major TPZ incursion from tiered seating & paving. Major TPZ/SRZ incursion from stormwater.
53	Brush Box (<i>Lophostemon confertus</i>)	M	12	4x3	390/600	4.70	2.67	F	F	8	8	8	2A	Exposed root-plate, has not reached full potential, old charring on stem.	Major TPZ incursion from tiered seating & paving. Major TPZ/SRZ incursion from stormwater.

Relevant tree information has been provided for the scope of this report. Any tree information not provided should be considered irrelevant or typical for the species. (Refer to Appendices 3 & 4 and Attachment 2 for an explanation of terminology used in this table).

(* Indicates dimension estimated. † Indicates TPZ or SRZ amended up or down as specified within AS4970. WBF = Within Building Footprint).

Attachment 04. Base Drawing Referenced.

Figure 13. Site Plan Proposed. (Base plan for drawings, tree numbers provided by PSC). NTS. (Tract 2017).



Attachment 05. Drawings Illustrating Tree Root Zones, Incursions & Canopy Projections.

(Please insert Sheet 1-4 of 4 here).

Attachment 06. Drawings Illustrating Tree Protection.

(Please insert Sheet 1-4 TPP of 4 here).

NSW Department of Education
C/o-HAYBALL
Ground Floor 11 Buckingham St.
SURRY HILLS
NSW 2010

23.05.2018

Attention: Andrew Fong.

Addendum to Arborist Report Wollongong Public School.

Dear Andrew

This is an addendum to an Arboricultural Impact Assessment Report (Report) for Wollongong Public School produced on the 23rd of April 2018 and issued on the 24th of April 2028. The client is the NSW Department of Education (DoE) and the report was produced by Paul Shearer Consulting (PSC). The Arboricultural Impact Assessment Report must be read in conjunction with this addendum.

The purpose of this addendum is to amend a recommendation in the previous report that the two trees; T24 and T28 be retained and incorporated into the site redevelopment. The tree T24 was identified as Mature Brush Box (*Lophostemon confertus*) specimen. The tree exhibits a height of 11m, a canopy spread of 8m, Good Health, Fair Condition and was awarded a Moderate Useful Life Expectancy (ULE) Rating of 15-40 years. The tree T28 was identified as a Mature Brush Box (*Lophostemon confertus*) specimen. The tree exhibits a height of 18m, an average canopy spread of 14m, Good Health, Fair Condition and was awarded a Moderate Useful Life Expectancy (ULE) Rating of 15-40 years. Both trees are located at the rear of the Community Meeting Building which is accessed via Smith Street and the tree is visible from Smith Street. The tree T28 is part of a stand and its removal will expose adjacent trees with habits that have been affected by their proximity to the intermediate/dominant subject tree T28.

The site has two vehicular access points via Church Street however the Project Coordinator has advised that construction site access must be available from Smith Street to minimise disruption to day to day activities of the school and minimize potential hazards. Construction site access was therefore proposed via Smith Street along the north eastern site boundary. The subject tree T24 was marked for retention without pruning in the report. The tree T28 exhibits an asymmetrical canopy to the east and it was concluded in the report that construction site access may be obtained by pruning (crown lifting) the subject tree in accordance with AS4373-2007.

It has been brought to my attention, that a prospective building contractor engaged as part of the site redevelopment process has completed a site inspection on Thursday the 17th of May and determined that the subject trees T24 and T28 must be removed to provide construction site access and space for a site compound area. The contractor has noted the following:

Space for a site compound will not be possible without the removal of the subject trees T24 and T28. This is due to the following factors:

- *The access road will need to suit the turn radius of the trucks used.*
- *There is a new culvert which has been installed along the eastern boundary which vehicle access must avoid.*
- *The vehicular access path would be obstructed by tree 28 and tree 24.*

The proposed site compound were not indicated on my site plans and has no doubt been a recent revision. Figure 1 illustrates the location of the proposed construction traffic access route and proximity to the subject trees.



Figure 1. Illustrating the Proposed Construction Site Access Route. NTS. (Hayball 2018)



The location of the proposed site construction traffic turn towards the south west just past the Community Meeting Building. Although not marked on this drawing, the proposed site compound would be located between the stand of trees directly behind the Community Meeting Building T25-T28 and the tree T23 located further to the south.

As there is no other site access or compound area options available it appears that proposed works will require removal of the two trees T24 and T28. Council approval is required for removal of the two subject trees.

Yours sincerely,

Paul Shearer (Director)
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ISA TRAQ Cert.
Professional Member ISA

