Environmental Impact Statement

Newcastle Grammar School (Park Campus)
127 Union Street, Cooks Hill NSW 2300

Prepared for: APP Corporation | Level 2, 426 King Street, Newcastle NSW

Date October 2021 | **SLR Ref:** 19472-R01

PREPARED BY

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BASIS OF REPORT

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DOCUMENT CONTROL

Reference	Date	Prepared	Checked	Authorised
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19472-R01-v0.1	3 June 2021	Theo Klok	Steve O'Connor	Melissa Thomas
19472-R01-v0.1	3 June 2021	Theo Klok	Steve O'Connor	Melissa Thomas

Environmental Impact Statement Declaration

Project Details	
Project Name	Newcastle Grammar School - Park Campus
Application Number	SSD-13895306
Address of the land in respect of which the development application is made	127 Union Street, Cooks Hill
Applicant Details	
Applicant Name	Newcastle Grammar School
Applicant Address	127 Union Street, Cooks Hill
Details of person by whom this EIS was prepared	
Name	Melissa Thomas
Address	Suite 2B, 125 Bull Street, Newcastle West NSW, 2302
Professional qualifications	BEnvSc, DipEdu, GradDipURP
Declaration	
Name	Melissa Thomas
Declaration	The undersigned declares that this EIS: • has been prepared in accordance with Schedule 2 of the Environmental Planning and Assessment Regulation 2000; • contains all available information relevant to the environmental assessment of the development, activity or infrastructure to which the EIS relates; • does not contain information that is false or misleading; • addresses the Planning Secretary's environmental assessment requirements (SEARs) for the project; • identifies and addresses the relevant statutory requirements for the project, including any relevant matters for consideration in environmental planning instruments; • has been prepared having regard to the Department's State Significant Development Guidelines - Preparing an Environmental Impact Statement; • contains a simple and easy to understand summary of the project as a whole, having regard to the economic, environmental and social impacts of the project and the principles of ecologically sustainable development; • contains a consolidated description of the project in a single chapter of the EIS; • contains an accurate summary of the findings of any community engagement; and • contains an accurate summary of the detailed technical assessment of the impacts of the project as a whole.
Signature	
Date	19-Oct-2021

Glossary

Abbreviation	Term
AADT	Average Daily Traffic Flows
ACHCR	Aboriginal Cultural Heritage Consultation Requirements for Proponent
AEC	Areas of Environmental Concern
AEP	Annual Exceedance Probability
ACHR	Aboriginal Cultural Heritage Report
AHD	Australian Height Datum
AHIMS	Aboriginal Heritage Information Management System
ANL	Australian Native Landscapes
AOBV	Area of Outstanding Biodiversity Values
APZ	Asset Protection Zone
AQMS	Air Quality Monitoring Station
ARI	Average Recurrence Interval
ASS	Acid Sulfate Soils
BAL	Bushfire Attack Level
BAM	Biodiversity Assessment Method
BC Act 2016	*Biodiversity Conservation Act 2016*
BCA	Building Codes of Australia
BCD	Biodiversity and Conservation Division of Department of Planning, Industry and Environment
BDAR	Biodiversity Development Assessment Report
BOS	Biodiversity Offset Scheme
CBD	Central Business District
CEMP	Construction Environmental Management Plan
CIV	Capital Investment Value
CLM Act	*Contaminated Land Management Act 1997*
CMP	Construction Management Plan
COLA	Covered Outdoor Learning Area
COPC	Chemicals of Potential Concern
Council	City of Newcastle Council
CPTED	Crime Prevention Through Environmental Design
DAWE	Commonwealth Department Agriculture, Water and the Environment
DCP	Development Control Plans
DDA	*Disability Discrimination Act 1992*
DPIE	Department of Planning, Industry and Environment
DMP	Dust Management Plan

Abbreviation	Term
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPI	Environmental Planning Instruments
EPL	Environment Protection Licence
ERA	Environmental Risk Assessment
ESCP	Erosion and Sediment Control Plan
ESD	Ecologically Sustainable Development
FDI	Fire Danger Index
FERP	Flood Evacuation Response Plan
FFL	Finished Floor Level
FIA	Flood Impact Assessment
FPL	Flood Planning Level
FSR	Floor Space Ratio
FSS	Fire Safety Strategy
GANSW	Government Architect NSW
GDES	Groundwater Dependent Ecosystems
GHG	Greenhouse Gas
HCA	Heritage Conservation Areas
IAQM	Institute of Air Quality Management
ICNG	Interim Noise Construction Guideline
IPA	Inner Protection Area
km	Kilometre
LALC	Local Aboriginal Land Council
LEP	Local Environment Plan
LGA	Local Government Area
LoS	Line of Sight
LSPS	Local Strategic Planning Statement
m	Metres
m^2	Metres squared
m/s	Metres per second
mbgs	Metres below ground surface
mm	Millimetre
MUSIC	Model for Urban Stormwater Improvement Conceptualisation

Abbreviation	Term
NCC	National Construction Code
NES	National Environmental Significance
NIA	Noise Impact Assessment
NLEP 2012	*Newcastle Local Environmental Plan 2012*
NGER	National Greenhouse and Energy Reporting
NGS	Newcastle Grammar School
NML	Noise Management Levels
NPfI	NSW Noise Policy for Industry
NPWS	National Parks and Wildlife Service (NPWS)
NSW	New South Wales
OOSH	Out of School Hours
OSD	Onsite Detention
PCT	Plant Community Type
PHA	Preliminary Hazard Analysis
PIRMP	Pollution Incident Response Management Plan
PMF	Probable Maximum Flood
PNTL	Project Noise Trigger Level
POEO Act	*Protection of Environment Operations Act 1997*
PPE	Personal Protective Equipment
PSI	Preliminary Site Investigation
RAMSAR	Ramsar wetlands are sites that are recognised under the Convention on Wetlands of International Importance (Ramsar Convention) as being of international significance in terms of ecology, botany, zoology, limnology or hydrology.
RAP	Remediation Action Plan
RFS	Rural Fire Service
RL	Reduced Level
RMS	Roads and Maritime Services (now TfNSW)
RNP	NSW Road Noise Policy
SA NSW	Subsidence Advisory NSW
SRD SEPP	*State Environmental Planning Policy (State and Regional Development) 2011*
SEARs	Secretary's Environmental Assessment Requirements
SES	State Emergency Service
SEPP	State Environmental Planning Policies
SEPP55	*State Environmental Planning Policy No. 55 – Remediation of Land*
SEPP64	*State Environmental Planning Policy No. 64 Advertising and Signage*
SLR	SLR Consulting Australia Pty Ltd
SOHI	Statement of Heritage Impacts

Abbreviation	Term
SSD	State Significant Development
TECs	Threatened Ecological Communities
TfNSW	Transport for New South Wales
TIA	Traffic Impact Assessment
vtph	Vehicle trips per hour
WMF	Waste Management Facility
WMP	Waste Management Plan
OWMP	Operational Waste Management Plan
WQO	Water Quality Objective

Main
Report

Executive Summary

This Environmental Impact Statement (EIS) has been prepared by SLR Consulting Australia Pty Ltd in accordance with Section 4.12(8) of the *Environmental Planning and Assessment Act 1979* (the EP&A Act). This EIS is in support of a State Significant Development (SSD) (SSD-13895306) Application for the proposed redevelopment of Newcastle Grammar School (NGS) Park Campus, located at 127 Union Street, Cooks Hill (the site).

The proposed development is classified as SSD per Section 15 of Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011* which specifies that development that involves alterations or additions to an existing school having a capital investment value (CIV) of more than $20 million, is SSD.

Correspondence was forwarded to the NSW Department of Planning and Environment (the Department) in December 2020 seeking the Secretary's Environmental Assessment Requirements (SEARs) for preparation of an EIS in respect of the proposed development. The Department issued SEARs dated 26 February 2021. This EIS has been prepared in accordance with these SEARs.

NGS is a leading independent coeducational day school in the Hunter region, with over 900 students. The School caters for students ranging from Kindergarten to Year 12 across their Park and Hill campuses. The School commenced on the Park Campus site in 1997, and has evolved significantly over the last 24 years. The site is currently experiencing capacity issues, and Grades 5 and 6 having to be located at The Hill Campus. The current facilities at the Park Campus cannot readily be adapted to cater for the expansion of NGS in the coming years. Accordingly, this proposal seeks to alleviate pressure on existing school facilities, as well as facilitate the relocation of Grades 5 and 6 to the Park Campus.

As part of the overall development, the Park Campus will provide new teaching facilities and help manage growth. The following works are proposed as part of the concept development for the Park Campus:

- Demolition of the existing covered outdoor learning area (COLA) and existing Blocks C, D and F;
- Construction of an internal road along the northern boundary of the site. This road will act as a 'kiss and drop off' drive through access and provide one way traffic flow to ensure safe movement. A gate system will surface automatically after drop off and pick up, allowing the internal road and parking areas to be used as additional playground space;
- Construction of the Union Street Building, which is a proposed three-storey building including under-croft and additional roof top play area, in keeping with the scale of development at nearby residential sites. The ground floor will be open acting as a COLA and an extension of the play area;
- Construction of the proposed Corlette Street Building, which includes a semi basement car parking level (31-35 car parking spaces) and two storeys of teaching space above;
- Alterations of existing Building A including a two storey addition and the refurbishment of the Sandi Warren Performance Centre. Alterations will accommodate the Canteen, Library and Specialist Learning facilities;
- Building B refurbishment, to be used for administration, staff rooms and offices; and
- Associated landscaping and stormwater upgrades.

The proposed development seeks approval for a concept development for the site under Section 4.22 of the EP&A Act 1979 which is to be split into three stages. Development consent is also sought for all works associated with Stage 1.

The proposed Stage 1 includes:

- Demolition of the existing COLA and existing Block C, D and F;
- Construction of the three-storey building Union Street Building which includes under-croft and additional roof top play area, in keeping with the scale of development at nearby residential sites. The ground floor will be open acting as a COLA and an extension of the play area;
- Building B refurbishment, to be used for administration, staff rooms and offices;
- Kiss and Drop roadway with entry crossover from Corlette Street and exit crossover to Union Street with movable bollards to deny vehicular access outside of drop off and pick up hours;
- Site stormwater and services upgrades; and
- Landscaping improvements through the play area enhancing student experience.

Student enrolments at the Park Campus will be able to increase to 640 students once all the stages are completed and operational. Once stage 1 is complete, student numbers will be able to increase from 256 students to 480 students. This increased capacity will come with significant improvements to the School including in respect of traffic management, car parking availability, access to quality play spaces on site and enhanced learning facilities at the School.

As demonstrated throughout this EIS, the proposal is considered satisfactory in terms of its permissibility given the R3 Medium Density Residential Zone of the site pursuant to Newcastle Local Environmental Plan 2012 (NLEP 2012). An educational establishment is a permissible land use in the R3 zone. The proposal is also considered generally consistent with the strategic planning for the site. This EIS documents the proposal's suitability for the site in terms of its architectural design and environmental, economic and social benefits. The proposal is considered to be in the public interest as it will deliver high quality focused educational facilities with minimal potential adverse environmental, social and economic impacts.

CONTENTS

CONTENTS

CONTENTS

CONTENTS

CONTENTS

CONTENTS

CONTENTS

Figures

CONTENTS

Tables

CONTENTS

Appendices

1 Introduction

This Environmental Impact Statement (EIS) is structured as follows:

- Section 1: An overview of the site, the purpose of the report, the project and the applicant's details;
- Section 2: An overview of the strategic planning context relating to the site;
- Section 3: A description of the site and surrounding context, and summary of the site constraints;
- Section 4: A description of the project, including the project context and objectives,
- Section 5: An assessment of the project against relevant legislation, strategic and statutory planning controls;
- Section 6: A description of the consultation undertaken for the project, including the consultation process, issues raised and how the design of the development has responded to these issues;
- Section 7: An assessment of key issues and impacts generated by the project;
- Section 8: Justification for the project, including mitigation measures proposed and consideration of the suitability of the site;
- Section 9: A discussion of the public interest considerations relating to the project; and
- Section 10: Conclusion.

This EIS should be read in conjunction with the SEARs attached at Appendix A and the supporting technical documents provided in the Appendices.

1.1 Secretary's Environmental Assessment Requirements (SEARs)

An application for SEARs was lodged with the Department of Planning Industry and Environment (DPIE) in December 2020. SEARs (SSD-13895306) were issued on 26 February 2021 (Appendix B) outlining the general requirements and key issues to be addressed within this EIS. In preparing the SEARs, the DPIE consulted with the following agencies:

- City of Newcastle
- NSW Department of Planning, Industry and Environment (Water and Natural Resources Access Regulator)
- NSW Department of Planning, Industry and Environment (Biodiversity and Conservation)
- NSW Department of Planning, Industry and Environment (NSW Environment Protection Authority)
- Heritage NSW – Aboriginal Cultural Heritage
- Hunter Water Corporation
- Transport for NSW

The SEARs identify key issues, which are addressed throughout this EIS with assessment provided in Appendix A which summarises the key issues and the design response in relation to each issue.

1.2 Purpose of Report

This EIS relates to the proposed redevelopment of the site, known as the Park Campus. The site is located at 127 Union Street, Cooks Hill NSW 2300.

The proposed development is classified as SSD per Section 15 of Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011* which specifies that alterations and additions to a school having a capital investment value (CIV) of more than $20 million, is SSD.

The purpose of this EIS is to enable the informed consideration of all the relevant implications of proceeding with the project. This EIS has been prepared in accordance with Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act) and Schedule 2 of the Environmental Planning and Assessment Regulation 2000 (the Regulation) and in accordance with the Secretary's Environmental Assessment Requirements (SSD-13895306).

1.3 Project Overview

This EIS has been prepared by SLR Consulting Australia Pty Ltd (SLR) on behalf of Newcastle Grammar School (NGS) and describes the proposed alterations and additions to the NGS Park Campus. The proposed development seeks approval for a concept development for the site under Section 4.22 of the EP&A Act 1979 which is to be split into three stages. Development consent is also sought for all works associated with Stage 1.

Specifically, this SSD Concept Plan seeks consent to undertake the following works:

- Demolition of the existing covered outdoor learning area (COLA) and existing Blocks C, D and F;
- Construction of an internal road along the northern boundary of the site. This road will act as a 'kiss and drop off' drive through access and provide one way traffic flow to ensure safe movement. A gate system will surface automatically after drop off and pick up, allowing the internal road and parking areas to be used as additional playground space;
- Construction of the Union Street Building, which is a proposed three-storey building including under-croft and additional roof top play area, in keeping with the scale of development at nearby residential sites. The ground floor will be open acting as a COLA and an extension of the play area;
- Construction of the proposed Corlette Street Building, which includes a semi basement car parking level (31-35 car parking spaces) and two storeys of teaching space above;
- Alterations of existing Building A including a two storey addition and the refurbishment of the Sandi Warren Performance Centre. Alterations will accommodate the Canteen, Library and Specialist Learning facilities;
- Building B refurbishment, to be used for administration, staff rooms and offices; and
- Associated landscaping and stormwater upgrades.

Table 1 provides a summary of the proposed development.

Table 1 Project Summary

Project Element	Summary of the Project
Project Site Area	9,440m^2
Site Description	Newcastle Grammar School Park Campus
GFA – Union Street Building	1,446m^2
GFA – Corlette Street Building	2,179m^2
GFA – Refurbishment Addition	370m^2
Project Outcomes	New educational facilities, including refurbishment of existing buildings and construction of new multi-storey buildings with undercroft COLA and rooftop open space
Maximum Height	16.425m
Total Parking Spaces	Concept – 31-35 spaces

The Architectural Drawings prepared by SHAC are provided at Appendix G. This EIS includes a description of the site and proposed development and an assessment of the proposed development pursuant to Section 4.15 of the Environmental Planning and Assessment Act 1979 (EP&A Act).

Once all these works are completed and the School is fully operational it will be able to accommodate 640 students and 60 staff. At the conclusion of Stage 1, the School will be able to accommodate 480 students and 50 staff which is a significant increase compared to the current student enrolment at the Park Campus of 256 students.

1.4 Project Context and Objectives

The project aims to achieve the following objectives:

- Capture the individualism of NGS and project its uniqueness to the community
- Reinforce NGS's reputation as a leader of education
- Meet the needs of students in the 21st Century
- Enhance the current and future pedagogical teaching and learning strategies
- Shift from discreet subject silos to seeing disciplines as lenses through which issues are approached and problems are solved
- Improve ageing physical spaces
- Address spatial limitations
- Relocation of Years 5 & 6 from The Hill Campus to the Park Campus
- Enable the future growth on the Hill Campus as a high school campus

- Facilitate the growth of the Park Campus from a 2-stream K-4 to a 3-stream K-6
- Respond to the closing of the preschool on the site
- Remove end of life assets
- Provide a contemporary learning environment that facilitates science technology engineering and mathematics (STEM) and Inquiry Based Learning
- Create a welcoming and interesting landscape that compliments learning & encourages discovery
- Ameliorate the existing traffic issues related to the site
- Meet Disability Discrimination Act (DDA) guidelines

1.5 Estimated Capital Investment Value (CIV)

The estimated Capital Investment Value (CIV) for the project is $33,979,000. A detailed CIV Estimate is provided at Appendix NN.

1.6 The Applicant

NGS is a well-regarded independent education institution in the centre of Newcastle. NGS's modern co-educational model provides a forward thinking and engaging education that celebrates their past and prepares students for a rapidly changing world.

NGS is a recognised partner school of:

- The Visible Wellbeing program; and
- The University of Sydney - STEM Teacher Enrichment Academy.

NGS is currently split into two campuses, namely the Park Campus (years K-4) and the Hill Campus (years 5-12). The Park Campus environment aims to provide the structure & discipline required for young children to develop both socially & academically. As well as having an emphasis on the traditional areas of literacy & numeracy, NGS adopts the Inquiry Based approach to promote independent & rich learning in science, history and geography. Specialist art, music, & language teachers enrich the mainstream curriculum. Students have the opportunity to join lunchtime clubs and participate in co-curricular activities. If required students also have access to specialist learning support including occupational therapy & counselling services.

1.6.1 School History

NGS is one of Newcastle's most historically significant schools. The beginnings of NGS traces back to 1859 when the Anglican Church established Newcastle Boys' Grammar on the present Hill Campus where it operated until 1902. In 1918 the Newcastle Church of England Girls' Grammar was officially opened which marked the official birth of Newcastle Grammar School.

The School has links to the earliest days of Anglican education in the city, beginning in 1816 when convict Henry Wrensford taught 17 children aged between 3 and 13 years in a slab hut, on the site of Christ Church Cathedral.

Newcastle Boys' Grammar School opened on The Hill Campus site in Berkeley House and operated until 1902. Newcastle Church of England Girls' Grammar School was officially opened on 22 July 1918 with an enrolment of fifty-six girls. While the school was briefly relocated during World War II, the opening of Newcastle Girls'

Grammar School marked the historical birth of NGS. The control and administration of the School was given by the Anglican Diocese of Newcastle to The Pittwater House Schools in 1976 until the end of 1991.

In 1992, the School's administration was returned to Newcastle and NGS is now governed by Newcastle Grammar School Limited, a non-profit Company limited by guarantee. From 1992 onward, NGS has retained its relationship with the Anglican Diocese and Christ Church Cathedral, across the road from the Hill Campus.

In 2018, NGS celebrated its Centenary, marking 100 years of independent education in the centre of Newcastle. This modern co-educational institution provides a forward thinking and engaging education that prepares students for a rapidly changing world.

The Park Campus site has been involved in education delivery since 1949, operating as Newcastle Teachers College followed by TAFE NSW. Newcastle Grammar School took over control of the site in 1997 and has evolved significantly over time with the most recent additions being an extension to the Sandi Warren Centre in the south-west of the site in 2011. The site is a quintessential element of the Cook Hill landscape, particularly due to the site's location on the corner of Union Street and Parkway Avenue.

2 Strategic Context

2.1 NSW State Priorities

NSW State Priorities contains fourteen priorities unveiled by the NSW Premier on 8th June 2019, in a commitment to making a significant difference to enhance the quality of life.

The 14 priorities are:

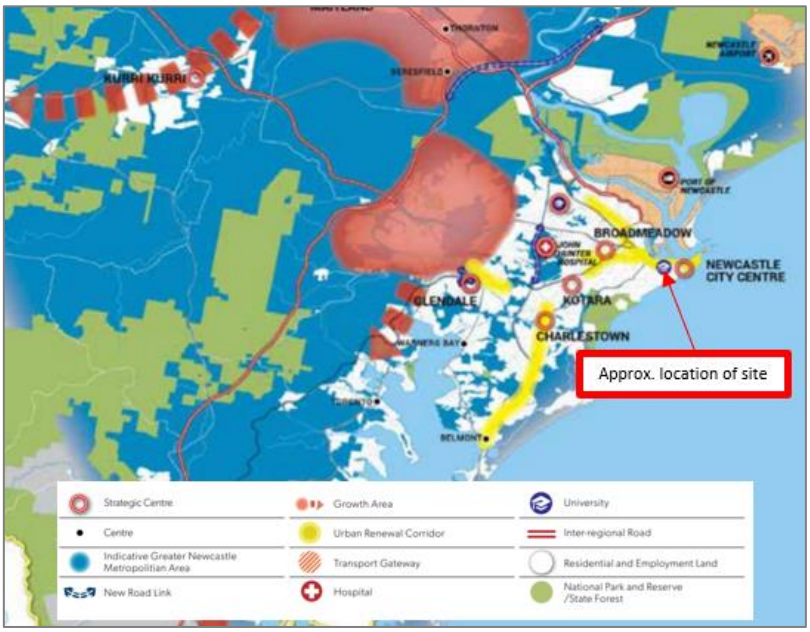
- Bumping up education results for children;
- Increasing the number of Aboriginal young people reaching their learning potential;
- Protecting our most vulnerable children;
- Increasing permanency for children in out-of-home care;
- Reducing domestic violence reoffending;
- Reducing recidivism in the prison population;
- Reducing homelessness;
- Improving service levels in hospitals;
- Improving outpatient and community care;
- Towards zero suicides;
- Greener public spaces;
- Greening our city;
- Government made easy; and
- World class public service.

The proposal is consistent with the first of these priorities. In particular, the project will increase the educational capacity on the site, which will enhance personal achievement and well being and deliver community benefits.

2.2 Hunter Regional Plan 2036

The Hunter Regional Plan was adopted in 2016 as a 20-year growth plan for the Hunter region. The Plan encompasses four goals aimed at achieving the vision for the region as a leading regional economy in Australia, with a vibrant metropolitan city at its heart. The Strategic Structure of Greater Newcastle is provided at **Figure 1.**

Figure 1 Hunter Regional Plan 2036 – Greater Newcastle Strategic Structure



The four goals of the Hunter Regional Plan 2036 include:

- Goal 1 – The leading regional economy in Australia
- Goal 2 – A biodiversity-rich natural environment
- Goal 3 – Thriving communities
- Goal 4 – Greater housing choice and jobs

The redevelopment of the site directly supports Goals 1 and 3 of the plan, through its contribution to the economic growth of an inner city location and fostering and adding value to thriving communities. Further, the project indirectly supports Goal 4 by supporting residential redevelopment within the city through the provision of enhanced education options for families.

2.3 Greater Newcastle Metropolitan Plan 2036

The Greater Newcastle Metropolitan Plan 2036 (GNMP 2036) sets out the NSW governments' goals for the Greater Newcastle Metropolitan area.

The four outcomes of the GNMP 2036 are:

- Outcome 1: Create a workforce skilled and ready for the new economy.
- Outcome 2: Enhance environment, amenity and resilience for quality of life.
- Outcome 3: Deliver housing close to jobs and services.
- Outcome 4: Improve connections to jobs, services and recreation.

It is considered that the project supports the achievement of the outcomes of the plan through its economic contribution to the broader region. The project optimises the use of the site, allowing capacity for more students

and staff to access the campus. The project is consistent with the GNMP 2036 as it presents an opportunity to redevelop a brownfield site within an existing urban area, which is well connected and well placed to offer an essential community service.

2.4 State Infrastructure Strategy 2018 – 2038 Building the Momentum

The State Infrastructure Strategy 2019-2038: Building the Momentum is a 20-year Strategy that sets out Infrastructure NSW's independent advice on the current state of NSW's infrastructure. The Strategy states that Regional NSW needs to be supported by good transport links that enable regional business to compete and to improve basic services like health, education and a reliable supply of drinking water.

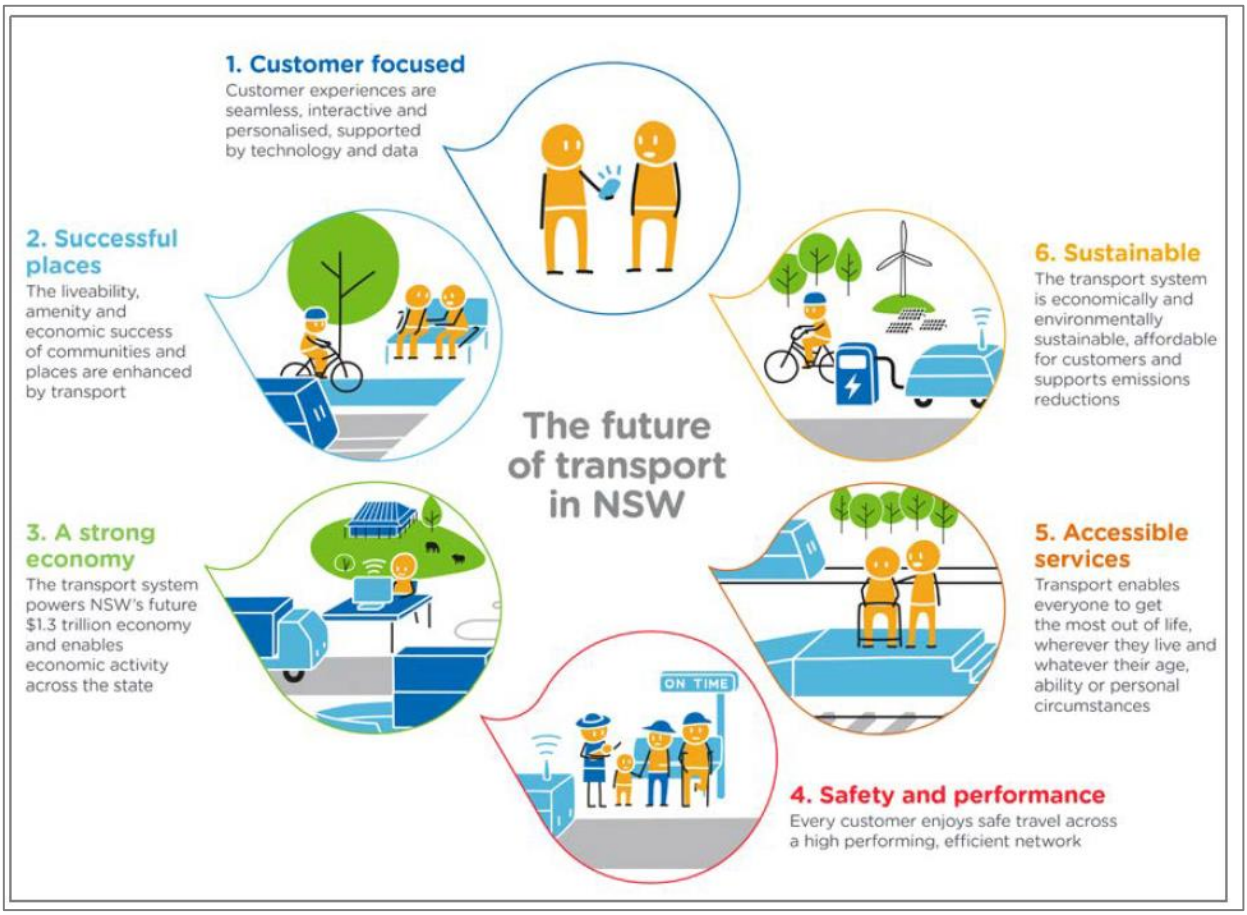
The redevelopment of the site will improve school facilities, replacing the existing older buildings with upgraded structures in accordance with the Educational Facilities Guidelines and Standards (EFGC).

2.5 Future Transport Strategy 2056

Future Transport 2056 is NSW's long-term Transport Master Plan. It sets the 40-year vision, directions and outcomes framework for customer mobility in NSW, which will guide transport investment over the longer term.

Future Transport 2056 provides a framework for planning and investment aimed at harnessing rapid change and innovation to support a modern, innovative transport network (See **Figure 2**).

Figure 2 State-wide Outcomes (Source: Future Transport 2056)



At a high level, the project will contribute to the desired outcome of this Strategy by fostering alternative modes of transport. The project is also consistent with the Strategy by seeking to resolve existing transport issues at the site.

2.6 Crime Prevention Through Environmental Design (CPTED) Principles

Crime Prevention Through Environmental Design (CPTED) is a crime prevention strategy that focuses on the planning, design and structure of cities and neighbourhoods. It reduces opportunities for crime by using design and place management principles that reduce the likelihood of essential crime ingredients from intersecting in time and space.

CPTED employs four key strategies; being surveillance, access control, territorial reinforcement, and space/activity management, to reduce opportunities for criminal / anti-social behaviour. A detailed CPTED report has been prepared by SLR and is reproduced at Appendix W and discussed in Section 7.7 of this EIS.

2.7 Better Placed: An integrated design policy for the built environment of New South Wales (Government Architect NSW (GANSW), 2017)

Better Placed is an integrated design policy for the built environment developed by the NSW Government Architect. The Government Architect was consulted with in respect to the schools design. Further information regarding consultation is detailed in Section 5 of this EIS.

The project is consistent with the following objectives:

Objective 1: Better fit – Good design in the built environment is informed by and derived from its location, context and social setting

The design has been informed by the need for an acceptable equilibrium of learning space and green space. A detailed Design Statement has been prepared by SHAC Architects (refer Appendix H).

Objective 2: Better performance – Environmental sustainability and responsiveness is essential to meet the highest performance standards for living and working.

Learning spaces have been designed having regard to renewable energy, light and shading outcomes. Further, the buildings will be appropriately insulated, ventilated and able to accommodate rainwater storage.

An ESD Report prepared by Marline is reproduced at Appendix LL.

Objective 3: Better community – The design of the built environment must seek to address growing economic and social disparity and inequity, by creating inclusive, welcoming and equitable environments.

As detailed within the Design Report prepared by SHAC (refer to Appendix G), the school community was consulted in the design phase to ensure the redevelopment meets their needs and expectations.

Currently, the entire primary school population is unable to fit into the Park Campus, with Years 5 and 6 having to be located at the Park Campus. The redevelopment will address these issues.

Objective 4: Better for people – The built environment must be designed for people with a focus on safety, comfort and the basic requirement of using public space.

The project has been designed with the Crime Prevention Through Environmental Design (CPTED) principles at the forefront of the design (see the CPTED Report at Appendix W which specifically addresses the CPTED principles).

The project has also been designed specifically for children between 5 years of age and 12 years of age, for example windows and openings are proposed at lower levels.

Objective 5: Better working – Having a considered, tailored response to the program or requirements of a building or place, allows for efficiency and usability with the potential to adapt to change.

Learning spaces have been designed to be able to adapt to the future needs of the students. The increase of open space on site as a result of the multi-storey learning buildings allows for adaptability to change in future. Being an inner city location, the spatial demands of the site have been responded to with innovative and adaptable solutions, for example the undercroft play area achieves flood level requirements but also provides an all weather play space.

Objective 6: Better value – Good design generates ongoing value for people and communities and minimises costs over time.

Economy of scale, materiality and practicality have been considered throughout the design process. The built form has been designed to be adapted in the future.

Objective 7: Better look and feel – The built environment should be welcoming and aesthetically pleasing, encouraging communities to use and enjoy local places.

The project will have high quality external finishes, which will be aesthetically pleasing by achieving a built form that has a balanced composition. The project has an appropriate scale and form given its context.

2.8 Healthy Urban Development Checklist (NSW Health, 2009)

The Healthy Urban Development Checklist provides a guide for health services when commenting on development policies, plans and proposals.

The project satisfies a range of items contained to the checklist, including:

- Encouraging incidental physical activity;
- Promotion of opportunities for walking, cycling and other forms of active transport due to being in close proximity to major residential areas;
- Promotion of access to usable and quality public open spaces and recreational facilities; and
- Provision of environments aimed at encouraging social interaction and connection.

2.9 Draft Greener Places Design Guide (GANSW)

The Draft Greener Places policy provides information on how to design, plan and implement green infrastructure in urban areas throughout NSW.

It has three main objectives:

- Open space for Recreation: green infrastructure for people;

- Urban tree canopy; green infrastructure for adaptation and resilience; and
- Bushland and waterways: green infrastructure for habitat and ecological health.

Consultation with GANSW commenced at the beginning of the project to ensure that the project will deliver and provide green infrastructure. High quality open space will be provided throughout the site, with the tree canopy proposed to be increased. The soft and hard landscaping works proposed are appropriate to the site and needs of students.

2.10 Newcastle Development Control Plan 2012

As the project is classed as SSD, it is not subject to the provisions of the Newcastle Development Control Plan (DCP) 2012. Notwithstanding, the project has been assessed in accordance with the provisions of the DCP. A full DCP Compliance assessment can be found at Appendix DD.

2.11 Newcastle Local Strategic Planning Statement 2020

Newcastle Local Strategic Planning Statement (LSPS) provides a high-level strategic planning strategy to guide the area's future growth and sustainability. The LSPS identifies key planning matters and outlines how it will enhance planning opportunities within the Newcastle local government area (LGA).

The 20-year land use planning vision includes:

- An integrated and accessible transport network
- A green city
- A liveable city
- A smart and innovative economy

It is identified that over the next 20 years, the City will need to facilitate new homes, jobs and services for an additional 38,000 people, while maintaining the aim of Newcastle Urbanism to retain liveability, valued heritage, natural environment and diverse local character. See **Figure 3** for the Urban Structure for Newcastle City.

Figure 3 Newcastle Urban Structure Plan

The Planning Priorities identified in the LSPS are:

- Planning Priority 1 – Prioritise active transport in our City
- Planning Priority 2 – Support emerging transport opportunities and public transport improvements with continued integration of land use and transport planning
- Planning Priority 4 – Green our neighbourhoods
- Planning Priority 5 – Protect and enhance our bushland, waterways and wetlands
- Planning Priority 6 – Reduce carbon emissions and resource consumption
- Planning Priority 7 – Plan for climate change and build resilience
- Planning Priority 8 – Plan for growth and change in Catalyst Areas, Strategic Centres, Urban Renewal Corridors and Housing Release Areas
- Planning Priority 9 – Sustainable, healthy and inclusive streets, neighbourhoods and local centres

Active transport, being physical activity used for transport such as walking, skateboarding, and cycling is facilitated and encouraged by the project through the provision of adequate end of trip facilities (bike racks/storage areas). The ability to maximise the use of active transport is enhanced by the site's location, being central to the Cooks Hill area, The Junction and Darby Street shopping attractors, which are located within short walking/cycling distance.

Urban green spaces refers to private gardens, green roofs and walls, parks, street gardens and trees. Urban green spaces have many benefits to our health and wellbeing and are vital for biodiversity. Green spaces can enhance wellbeing by facilitating physical activity, social interaction and relaxation. Well-designed green spaces also improve air quality, reduce ambient temperature, protects from UV exposure, store carbon, reduce flooding impacts and improve the quality of stormwater run-off. The project aims to provide high quality landscaped environments and is located opposite public recreation areas.

Impacts on our natural environment from the project are proposed to be mitigated through best practice stormwater management principles ensuring stormwater from site is retained at predevelopment levels.

Changes in natural hazards including more frequent and severe weather events such as storms and flooding, coastal erosion and inundation, heat waves, drought and bush fires as a result of climate change are already being seen. The project has been the subject of a review (refer to Appendix MM), which includes detailed consideration of potential climate change impacts.

A planned approach to growth and change will improve infrastructure and land use sequencing and create employment opportunities within the Catalyst Areas identified in LSPS. The project will support the growth envisaged by providing additional capacity in a well located educational facility.

The project therefore aligns with a number of the LSPS planning priorities.

2.12 Newcastle 2030 – Community Strategic Plan

Newcastle 2030 Community Strategic Plan sets out a shared community vision to inform Council's actions, growth and development over the next 10 years. The project supports the aims of this Community Strategic Plan by encouraging innovation and creativity in the learning environments, as outlined in **Table 2**. The project is well placed to assist in delivering some of the actions in the Community Strategic Plan by providing community infrastructure within a well-established urban setting.

Table 2 Newcastle City Council Strategic Directions

Newcastle City Council Strategic Directions	
Integrated and Accessible Transport Transport networks and services will be well connected and convenient. Walking, cycling and public transport will be viable options for the majority of our trips.	Due to the site's location it enjoys high levels of connectedness. There are two public bus stops in close proximity to the site, one on Parkway Avenue and the other on Union Street, with potential to increase services in future if needed. Existing and planned footpaths and bike paths will also improve connectivity.
Protected Environment Our unique environment will be understood, maintained and protected.	The internal site environment will be actively maintained to a high standard by on-site maintenance staff. Refer to Appendix W for details of how CPTED principles have been applied during the design process..
Vibrant, Safe and Active Public Places A city of great public places and neighbourhoods promoting people's health, happiness and wellbeing.	The project aims to promote improved health, happiness and wellbeing arising from the upgraded educational facilities.
Inclusive Community A thriving community where diversity is embraced, everyone is valued and has the opportunity to contribute and belong.	NGS promotes inclusivity and values the contribution of each and every student.
Liveable Built Environment An attractive city that is built around people and reflects our sense of identity.	The project aligns with strategic directions aimed at improving educational services.

Newcastle City Council Strategic Directions	
Smart and Innovative A leader in smart innovations with a prosperous, diverse and resilient economy.	The project can assist in achieving economic goals by increasing the standard of education provided to students via the improved facilities and technologies proposed on the site.
Open and Collaborative Leadership A strong local democracy with an actively engaged community and effective partnerships.	A proactive engagement process has been followed throughout the design phase and will be continued during the construction phase.

3 Site Description

3.1 Site Context

The original custodians of this land and waters are the Awabakal and Worimi People, existing in and around Muloobinba (Newcastle) and the Coquon (Hunter River) with the site located within the Awabakal Local Aboriginal Land Council (LALC) boundaries. The Awabakal tribe consisted of four clans while the Worimi tribe comprised ten clans.

The first European known to explore the region was John Shortland. Shortland described the area as "a very fine coal river". The region was originally named after the Governor of New South Wales, John Hunter, and Newcastle gained its name after England's famous coal port in 1804.

Today, Newcastle is Australia's seventh largest city and is home to the largest coal exporting harbour in the world. The site sits within a kilometre of the Newcastle CBD and is opposite National Park, a large public recreation area immediately to the west of the site.

3.2 Site Description and Location

The Park Campus is located in the suburb of Cooks Hill & currently operates as a K-4, 2 stream, independent primary school.

The site is known as 127 Union Street, situated within the Newcastle LGA. The site is legally described as Lot 102 DP 861562. It is an irregular square configuration with frontage to Union Street of 67.595m, Parkway Avenue of 102.19m and Colette Street of 101.115m. It has an area of approximately 9,440 square metres.

The site is bordered on three sides by public roads namely Parkway Avenue, Union Street, & Corlette Street. Parkway Avenue travels north-west to south-east & is a busy road leading to Bar Beach to the east. Union Street travels north-east to south-west and is also a busy road leading from the commercial centre of The Junction to the Newcastle CBD. In contrast Corlette Avenue carries far less traffic and is a residential street. See **Figure 4** for an overview of the site's context and **Figure 5** for the existing development on the site.

The site currently has no existing off-streetcar parking. Vehicular access is available for servicing and maintenance via Union Street.

Figure 4 Site Context

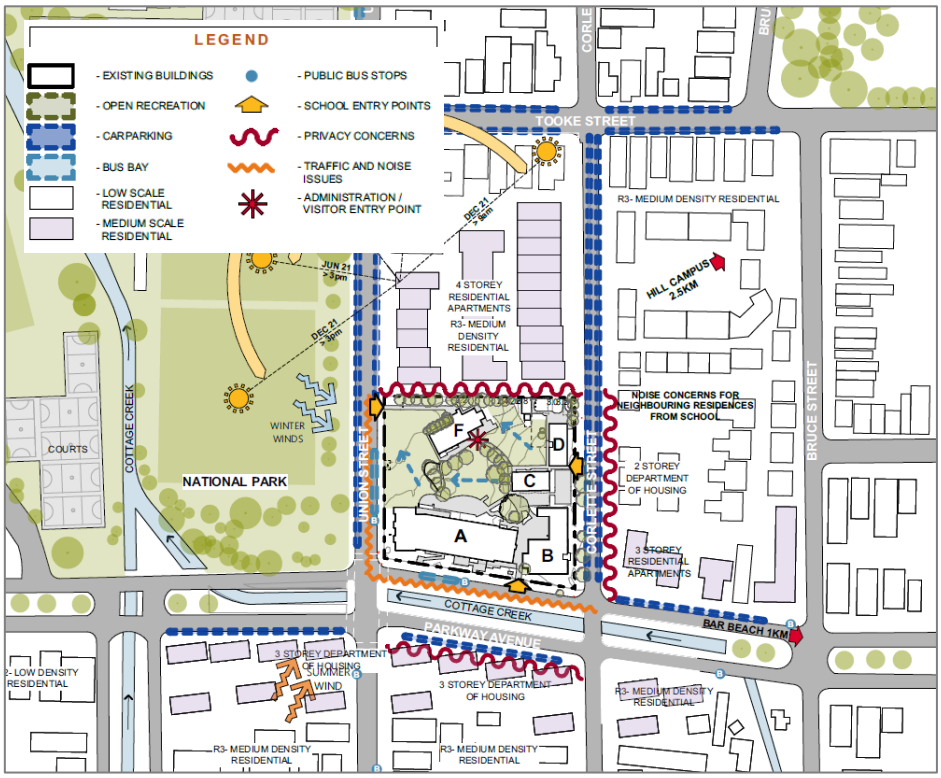
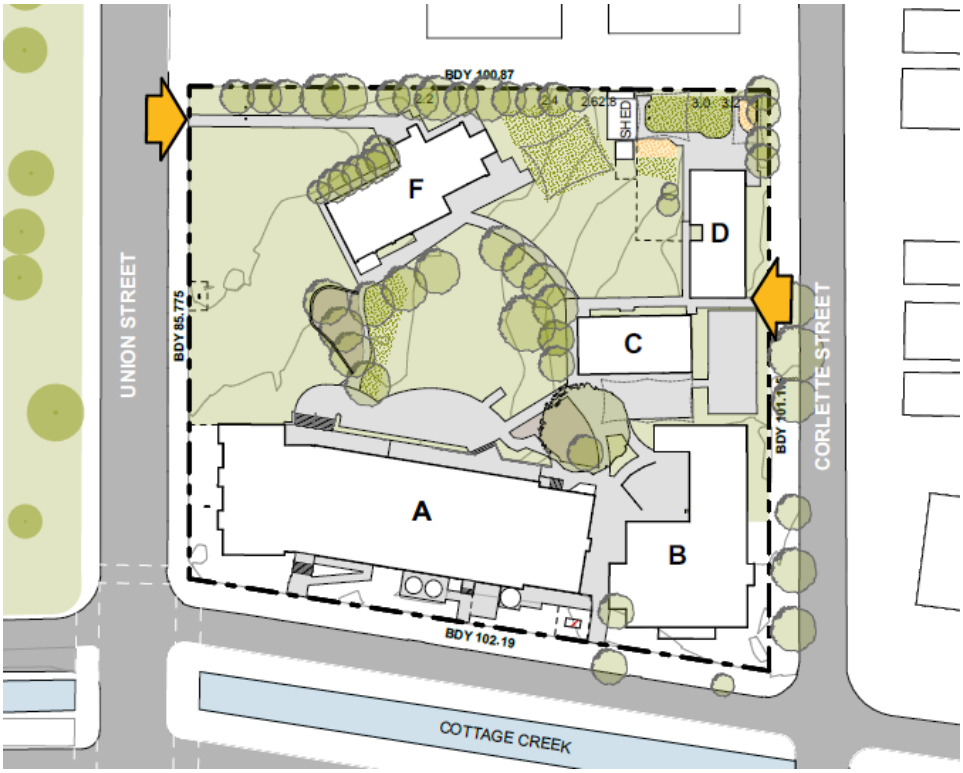


Figure 5 Existing Development



The details of the existing uses within each of the building shown in Figure 5 are described in **Table 3**.

Table 3 Existing Building Summary

Description	Gross Floor Area Breakdown
BUILDING A: SANDY WARREN PERFORMANCE CENTRE	
The original double height theatre was constructed in the 1960s & is now named in memory of Sandi Warren, a long-standing teacher at the school. The Western extension that includes the three Kindergarten GPLAs was construction in 2015. The building is two storeys, with a total area of 1,289m^2.	• Hall 614m^2 • GPLA 240m^2 • Amenities 147m^2 • Canteen 33m^2 • Store 65m^2 • Circ. 164m^2 • Office 26m^2
BUILDING B: CLASSROOM BLOCK	
The two-storey brick building was constructed in 2001. The building is two storeys with a GFA of 875m^2.	• Art/OOSH 68m^2 • Music 16m^2 • GPLA 555m^2 • PE Store 16m^2 • Amenities 21m^2 • Store 5m^2 • Circ. 176m^2
BUILDING C: CLASSROOM BLOCK	
Blocks C & D are lightweight metal clad buildings that are remnants of the former Newcastle Teachers' College which operated on the site from 1949-1973. Building C is one storey with a GFA of 189m^2.	• GPLA 87m^2 • Staff 76m^2 • Store 26m^2
BUILDING D: CLASSROOM BLOCK	
Building D is also a one storey building and is being utilised as a preschool, with a GFA of 203m^2.	• Total 203m^2

Description	Gross Floor Area Breakdown
BUILDING F: ADMINISTRATION BLOCK	
The single storey 1960s brick building is a remnant of the former Newcastle Teachers' College, having a GFA of 320m^2.	• Library 144m^2 • Admin 84m^2 • Staff 48m^2 • Circ. 44m^2

3.2.1 Surrounding Development

The site adjoins medium density residential development to the north. The character of the immediate locality is partly residential and partly public recreation with sporting fields to the west fronting Union Street.

National Park was donated to Newcastle City Council in 1913 for the development of parkland. National Park has played a significant role in the provision of regional and sub-regional sporting facilities within Newcastle, being one of the region's largest and oldest sporting grounds. The site caters for a range of sports including netball, soccer, cricket, AFL, and rugby, as well as general training fields.

Newcastle Grammar School, as well as several other local schools, utilise the sporting infrastructure at National Park to support their physical activity and sporting curriculum (National Park Plan of Management 2012).

An aerial photograph of the site is reproduced in **Figure 6** and cadastre information for the site and its surrounds is reproduced in **Figure 7**. Photographs of the site taken from Parkway Ave looking north (**Figure 8**) and from Union Street looking south east (**Figure 9**) provide a visual image of how the school currently presents to the two major roads which comprise the site's western and southern boundaries.

Figure 6 Site Aerial (Source: SIX Maps)

Figure 7 Site Cadastre (Source: SIX Maps)

Figure 8 View of Existing Site from Parkway Avenue (Source: Google Maps Street View)

Figure 9 View of Existing Site from Union Street (Source: Google Maps Street View)

Concrete and asphalt footpaths exist within the road network around the site, connecting the site to local bus stops and on street parking opportunities. Signalised pedestrian crossing are available and facilitate the safe crossing of both Union Street and Parkway Avenue which are busy roads.

3.2.2 Surrounding Road Network

The site is located at the intersection of two major roads namely Parkway Avenue and Union Street A third road frontage to Corlette Street, which is a local road, also has direct access to the site. The local road network experiences significant congestion during school drop off and pick up hours.

Union Street carries traffic from the Cooks Hill and The Junction areas to and from Newcastle CBD. It is under the care and control of Newcastle City Council. Union Street is typically a two-lane road and has additional turning lanes at major intersections. It has a sealed carriageway 13 metres wide which generally provides a single lane of travel in both directions and parking lanes on both sides.

Parkway Avenue carries traffic to and from Bar Beach, Cooks Hill, The Junction, and Hamilton South areas. It is also under the care and control of Newcastle City Council. Near the site Parkway Avenue is typically a two-way two-lane divided sealed road additional turning lanes at major intersections. It has sealed divided carriageways which provides a single lane of travel in each direction and parking lanes on both carriageways. The central carriageway which is 17 metres wide is grassed and carries one of the major trunk drainage channels in the Newcastle area.

Corlette Street is a local road in the Cooks Hill area that provides vehicular access to properties along its length. It is under the care and control of Newcastle City Council. Near the site Corlette Street is typically a two-way two-lane road. It has a sealed carriageway 9 metres wide which provides a single lane of travel in each direction whilst allowing some on-street car parking along its length. A permanent 40 km/h speed zoning exist along this road as it is marked as an on-road cycle way.

3.2.3 Public Transport and Alternative Transport Modes

Newcastle Transport (Keolis Downer) runs both school bus services and public transport (bus) services in the area, while the school is also serviced by school buses provided by Hunter Valley Buses and Port Stephens Coaches. A review of the route maps and timetables for the public bus service indicates that the site is well serviced by public transport (further described in the Traffic Impact Assessment at Appendix L).

The site is located adjacent to two public bus stops serviced by Newcastle Transport, one on the Union Street frontage which is serviced by Bus 12 and one fronting Parkway Avenue which is serviced by Bus 21.

The school also operates its own school bus services providing six services that travel extensively through the Newcastle, Lower Hunter and Port Stephens areas. The basic details of routes are further described in the Traffic Impact Assessment at Appendix L.

3.3 Site Attributes

3.3.1 Topography

The site is situated at or below 10m Australian Height Datum (AHD) and is approximately 20m northeast of Cottage Creek Stormwater channel which drains into Throsby Creek and then Newcastle Harbour.

The site is generally flat and falls by approximately 1.4m from east to west. The residential development to the north features a retaining wall along its shared boundary with NGS.

A Site Survey Plan prepared by Delfs Lascelles is reproduced at Appendix J.

3.3.2 Vegetation

The existing landscaping on site includes a mixture of native and introduced species. A total of 56 trees are located within the site or supporting the site as street trees, see **Figure 10**.

Figure 10 Site Tree Map

A line of *Melaleuca leucadendra* (Weeping Paperbark) trees runs along the northern boundary of the site. Other prominent species on the site include *Lagerstroemia indica* (Crepe Myrtle), *Melaleuca quinquenervia* (Broad Leaved Paperbark), *Lophostemon confertus* (Brushbox) and *Cupaniopsis anacardioides* (Tuckeroo).

A detailed description of existing trees is outlined in the Arborist Report at Appendix O.

3.3.3 Carparking and Access

The Park Campus does not have any off street parking. Therefore, parents and staff must park on the street and compete with residents and other workers who park around National Park.

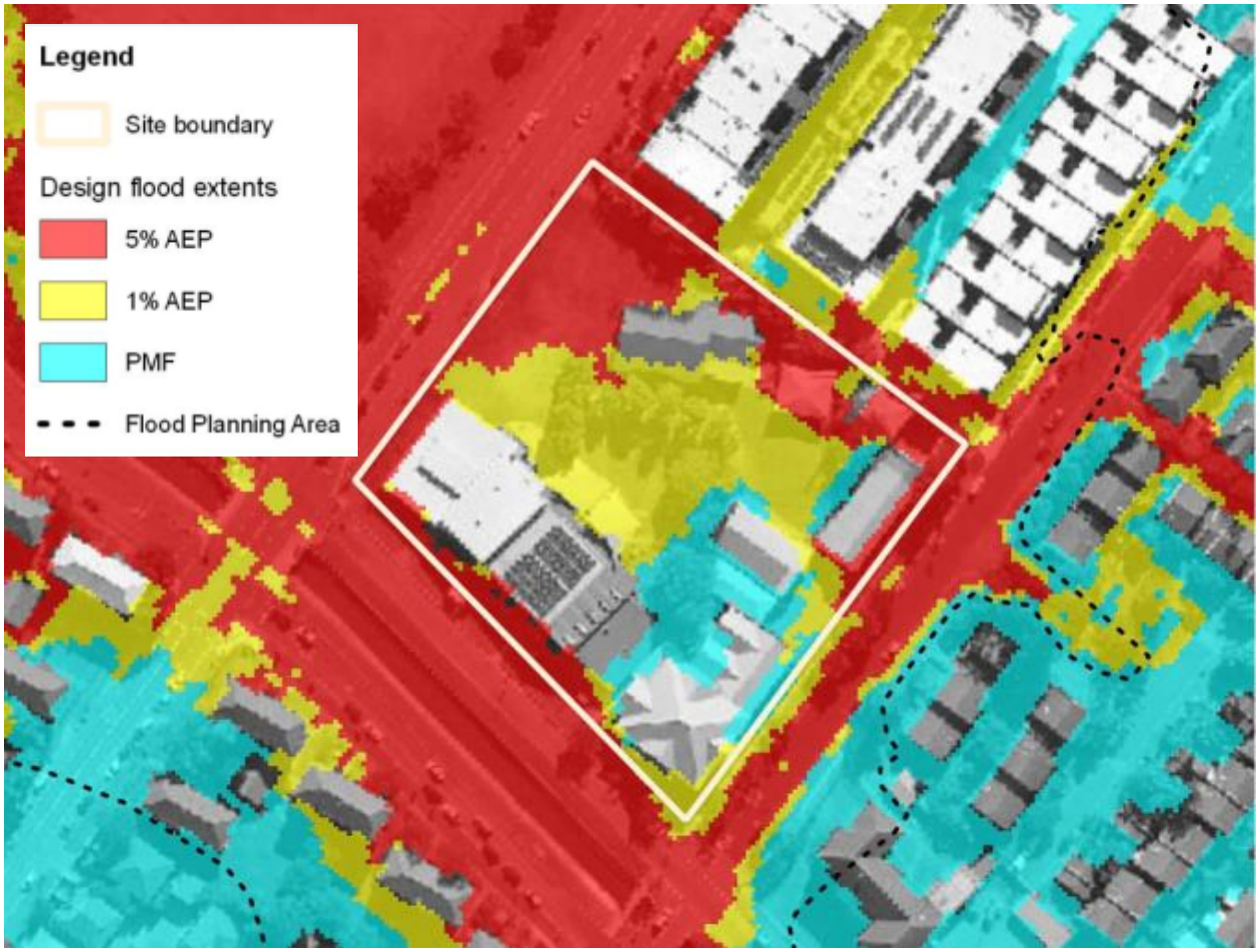
Buses currently use the Parkway Avenue frontage as the point of access for the site.

The existing concrete and asphalt footpath network provides pedestrians and cyclists with direct access to the stie.

3.3.4 Flooding

The site is identified as flood prone and accordingly a detailed flood assessment has been undertaken by Torrent Consulting (Appendix BB), see **Figure 11**.

Figure 11 Modelled Flood Extents



The Park Campus is situated on the fringe of the Lower Cottage Creek floodplain and is subject to backwater flooding and overland flow from upstream catchments. Cottage Creek drains a largely urbanised area including Merewether and adjacent suburbs immediately west of the coastal ridge that encompasses The Hill. The

drainage system comprises multiple concrete lined channels and enclosed drains. The main branch runs from its mouth in Newcastle Harbour to Watkins Street, approximately 2.3kms. Major tributaries include the Broadmeadow Racecourse, Merewether Street, Mitchell Street, Frederick Street and Bruce Street branches.

Design and construction of the drainage system commenced in the 1890s with a lined channel up to Hunter Street and was substantially completed in the 1950s. The catchment was less developed at the time the drains were constructed, and like many established urban areas, the drainage system struggles to cope with major storm events, resulting in localised flooding.

3.3.5 Drainage

The site is level and drains as sheet flow from southeast to northwest, eventually discharging to Union Street. Some drainage pits and grated drains are scattered throughout the playground areas however these capture little runoff in proportion to the runoff generated from these areas. Cottage Creek eventually flows north and discharges into the Throsby Basin, part of Newcastle Harbour, located approximately 1.1 km to the north north-west of the site. Cottage Creek runs along National Park Street and through National Park in a concrete drain that discharges at Honeysuckle West, into Newcastle Harbour. National Park serves a flood management role within the Cottage Creek catchment and western CBD area, as a flood detention and storage area.

Roof drainage from existing Block A and B are connected to four above ground rainwater tanks, adjacent to Parkway Avenue. These rainwater tanks hold approximately 70kL in total. Overflow from the tanks is directed to an adjacent drainage network that discharges to an inlet pit in Parkway Avenue.

3.3.6 Hydrogeology

Tetra Tech Coffey have identified that groundwater beneath the site to be present in an unconfined or semi-confined aquifer at depths ranging from 1.4 - 1.8m below ground surface (mbgs). Regional groundwater flows to the northwest eventually discharging to the lower reaches of Cottage Creek. Cottage Creek eventually enters Newcastle Harbour.

Section 8.2 details the mitigation measures developed in response to the flooding and drainage issues associated with the site.

3.3.7 Heritage

There are no heritage listings within or directly adjoining the site. There are two Heritage Conservation Areas (HCA) and three Heritage Items listed within Newcastle Local Environmental Plan 2012 (NLEP 2012) that are situated within 230m of the site. These items are of local significance. There are no items of State significance in close proximity to the site.

A detailed description of the likely heritage impacts of the project is provided in the Statement of Heritage Impact (refer Appendix P). The site is not visible from the Cooks Hill HCA. The site is situated approximately 165 m east of the Hamilton South Garden Suburb HCA, however it is screened from this HCA by large trees within National Park.

The nearest listed Heritage Item is approximately 122m southeast of the site, located at 79 Parkway Avenue, Cooks Hill. It is not visible from the site as it is located over a rise and is also screened by vegetation. The site is barely visible from the corner of the Heritage Item, as only the south-eastern corner of the school is visible. Further east along Parkway Avenue is a heritage located at 64 Parkway Avenue, approximately 230 m south-east of the site. There are no views to or from this item and the site.

3.3.8 Geology and Soils

The site is underlain by Quaternary deposits comprising gravel, sand, silt and clay. Underling this unit is the late Permian aged Lambton Subgroup of the Newcastle Coal Measures comprising interbedded and interlaminated siltstone, sandstone and coal. Geotechnical testing has confirmed that the area was once a low lying depression with periodic flooding and thick vegetation.

The Department of Land and Water Conservation Newcastle 1:25,000 Acid Sulfate Soil (ASS) Risk Map indicates that the site is located within a Low Probability Acid Sulfate Soil risk area, on an aeolian sandplain at elevation of between 2 to 4m AHD.

3.3.9 Mine Subsidence

As is the case with much of the Newcastle, the site is located in the Newcastle Mine Subsidence District. The Mine Subsidence Desktop Assessment and Mine Subsidence Investigation and Assessment, prepared by Tetra Tech Coffey is reproduced at Appendix DD. It provides a detailed assessment of mine subsidence characteristics in the area.

The mine workings in the area consists of four areas:

- A small area of secondary mining within the New Winning Pit Mine located 150m south east of the site which is anticipated to have been mined to failure. This secondary mining is likely to be adding abutment loading to the nearby pillars.
- An area of first workings within the New Winning Pit Mine with a pillar width to height ratio just under 2. These workings are anticipated to be still standing with the bords with residual void heights between 2.3m to 2.85m due to roof fall and poor quality coal left in the mine.
- An area of secondary mining and slender pillars within the combined D Pit, E Pit, No.2 Pit and Hamilton Pit. These workings have previously been shown to have failed. The failure is likely to extend to the barrier between the mines and as such no longer of risk to the project.
- A barrier between the two mines ranging from 10m to 40m wide with locally thinner and wider zones particularly near headings.

3.3.10 Services

The Park Campus is connected to a range of essential utility services including water, gas, electricity, communications, stormwater and reticulated sewerage.

An outline of the existing services available to the site is provided in the Infrastructure Management Plan prepared by Marline (see Appendix II).

An existing fire hydrant system serves the site. The existing system comprises a 100mm connection to the Union Street water main, 100mm double detector check valve backflow prevention, 100mm booster valve and suction points and a single external attack hydrant.

4 The Project

The project includes the demolition of buildings and structures on the Park Campus and the construction of new teaching facilities and the renovation of existing facilities to help manage growth.

4.1 Proposed Development

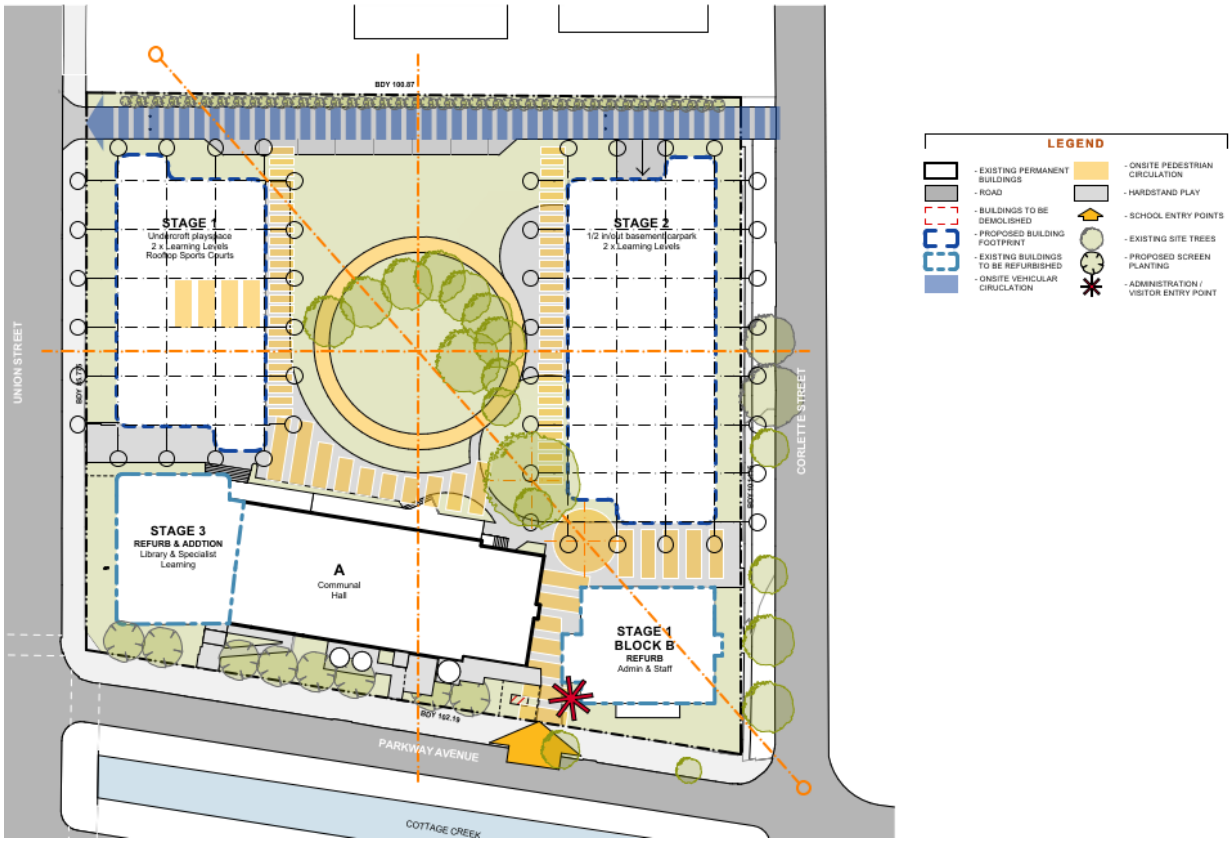
The proposed development seeks approval for a concept development for the site under Section 4.22 of the EP&A Act 1979 which is to be split into three stages. Development consent is also sought for all works associated with Stage 1.

The following works are proposed for the Park Campus as part of the Concept Plan:

- Demolition of the existing covered outdoor learning area (COLA) and existing Blocks C, D and F;
- Construction of an internal road along the northern boundary of the site. This road will act as a 'kiss and drop off' drive through access and provide one way traffic flow to ensure safe movement. A gate system will surface automatically after drop off and pick up, allowing the internal road and parking areas to be used as additional playground space;
- Construction of the Union Street Building, which is a proposed three-storey building including under-croft and additional roof top play area, in keeping with the scale of development at nearby residential sites. The ground floor will be open acting as a COLA and an extension of the play area;
- Construction of the proposed Corlette Street Building, which includes a semi basement car parking level (31-35 car parking spaces) and two storeys of teaching space above;
- Alterations of existing Building A including a two storey addition and the refurbishment of the Sandi Warren Performance Centre. Alterations will accommodate the Canteen, Library and Specialist Learning facilities;
- Building B refurbishment, to be used for administration, staff rooms and offices; and
- Associated landscaping and stormwater upgrades.

The proposed development is illustrated in **Figure 12**.

Figure 12 Concept Plan (Source: SHAC)



The buildings have been designed having regard to the adjoining development and the various constraints associated with the site. The proposed layout formalises access points to the site and makes the School more legible to staff, students and visitors.

Further detail is provided within the Plans at Appendix G. Once all the works are completed the School will be able to accommodate 640 students and 60 staff. At present the School accommodates 256 students on the Park Campus. At the completion of Stage 1, student enrolments will be able to increase to 480 students. Some 50 staff are anticipated as being required once this number of students are attending the School.

4.2 Staging

The project will be undertaken in three stages .

4.2.1 Stage 1 Works

Stage 1 includes:

- Demolition of the existing COLA and existing Block C, D and F;
- Construction of the three-storey building Union Street Building which includes under-croft and additional roof top play area, in keeping with the scale of development at nearby residential sites. The ground floor will be open acting as a COLA and an extension of the play area;
- Building B refurbishment, to be used for administration, staff rooms and offices;

- Kiss and Drop roadway with entry crossover from Corlette Street and exit crossover to Union Street with movable bollards to deny vehicular access outside of drop off and pick up hours;
- Site stormwater and services upgrades; and
- Landscaping improvements through the play area including make good works for the demolition spaces with an aim of enhancing student experience.

The Stage 1 works aims to consolidate the facilities provided by existing building blocks C, D and F into a single building which will also provide enhanced student capacity to meet the projected needs of the school in the near term. The works will result in an overall increase in play area from 3,905m^2 up to 5,786m^2 (increase of 1,881m^2).

The provision of the new Kiss and Ride lane through the school represents new concepts in traffic management for schools which aims to accommodate the proposed increase in capacity whilst minimising the impact of drop off and pick up periods on the road network.

4.2.2 Stage 2 Works

Stage 2 includes:

- Construction of the Corlette Street Building, which is proposed to include a semi basement car parking level (31-35 car parking spaces) with two storeys of teaching space above.
- Landscaping alterations associated with new building construction.

4.2.3 Stage 3 Works

Stage 3 includes:

- Alterations to existing Building A, including the refurbishment of the Sandi Warren Performance Centre. Alterations will accommodate the Canteen, Library and Specialist Learning facilities.

4.3 Design Development

4.3.1 Design and Built Form

The project seeks to upgrade the site, which currently has ageing infrastructure, to a contemporary built form. The buildings are proposed to be located along the east and west boundaries of the site to continue to facilitate a strong urban street pattern, as well as maximising the central open play space. Buildings were explicitly not proposed along the northern boundary due to the proximity of the neighbouring apartments and to minimise the risk of overshadowing the open play area. An on-site kiss and ride drive through is proposed along the northern boundary to alleviate the traffic stress on the surrounding streets.

The proposed works will positively impact upon the visual amenity and built character of the area given that the project is in keeping with the scale and height of surrounding residential development and will incorporate high quality finishes and contemporary materials. The project is set back appropriately to reduce the perceived bulk and scale of the built form. On-site landscape works, vegetation retention and new plantings will make a positive contribution to the streetscape and enhance the overall amenity of the site.

The proposed Union Street building is proposed as part of Stage 1 included within this SSD application. The Union Street building incorporates a range of rooms and features consolidating elements removed as part of the demolition of Blocks C, D, and F.

An undercroft play area is to be constructed at ground level to provide consistency with the open playground area making up much of the rest of the site. It will incorporate a storage room, toilet amenities, bubblers, and play features such as handball courts. Stairs and a lift are to be provided enabling access to the upper storey areas.

Levels 1 and 2 consist of 16 classrooms each provided with a breakout space for concentrated learning, staff rooms, and amenities. Open education spaces are provided within two levels each to be provided with two Design/Make spaces and a single 'campfire' learning space.

A rooftop play area with landscape beds is to be provided which will incorporate a multi-function basketball court. Storage and amenities are to be provided to support the space.

Figure 13 illustrates the proposed Union Street Building on the western elevation presenting to Union Street.

Figure 13 Render of Union Street Building

4.3.2 Materials and Finishes

The design of the Union Street building incorporates a combination of façade battens using lighter sand based colours to reflect the nearby beaches and emphasise the light and airy quality of the battens, whilst also reducing the heat stress on the building. Behind the battens are lighter colours which emphasise shadows and light from the battens along with the solid recessed components of the façade.

The rooftop play area is to be covered by a tensile membrane roof to provide shade and weather protection whilst allowing light into the space. The lightweight nature of the material allows the roof to be moulded to the proposed roof form.

See **Figure 14** for material examples for the Union Street building. A complete finishes schedule has been provided alongside the elevation in Appendix G.

Figure 14 Materials Examples

4.4 Operational Details

4.4.1 Student Capacity

The School is seeking to increase student numbers from its current capacity of approximately 256 students and 35 staff to 480 students and 50 staff as part of Stage 1. It is anticipated that Stage 2 would accommodate an additional 160 students and 10 staff, resulting in a total capacity of 640 students and 60 staff with Stage 3 providing for new Library space and STEM support learning spaces.

The increased capacity of students and associated staffing levels would be gradual and undertaken in a sustainable way, to ensure minimal interruption to the operation of the school.

4.4.2 Operational Details

The School is proposed to operate under similar hours and conditions to that presently managed on site.

The site has a before and after school hours (OOSH) service which is located in Building B. This service operates between 7.15am to 9am and 3pm to 6pm, with capacity for 80 students. Vacation care is also provided during school holiday periods, between 8am and 6pm.

Accordingly, the existing operating hours of 7am – 6pm (inclusive of the OOSH operations and cocurricular activities on site) will continue to be the hours of operation of the School.

Community Use of the facilities on the site will continue to operate in a manner consistent with the existing arrangement, including the ability for hire of various facilities including the hall and specific specialist classrooms for vacation camps.

4.5 Parking and Access

The project includes a car parking area and a drive through kiss and drop area.

Stage 1 involves the construction of two new vehicular accesses driveways to the site at Corlette Street (entry only) and Union Street (exit only) to service the proposed kiss and drop facility. This driveway area provides 7 parallel parking spaces to enable students to safely enter and exit vehicles.

In addition, a semi basement carpark is proposed as part of Stage 2, under the Corlette Street building. It will accommodate 31-35 spaces.

4.6 Demolition

The project incorporates the demolition the existing COLA and existing Block C, D and F. All demolition will form part of the Stage 1 works.

The proposed demolition works are shown within the Architectural Plans at Appendix G. Demolition will be carried out in accordance with the AS2601.2001 *"The Demolition of Structures"* and the Waste Management Plan (WMP) attached at Appendix T.

4.7 Earthworks

Earthworks are proposed for the purpose of establishing the construction pad for development.

The project also includes works outlined in the scope of the Remedial Action Plan (RAP) prepared by Tetra Tech (refer Appendix Y). The implementation of this RAP will see a combination of contaminated material removal from the site followed by the incorporation of the contaminated boiler ash material into cementitious grout mix for use in mine subsidence void remediation beneath the site.

The grouting process involves drilling injection holes in which the grout is injected into the void shafts. This process will effectively seal the contaminated material within the cement grout deep within the underground mine shafts ensuring the effective separation of contaminants from students, staff, and visitors. The grout itself aims to stabilise the underground mine shafts minimising the risk of subsidence events impacting structures above ground.

4.8 Stormwater Management

A Stormwater Management Strategy has been prepared by Lindsay Dynan Consulting Engineers (refer Appendix I).

The proposed Union St building is intended to be connected to a 25kL rainwater tank at the northwest corner of the building. The rainwater tank will include a first flush device and be connected to toilets and for outdoor use. It is also intended that runoff from majority of the landscape areas will be directed by grass lined swales to a 5m^2 bioretention garden before discharging from the site. Runoff from the driveway will sheet flow onto the adjacent landscape strip before being collected in drainage pits. Discharge from the site will connect to the stormwater drainage pit in Union Street, near the northwest corner of the site.

On-site detention (OSD) has been excluded from the design as the site is flood affected by storms greater than the 10% Annual Exceedance Probability (AEP) event. A OSD system would have negligible effect due to the impact of flood waters during major storm events.

4.9 Landscaping

Landscaping proposed for the development is primarily located around the perimeter of the site.

The proposed landscaping design and precedent images that influenced the proposed landscaping design are contained within the Landscape Plan prepared by Gallagher Studio and is attached at Appendix K.

The landscape design includes discrete areas, each providing a different experience, and includes:

- The Green North – This area provides an open lawn for informal active game and clusters of proposed native evergreen shade trees to edges of lawn.
- The Greens South – The objective of this area is to provide an open lawn for informal active games / lunch activities and school gatherings. This area will also include a stepped edge to an existing terrace with balustrade removed providing informal seating opportunities and stage facing The Greens South.
- The Crossing – The existing trees are proposed to be protected and retained in this area and will include a 300mm elevated boardwalk providing access to nature play elements and the Discovery Zone. The raised boardwalk will also offer informal seating opportunities along edges. The Discovery Zone will offer a flexible outdoor teaching space shaded by trees, with under storey planting of robust native grasses and ground covers under existing trees. A boulder play zone with large sandstone boulders offering climbing and informal seating opportunities will be within the planting areas, as well as timber platforms and balance beams.
- Internal Street – A paved kiss and drop access road will provide vehicular access during morning and afternoons with hard surface play opportunities during lunch, including handball courts. Concrete seats are proposed at the edge of kiss and drop zone. A planting of screening shrubs will provide a green buffer to the adjacent residential building.
- Play Platform - The existing sports court is to be retained, with additional basketball half courts and table tennis tables. Buffer planting is proposed to Corlette Street including trees.
- Union Street Building Undercroft Play Area – a variety of spaces are proposed in the undercroft, including flexible hard space for handball and sheltered gatherings / assemblies, play pods offering flexible breakout spaces for lunchtime club activities or learning opportunities and a climbing zone with rope nets attached to columns and climbing structures fixed from the roof. This area of the site will also accommodate an amenities area with toilets, storage and bike storage. A planted buffer is proposed to Union Street.

Specific attention has been made in the design to the streetscape environment. The existing footpaths, bus stops, bus shelter, substation and street trees to be retained with tree plantings to enhance shade afforded to these spaces.

The landscape design utilises a range of ferns and broad leaved plants and soft flowering plants to create shading to establish nature play elements (see **Figure 15** for planting schedule for the understorey plants). Boardwalks facilitate exploration through the space enhancing student's connection with the space.

Figure 15 Planting Schedule - Understorey

4.10 Tree removal

The project includes the removal of some existing trees and landscaping, as detailed in the Landscape Plan at Appendix O and in the Arborist Report attached at Appendix O, prepared by Abacus Tree Services.

Trees are being retained where possible, including the mature trees that are located centrally within the playground area. A line of *Melaleuca leucadendra* (Weeping Paperbark) running along the northern boundary of the site are proposed to be removed to facilitate the kiss and drop internal road.

While the project will require the removal of a small number of trees, ample replacement landscaping is to be provided on site. No areas of natural vegetation of high value will be impacted by the project and through substantial replacement plantings, the project will have a positive outcome in terms of appropriate landscaping post development compared to the existing site conditions.

A Landscape Design has been prepared by Gallagher Studios and is provided at Appendix K. It provides details of the proposed new plantings to enhance and soften the built form, paying attention to the landscaping of setback areas.

The trees proposed to be removed are not known to be of heritage or conservation value. Generous compensatory landscaping is proposed, enhancing and complementing the amenity of the site and surrounding area.

4.11 Signage

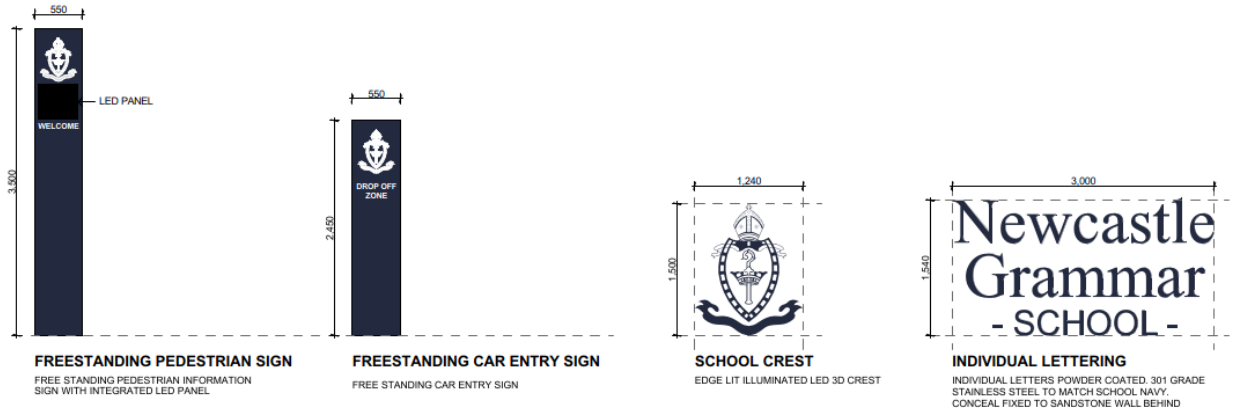
Signage upgrades are proposed and are depicted on the elevations as shown on the Architectural Plans at Appendix G.

The proposed signage includes:

- 3.5m Freestanding Pedestrian Sign with LED Panel;
- 2.45m Freestanding Car Entry Sign;
- Edge lit illuminated School Crest Sign; and
- Newcastle Grammar School letterset sign.

Figure 16 shows the proposed signage. Refer to signage plan in Appendix G for further detail.

Figure 16 Proposed Signs



More detail of the signage on site and its compliance with *State Environmental Planning Policy No. 64 – Advertising and Signage* is provided within Section 5.13.4.

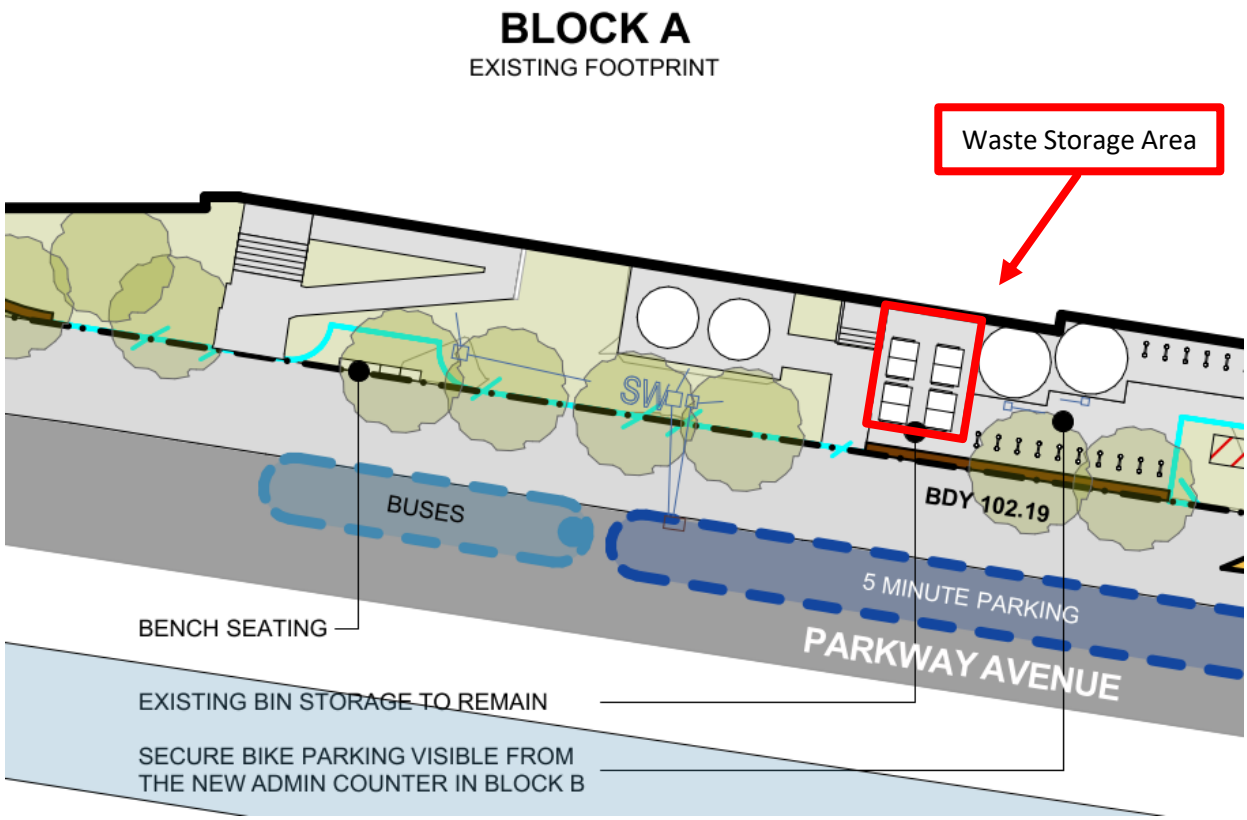
4.12 Waste Management

Waste generation will increase in accordance with the increase in student numbers. Waste collection is managed both through private contractors and the City of Newcastle.

The waste management contractor will handle the large 1,100L bins located within the existing waste storage area on Parkway Avenue of the site, see **Figure 17**. The following provides a breakdown of the bins and collection:

- Landfill: 2 x 1,100L – Monday, Wednesday and Friday.
- Recycling: 2 x 1,100L – Wednesday and Friday.

Figure 17 Proposed Waste Storage Area



4.13 Construction Management

A Construction Management Plan (CMP) will be prepared to ensure that any impacts from the construction phase are managed to mitigate any potential negative impacts to adjoining properties. The CMP will incorporate relevant recommendations from the various technical studies, including the Acoustic and Vibration Assessment and Traffic Assessment (refer Appendix R and L respectively). A Concept Construction Traffic & Pedestrian Management Plan has been provided in Appendix N.

4.14 Site Services

A detailed Building Services Report has been prepared by Marline Newcastle Pty Ltd (refer Appendix II). This document provides an overview of the existing systems available to support the project and the proposed systems required to upgrade electrical, mechanical and hydraulic services. Marline Newcastle Pty Ltd has performed non-invasive investigations with respect to the existing site services and the anticipated additional loading from the project.

5 Statutory Context Planning Pathway

Under Schedule 1 Clause 15 of the State Environmental Planning Policy (State and Regional Development) 2011, alterations and additions to an existing school with a capital investment value of more than $20 million is identified as SSD. With a value of value of $33,979,000 the proposed concept development will have a capital investment exceeding the $20 million and is therefore defined as SSD.

5.1 Permissibility

The proposal is permissible given the R3 Medium Density Residential Zoning of the site, in accordance with the Newcastle Local Environmental Plan 2012 (NLEP 2012) as an educational establishment.

5.2 Commonwealth Legislation

5.2.1 Environment Protection and Biodiversity Conservation Act 1999

The Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) is administered by the Commonwealth Department Agriculture, Water and the Environment (DAWE). The EPBC Act provides a framework for the protection of the Australian environment, including its biodiversity, natural resources and culturally significant places. Nine Matters of National Environmental Significance (Matters of NES) are identified under the act. An action that "*has, will have or is likely to have a significant impact on a Matters of NES* " may not be undertaken without prior approval of the Commonwealth Minister, as provided under Part 9 of the EPBC Act. Approval under the EPBC Act is also required where actions are proposed on, or will affect, Commonwealth land and its environment.

A Protected Matters Search was performed via the DAWE website to ascertain if any Matters of NES protected by the EPBC Act have been identified as occurring in, or close to, the site. A copy of the search report is included as Appendix OO and a summary of the findings is presented in the following pages.

5.2.1.1 World Heritage Properties

The site is not a World Heritage Property and there are no World Heritage Properties listed within the locality.

5.2.1.2 National Heritage

The site is not a National Heritage Place.

5.2.1.3 Wetlands of International Significance (RAMSAR Wetlands)

There are no RAMSAR wetlands protected by international treaty (RAMSAR Convention) within or close to the site. One RAMSAR wetland was listed by the Protected Matters Search. Based on the distance to these wetlands and the fact that they separated from the site by extensive urban development, the project is not anticipated to have an impact upon these wetlands.

5.2.1.4 Commonwealth Marine Areas

Not applicable. The site is significantly removed from any Commonwealth marine areas.

5.2.1.5 Great Barrier Reef Marine Park

Not applicable. The site is significantly removed from the Great Barrier Reef Marine Park.

5.2.1.6 Threatened Ecological Communities (TECs) and Threatened Species

The Protected Matters Search identified three listed threatened ecological communities (TECs) that may occur within the area, namely:

- Central Hunter Valley eucalypt forest and woodland;
- Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community; and
- River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria.

Thirty seven (37) listed threatened species were identified as species that may occur or are likely to occur within the area.

On this basis the risk of significant adverse impact on TECs and threatened species within the surrounding environment is considered negligible.

5.2.1.7 Nationally Listed Migratory Species

The Protected Matters Search identified nineteen (19) migratory bird species which may occur in the area. Given the proposed disturbance footprint is highly modified and disturbed, the project is highly unlikely to substantially modify, destroy or isolate an area of important habitat, result in an invasive species that is harmful to migratory species becoming established in the area, or disrupt the lifecycle of local or migratory species.

5.2.1.8 All Nuclear Actions

No type of nuclear activity is proposed.

5.2.1.9 Water Trigger

No coal seam gas or coal mining is proposed therefore there is no EPBC Act “water trigger”.

5.2.1.10 Conclusion

The project is not anticipated to have a significant impact upon any Matters of NES and therefore referral to the DAWE is not considered necessary.

5.3 Environmental Planning and Assessment Act 1979 (EP&A Act) and Regulation 2000

The EP&A Act is the primary piece of legislation overseeing the assessment and determination of development proposals in NSW. The objectives of the EP&A Act generally seek to promote the management and conservation of natural resources, while also permitting appropriate development to occur.

Part 3 of the EP&A Act provides for the development of Environmental Planning Instruments (EPIs), which can take the form of State Environmental Planning Policies (SEPPs) or Local Environmental Plans (LEPs). EPIs contain provisions that control the permissibility of development and identify when development approval is required.

5.3.1 State Significant Development Assessment

Division 4.7 establishes the requirements for SSD. Under Section 4.37 of the EP&A Act, staged SSD provides the consent authority the power to determine whether subsequent stages meet the criteria of SSD and are able to be determined by the relevant council.

5.3.2 Concept Development

Division 4.4 implements the legislation relevant to Concept Development Applications and requirements for such applications. Concept development is defined under the Division as:

concept development application *is a development application that sets out concept proposals for the development of a site, and for which detailed proposals for the site or for separate parts of the site are to be the subject of a subsequent development application or applications.*

The proposed development consists of the proposed concept for the site and establishes the stages within the concept allowing for separate future development applications to be assessed for each stage.

In addition to the concept development, this application concurrently seeks approval for the first stage of development which is permitted under Clause 4.22 Subclause (4)(b). Substantial information is provided within this EIS enabling a full assessment of the potential environmental impacts generated by the proposed Stage 1 development alongside the proposed concept development.

5.3.3 Other Approvals

Integrated development is defined under Section 4.46 of the EP&A Act. It includes development proposals that require development consent and one or more specific approvals under the following Acts:

- Fisheries Management Act, 1994;
- Heritage Act, 1977;
- Mine Subsidence Compensation Act, 1961;
- National Parks and Wildlife Act, 1974;
- Protection of the Environment Operations Act, 1997;
- Roads Act, 1993;
- Rural Fires Act, 1997; and
- Water Management Act, 2000.

Where one of these approvals or permits is required the development application must be submitted to the relevant approval body, for the purposes of obtaining the General Terms of Approval (GTA) from that approval body which may include any conditions to be imposed on any development consent issued by the consent authority. Whether any of these approvals are triggered is discussed in the following pages.

It is noted that pursuant to Section 4.41 of the EP&A Act 1979 the following authorisation are not required for SSD applications:

- A permit under section 201, 205 or 219 of the Fisheries Management Act 1994;
- An approval under Part 4, or an excavation permit under section 139, of the Heritage Act 1977;
- An Aboriginal heritage impact permit under section 90 of the National Parks and Wildlife Act 1974;
- A bush fire safety authority under section 100B of the Rural Fires Act 1997; and
- A water use approval under section 89, a water management work approval under section 90 or an activity approval under section 91 of the Water Management Act 2000.

5.4 Section 4.15 Assessment

Section 4.15 of the EP&A Act outlines the considerations that are to be made in determining a development application, including the provisions of statutory planning policies, site suitability, the likely impacts of that development, public submissions and the public interest.

A detailed assessment of the considerations outlined in Section 4.15 of the Act are detailed within this EIS within Section 7.

5.5 Environmental Planning and Assessment Regulation 2000

Clauses 6 and 7 of Schedule 2 of the EP&A Regulations prescribe the form and content requirements for EIS. The SEARs stipulate that this EIS must meet these requirements. This EIS has been prepared in accordance with these requirements.

5.6 Coal Mine Subsidence Compensation Act 2017

The land is situated within a declared Mine Subsidence District under section 20 of the Coal Mine Subsidence Compensation Act 2017 (which supersedes the Mine Subsidence Compensation Act 1961), namely the Newcastle Mine Subsidence District.

Development in a Mine Subsidence District requires approval from Subsidence Advisory NSW. Subsidence Advisory NSW provides compensation to property owners for mine subsidence damage. To be eligible for compensation, development must be constructed in accordance with Subsidence Advisory NSW approval.

In accordance with Clause 22, approval for the proposed development will be sought from the Chief Executive of the Subsidence Advisory with any imposed conditions to be implemented and adhered to.

5.7 Biodiversity Conservation Act 2016

The Biodiversity Conservation Act 2016 (BC Act) commenced in August 2016 and provides a framework to avoid, minimise and offset impacts on biodiversity.

The Biodiversity Conservation Act 2016 aims to maintain a healthy, productive and resilient environmental for the greatest well-being of the community, and for the future, consistent with the principles of ecological sustainable development.

The BC Act introduces the Biodiversity Assessment Method (BAM), a consistent method for the assessment of biodiversity on a proposed Development. The BAM must be applied by an accredited assessor and a Biodiversity Development Assessment Report (BDAR) prepared for all proposals assessed under Part 4 of the EP&A Act (excluding complying Development) which:

- Exceed the relevant clearing threshold as set out in Section 7.2 of the Biodiversity Conservation Regulation 2017 (BC Regulation);
- Are located within an area identified on the 'Biodiversity Values Map';
- Are located in a declared Area of Outstanding Biodiversity Values (AOBVs). Note: listed areas of declared critical habitat under the now repealed Threatened Species Conservation Act have become AOBVs under the new legislation; and
- Are considered to "likely to significantly affect threatened species" using the test of significance in Section 7.3 of the Act.

Section 7.9(2) of the BC Act provides the following in relation to an application for SSD:

> *"Any such application is to be accompanied by a biodiversity development assessment report unless the Planning Agency Head and the Environment Agency Head determine that the proposed development is not likely to have any significant impact on biodiversity values."*

A request to waive the need for a Biodiversity Development Assessment Report (BDAR) under the Biodiversity Conservation Act 2016 has been granted by DPIE and Biodiversity and Conservation Division. Refer to Appendix C for the relevant waiver.

The waiver confirms that the project is not likely to have any significant impact on biodiversity values and therefore a Biodiversity Development Assessment Report (BDAR) is not required.

The potential for impacts on flora and fauna as a result of the proposed development are considered in Section 7.21 of this EIS.

5.8 Roads Act 1993

The Concept Plan includes provision of a 'kiss and ride' bay with an access located on Corlette Street and exit off Union Street. The provision of these crossovers as part of Stage 2 works will require approval under Section 138 of the Roads Act 1993 from Newcastle Council to give consent for works in a public road.

5.9 Heritage Act 1977

The Heritage Act 1977 (Heritage Act) established the Heritage Council of NSW. The Heritage Council's role is to advise the government on the protection of heritage assets, make listing recommendations to the Minister in relation to the State Heritage Register, and assess/approve/decline proposals involving modification to heritage items or places listed on the Register.

Automatic protection is afforded to 'relics', defined as 'any deposit or material evidence relating to the settlement of the area that comprised New South Wales, not being Aboriginal settlement, and which holds State or local significance. Excavation of land on which it is known or where there is reasonable cause to suspect that 'relics' will be exposed, moved, destroyed, discovered or damaged is prohibited unless ordered under an excavation permit.

Any items of local or State historical heritage significance within the site are afforded legislative protection under the Heritage Act.

A search of the Heritage Council of NSW administered heritage databases and NLEP 2012 returned no records for historical heritage sites within the site. The Statement of Heritage Impact and Aboriginal Cultural Heritage Report conducted by Heritage Now did not identify any heritage items with the site (refer to Appendix P and Q).

The potential for impacts on heritage items as a result of the development are considered in Section 7.18.

5.10 National Parks and Wildlife Act 1974

The National Parks and Wildlife Act 1974 (NPW Act) provides for the protection of Aboriginal objects (sites, objects and cultural material) and Aboriginal places. Under the Act (Part 6), an Aboriginal object is defined as:

> *"any deposit, object or material evidence (not being a handicraft for sale) relating to indigenous and non-European habitation of the area that comprises NSW, being habitation both prior to and concurrent with the occupation of that area by persons of European extraction, and includes Aboriginal remains".*

An Aboriginal place is defined under the NPW Act as an area which has been declared by the Minister administering the Act as a place of special significance for Aboriginal culture. It may or may not contain physical Aboriginal objects.

Identified Aboriginal items and sites are registered on Aboriginal Heritage Information Management System (AHIMS).

An Aboriginal Cultural Heritage Report (ACHR) was undertaken by Heritage Now (refer Appendix Q) and concluded that that no Aboriginal objects or Aboriginal places would be harmed during the construction of the project. The findings of this assessment are documented in Section 7.18.3. Measures will be put in place should any artefacts be located on site during construction stages.

5.11 Water Management Act 2000

Under Section 91 of the Water Management Act, approval is required for a controlled activity in, on or under waterfront land.

Controlled activity means:

> *(a) the erection of a building or the carrying out of a work (within the meaning of the Environmental Planning and Assessment Act 1979), or*
>
> *(b) the removal of material (whether or not extractive material) or vegetation from land, whether by way of excavation or otherwise, or*
>
> *(c) the deposition of material (whether or not extractive material) on land, whether by way of landfill operations or otherwise, or*
>
> *(d) the carrying out of any other activity that affects the quantity or flow of water in a water source.*

Waterfront land means:

(a) the bed of any river, together with any land lying between the bed of the river and a line drawn parallel to, and the prescribed distance inland of, the highest bank of the river, or

(a1) the bed of any lake, together with any land lying between the bed of the lake and a line drawn parallel to, and the prescribed distance inland of, the shore of the lake, or

(a2) the bed of any estuary, together with any land lying between the bed of the estuary and a line drawn parallel to, and the prescribed distance inland of, the mean high-water mark of the estuary, or

(b) if the regulations so provide, the bed of the coastal waters of the State, and any land lying between the shoreline of the coastal waters and a line drawn parallel to, and the prescribed distance inland of, the mean high-water mark of the coastal waters,

where the prescribed distance is 40 metres or (if the regulations prescribe a lesser distance, either generally or in relation to a particular location or class of locations) that lesser distance. Land that falls into 2 or more of the categories referred to in paragraphs (a), (a1) and (a2) may be waterfront land by virtue of any of the paragraphs relevant to that land.

The project is on land within the prescribed distance of Cottage Creek, which is considered to comprise 'waterfront land'.

However, Clause 42 of the Water Management (General) Regulation 2018 specifies that a person (other than a public authority) is exempt from section 91E (1) of the Act, in relation to controlled activities specified in Part 2 of Schedule 4.

Part 2 Controlled activities exemptions of Schedule 4 Exemptions includes:

8 Activities on waterfront land if river is concrete lined or in pipe

Any activity carried out on waterfront land relating to a river where the channel of the river is fully concrete lined or is a fully enclosed pipe channel.

The Act defines a river as:

river includes:

(a) any watercourse, whether perennial or intermittent and whether comprising a natural channel or a natural channel artificially improved, and

(b) any tributary, branch or other watercourse into or from which a watercourse referred to in paragraph (a) flows, and

(c) anything declared by the regulations to be a river,

whether or not it also forms part of a lake or estuary, but does not include anything declared by the regulations not to be a river.

As Cottage Creek is concrete lined, a control activity approval is not required.

5.12 Contaminated Land Management Act 1997

The Contaminated Land Management Act 1997 (CLM Act) establishes a system for investigating and remediating land that the EPA considers to be contaminated significantly enough to require regulation.

Section 5 of the CLM Act defines "contamination" of land as:

> *"the presence in, on or under the land of a substance at a concentration above the concentration at which the substance is normally present in, on or under (respectively) land in the same locality, being a presence that presents a risk of harm to human health or any other aspect of the environment."*

Contamination is discussed in accordance with State Environmental Planning Policy No. 55 Remediation of Land in Section 5.13.5 and Section 7.16 of this EIS.

5.13 State Environmental Planning Policies (SEPPs)

5.13.1 State Environmental Planning Policy (State and Regional Development) 2011.

The purpose of the State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP) is to identify development that is SSD, State significant infrastructure and regionally significant development under Section 4 of the EP&A Act.

The aims of this Policy are as follows:

- to identify development that is State significant development,
- to identify development that is State significant infrastructure and critical State significant infrastructure,
- to identify development that is regionally significant development.

Schedule 1 identifies State Significant Development, including Educational Establishments meeting the threshold outlined below:

> *(1) Development for the purpose of a new school (regardless of the capital investment value).*
>
> *(2) Development that has a capital investment value of more than $20 million for the purpose of alterations or additions to an existing school.*
>
> *(3) Development for the purpose of a tertiary institution (within the meaning of State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017), including associated research facilities, that has a capital investment value of more than $30 million.*

The project will result in the alterations and additions to an existing school and has a CIV in excess of $20 million. Accordingly, an SSD application is required to be lodged with the Department of Planning, Industry and Environment (DPIE).

5.13.2 State Environmental Planning Policy (Infrastructure) 2007

The State Environmental Planning Policy (Infrastructure) 2007 (Infrastructure SEPP) provides a consistent planning regime for infrastructure and the provision of services across NSW, along with providing for consultation with relevant public authorities during the Development assessment process. The SEPP supports

the effective delivery of infrastructure and service facilities across NSW, along with improved regulatory certainty and efficiency.

5.13.2.1 Clause 45 - Determination of development applications—other development

(1) This clause applies to a development application (or an application for modification of a consent) for development comprising or involving any of the following—

(a) the penetration of ground within 2m of an underground electricity power line or an electricity distribution pole or within 10m of any part of an electricity tower,

(b) development carried out—

(i) within or immediately adjacent to an easement for electricity purposes (whether or not the electricity infrastructure exists), or

(ii) immediately adjacent to an electricity substation, or

(iii) within 5m of an exposed overhead electricity power line,

(c) installation of a swimming pool any part of which is—

(i) within 30m of a structure supporting an overhead electricity transmission line, measured horizontally from the top of the pool to the bottom of the structure at ground level, or

(ii) within 5m of an overhead electricity power line, measured vertically upwards from the top of the pool,

(d) development involving or requiring the placement of power lines underground, unless an agreement with respect to the placement underground of power lines is in force between the electricity supply authority and the council for the land concerned.

(2) Before determining a development application (or an application for modification of a consent) for development to which this clause applies, the consent authority must—

(a) give written notice to the electricity supply authority for the area in which the development is to be carried out, inviting comments about potential safety risks, and

(b) take into consideration any response to the notice that is received within 21 days after the notice is given.

As there are overhead power lines along Union Street and Corlette Street and an electrical substation present in the vicinity of the site, the proposal will likely be referred to the electricity supply authority in accordance with this clause of SEPP Infrastructure, inviting comment. The proposal is not considered likely to have an adverse impact on the lines and safe work practices will be employed during construction.

5.13.2.2 Clause 101 Development with frontage to classified road

(1) The objectives of this clause are—

(a) to ensure that new development does not compromise the effective and ongoing operation and function of classified roads, and

(b) to prevent or reduce the potential impact of traffic noise and vehicle emission on development adjacent to classified roads.

(2) The consent authority must not grant consent to development on land that has a frontage to a classified road unless it is satisfied that—

(a) where practicable and safe, vehicular access to the land is provided by a road other than the classified road, and

(b) the safety, efficiency and ongoing operation of the classified road will not be adversely affected by the development as a result of—

(i) the design of the vehicular access to the land, or

(ii) the emission of smoke or dust from the development, or

(iii) the nature, volume or frequency of vehicles using the classified road to gain access to the land, and

(c) the development is of a type that is not sensitive to traffic noise or vehicle emissions, or is appropriately located and designed, or includes measures, to ameliorate potential traffic noise or vehicle emissions within the site of the development arising from the adjacent classified road.

The site does not have frontage to any classified roads.

5.13.2.3 Clause 102 Impact of road noise or vibration on non-road development

(1) This clause applies to development for any of the following purposes that is on land in or adjacent to the road corridor for a freeway, a tollway or a transitway or any other road with an annual average daily traffic volume of more than 20,000 vehicles (based on the traffic volume data published on the website of TfNSW) and that the consent authority considers is likely to be adversely affected by road noise or vibration—

(a) residential accommodation,

(b) a place of public worship,

(c) a hospital,

(d) an educational establishment or centre-based child care facility.

The site does not have frontage to any roads with an annual average daily traffic volume of more than 20,000 vehicles.

5.13.3 State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017

State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017 (Education SEPP) aims to make it easier for schools to build new facilities and improve existing facilities by streamlining approval processes and deliver greater consistency across NSW.

The aim of this Policy is to facilitate the effective delivery of educational establishments and early education and care facilities across the State by—

- improving regulatory certainty and efficiency through a consistent planning regime for educational establishments and early education and care facilities, and
- simplifying and standardising planning approval pathways for educational establishments and early education and care facilities (including identifying certain development of minimal environmental impact as exempt development), and
- establishing consistent State-wide assessment requirements and design considerations for educational establishments and early education and care facilities to improve the quality of infrastructure delivered and to minimise impacts on surrounding areas, and
- allowing for the efficient development, redevelopment or use of surplus government-owned land (including providing for consultation with communities regarding educational establishments in their local area), and
- providing for consultation with relevant public authorities about certain development during the assessment process or prior to development commencing, and
- aligning the NSW planning framework with the National Quality Framework that regulates early education and care services, and
- ensuring that proponents of new developments or modified premises meet the applicable requirements of the National Quality Framework for early education and care services, and of the corresponding regime for State regulated education and care services, as part of the planning approval and development process, and
- encouraging proponents of new developments or modified premises and consent authorities to facilitate the joint and shared use of the facilities of educational establishments with the community through appropriate design.

Discussion of the relevant clauses of the Education SEPP has been provided in the subsequent subsections.

5.13.3.1 Clause 35 Schools—development permitted with consent

In accordance with Clause (35)(1), development for the purpose of a school may be carried out by any person with development consent on land in a prescribed zone. As identified in Clause 33, the R3 Medium Density Residential zone is an identified prescribed zone for the purposes of Part 4 of the SEPP.

In accordance with Clause 35(6) of the SEPP Education the following must be considered for the assessment of a school development permitted with consent:

> *(6) Before determining a development application for development of a kind referred to in subclause (1), (3) or (5), the consent authority must take into consideration:*

(a) the design quality of the development when evaluated in accordance with the design quality principles set out in Schedule 4, and

(b) whether the development enables the use of school facilities (including recreational facilities) to be shared with the community.

Discussion regarding alignment with Schedule 4 of the Education SEPP and community use of the site have been provided below.

Schedule 4 – Design Quality Principles

Schedule 4 of the SEPP Education outlines the design quality principles that are proposed for consideration of applications for school developments. An overview of the design process and outcomes has been provided within the Design Statement by SHAC at Appendix H. The project responds to these design quality principles as outlined in **Table 4**.

Table 4 Design Quality Principle Assessment

Design Principle	Response
Principle 1—context, built form and landscape Schools should be designed to respond to and enhance the positive qualities of their setting, landscape and heritage, including Aboriginal cultural heritage. The design and spatial organisation of buildings and the spaces between them should be informed by site conditions such as topography, orientation and climate. Landscape should be integrated into the design of school developments to enhance on-site amenity, contribute to the streetscape and mitigate negative impacts on neighbouring sites. School buildings and their grounds on land that is identified in or under a local environmental plan as a scenic protection area should be designed to recognise and protect the special visual qualities and natural environment of the area, and located and designed to minimise the development's visual impact on those qualities and that natural environment.	The project involves alterations and additions to an existing school. The proposed built form has been designed to integrate within the surrounding landscape by incorporating natural colours and landscaping. Landscaping will be provided in accordance with the Landscape Plan in Appendix K.
Principle 2—sustainable, efficient and durable Good design combines positive environmental, social and economic outcomes. Schools and school buildings should be designed to minimise the consumption of energy, water and natural resources and reduce waste and encourage recycling. Schools should be designed to be durable, resilient and adaptable, enabling them to evolve over time to meet future requirements.	The project adopts a range of ESD initiatives, including solar panels and OSD as documented in the Architectural Plans at Appendix G. The project will also provide positive social and economic benefits for the local community particularly in terms of job creation and will have the ability to cope with future enrolment demands as a result of the building upgrades.

Design Principle	Response
Principle 3—accessible and inclusive School buildings and their grounds should provide good wayfinding and be welcoming, accessible and inclusive to people with differing needs and capabilities. Note— Wayfinding refers to information systems that guide people through a physical environment and enhance their understanding and experience of the space. Schools should actively seek opportunities for their facilities to be shared with the community and cater for activities outside of school hours.	The project is capable of complying with relevant provisions for accessibility as outlined in the Access Report at Appendix S.
Principle 4—health and safety Good school development optimises health, safety and security within its boundaries and the surrounding public domain, and balances this with the need to create a welcoming and accessible environment.	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 design of the pick up and drop off along the internal road will allow for surveillance and encourage students to move into the internals area of the school. Passive surveillance to both Parkway Avenue and Union Street will be improved as a result of the project. A range of open spaces and sports facilities including a COLA, The Greens North and The Greens South, will be available for students to encourage passive recreation.
Principle 5—amenity Schools should provide pleasant and engaging spaces that are accessible for a wide range of educational, informal and community activities, while also considering the amenity of adjacent development and the local neighbourhood. Schools located near busy roads or near rail corridors should incorporate appropriate noise mitigation measures to ensure a high level of amenity for occupants. Schools should include appropriate, efficient, stage and age appropriate indoor and outdoor learning and play spaces, access to sunlight, natural ventilation, outlook, visual and acoustic privacy, storage and service areas.	The project will provide high quality facilities, spaces and equipment for use by students and staff. These areas will provide students with an enhanced learning environment.
Principle 6—whole of life, flexible and adaptive School design should consider future needs and take a whole-of-life-cycle approach underpinned by site wide strategic and spatial planning. Good design for schools should deliver high environmental performance, ease of adaptation and maximise multi-use facilities.	The project involves additions to an existing school. The proposed new buildings are designed to ensure flexibility, adaptability and longevity.
Principle 7—aesthetics	The project will have high quality external finishes, which will be aesthetically pleasing by achieving a

Design Principle	Response
School buildings and their landscape setting should be aesthetically pleasing by achieving a built form that has good proportions and a balanced composition of elements. Schools should respond to positive elements from the site and surrounding neighbourhood and have a positive impact on the quality and character of a neighbourhood. The built form should respond to the existing or desired future context, particularly, positive elements from the site and surrounding neighbourhood, and have a positive impact on the quality and sense of identity of the neighbourhood.	built form that has good proportion and a balanced composition. The project is an appropriate scale and form for the surrounding residential and open space context.

Community Usage

It is noted that the NSW Department of Education policy 'Community Use of School Facilities' encourages schools to make their facilities available for use by the community. The community uses must be appropriate and not interfere with the school's provision of quality learning programs. The community uses will be aligned with the Community Use of School Facilities policy and the associated Community Use of School Facilities Implementation Procedures.

5.13.3.2 Clause 42: Development Standard

Clause 42 notes:

Development consent may be granted for development for the purpose of a school that is State significant development even though the development would contravene a development standard imposed by this or any other environmental planning instrument under which the consent is granted.

The proposal is not seeking to contravene any development standards.

5.13.3.3 Clause 57: Traffic Generating Development

Clause 57 of the SEPP Education stipulates that development for the purposes of an 'educational establishment' with 50 of more students and with access to any road will be referred to the RMS. The proposal will result in the school being able to accompany more than 50 additional students, therefore this Clause applies to the proposed development.

A referral to TfNSW will be undertaken during the assessment of the EIS.

5.13.4 State Environmental Planning Policy No 64 – Advertising and Signage

State Environmental Planning Policy No. 64 Advertising and Signage (SEPP 64) applies to all signage and advertisement. SEPP 64 applies to the proposed signage. Clause 8 of SEPP 64 states the following:

> *"A consent authority must not grant development consent to an application to display signage unless the consent authority is satisfied:*
>
> *(a) that the signage is consistent with the objectives of this Policy as set out in clause 3 (1) (a), and*

(b) that the signage the subject of the application satisfies the assessment criteria specified in Schedule 1."

As set out under Clause 13 of SEPP 64, the consent authority is required to consider and assess any proposed signage and/or advertisements against the Assessment Criteria set out under Schedule 1 of the SEPP. An assessment of the proposed signage against the objectives of the SEPP and relevant criteria for assessment has been undertaken and is summarised in **Table 5**.

Table 5 SEPP 64 Compliance Table

Assessment Criteria		Comment	Compliance
1) Character of the area	Is the proposal compatible with the existing or desired future character of the area or locality in which it is proposed to be located?	The school identification signage is compatible with the scale of the existing building and proposed buildings and also consistent with the character of the area.	Y
	Is the proposal consistent with a particular theme for outdoor advertising in the area or locality?	No. There is no apparent advertising theme within the area.	N/A
2) Special areas	Does the proposal detract from the amenity or visual quality of any environmentally sensitive areas, heritage areas, natural or other conservation areas, open space areas, waterways, rural landscapes or residential areas?	The proposed sign is not of a scale to detract from any heritage areas, environmentally sensitive areas, nor nearby residential properties.	Y
3) Views and vistas	Does the proposal obscure or compromise important views?	None of the proposed signage protrude from the bounds of the structure in which they are placed and have been located as to not obscure or compromise important views.	Y
	Does the proposal dominate the skyline and reduce the quality of vistas?	As above. The signage will not dominate the skyline or reduce the quality of vistas.	Y
	Does the proposal respect the viewing rights of other advertisers?	The proposed signage does not obscure any other advertising.	Y
4) Streetscape, setting or landscape	Is the scale, proportion and form of the proposal appropriate for the streetscape, setting or landscape?	The scale of the new sign is proportionate to the building and existing on site signage. It is set back from the streetscape and appropriate for the existing setting.	Y
	Does the proposal contribute to the visual interest of the streetscape, setting or landscape?	The proposed signage will contribute to the visual interest of the site in context of its existing setting.	Y

Assessment Criteria		Comment	Compliance
	Does the proposal reduce clutter by rationalising and simplifying existing advertising?	The number of proposed signs is not excessive and appropriate for the nature of the land use.	Y
	Does the proposal screen unsightliness?	The proposal does not screen unsightliness.	N/A
	Does the proposal protrude above buildings, structures or tree canopies in the area or locality?	No, it does not extend beyond the built form.	Y
	Does the proposal require ongoing vegetation management?	No.	N/A
5) Site and building	Is the proposal compatible with the scale, proportion and other characteristics of the site or building, or both, on which the proposed signage is to be located?	The sign has been designed to be compatible with the existing built form of the school and site characteristics.	Y
	Does the proposal respect important features of the site or building, or both?	The proposed signage does not detract in any way from important features of the building or site.	Y
	Does the proposal show innovation and imagination in its relationship to the site or building, or both?	The proposed signage utilises modern technology to enhance messaging for information and safety.	Y
6) Associated devices and logos with advertisements and advertising structures	Have any safety devices, platforms, lighting devices or logos been designed as an integral part of the signage or structure on which it is to be displayed?	All lighting elements of the proposed signs are integrated within the sign itself and will be of an appropriately level of brightness for outdoor display.	Y
7) Illumination	Would illumination result in unacceptable glare?	No, the digital screen will not result in excessive glare as the screen has a built in ambient light sensor that adjust the brightness of the screen based on the environmental light.	Y
	Would illumination affect safety for pedestrians, vehicles or aircraft?	As above. The sign will be setback from the road resulting in no safety concern relating to illumination or light spill.	Y

Assessment Criteria		Comment	Compliance
	Would illumination detract from the amenity of any residence or other form of accommodation?	The LED screen will not be of a LUX level to detract from the amenity of future surrounding residences and illuminance can be adjusted if necessary.	Y
	Can the intensity of the illumination be adjusted, if necessary?	The brightness level of the screens is flexible, and the LUX output can be controlled manually or automatically.	Y
	Is the illumination subject to a curfew?	The school signage will operate during school hours.	Y
8) Safety	Would the proposal reduce the safety for any public road?	The signage will not affect road safety.	Y
	Would the proposal reduce the safety for pedestrians or cyclists?	No, the sign will not affect pedestrians or cyclists, as it is setback behind fencing.	Y
	Would the proposal reduce the safety for pedestrians, particularly children, by obscuring sightlines from public areas?	No, sightlines are not affected by the proposal as signage is located on the building.	Y

It is considered that the proposed signage is compatible with the existing and desired character of the area and will be of an appropriate height, scale and proportion to the buildings on and around the site. All proposed signs are for site identification, information, and directional purposes only with no advertising elements proposed.

Overall, it is considered that the proposed signage is appropriate for the use and setting of the site and will not adversely impact the built environment. The signage identifies the site use and is simple and clear.

The proposed signage therefore meets the objectives and provisions of SEPP 64.

5.13.5 State Environmental Planning Policy No 55 – Remediation of Land

The State Environmental Planning Policy No. 55 – Remediation of Land (SEPP 55) provides State-wide planning controls for the remediation of contaminated land. Clause 7(1) of SEPP 55 provides that a consent authority must not consent to the carrying out of any development on land unless:

- It has considered whether the land is contaminated; and
- If the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable after remediation) for the purpose for which the development is proposed to be carried out.

A preliminary site investigation was undertaken by Tetra Tech Coffey (refer Appendix X) which made recommendations for additional sampling and preparation of a Remediation Action Plan (RAP).

Following this investigation, a RAP was prepared (refer Appendix Y) which concludes that following the implementation of the RAP, that the site can be made suitable for the proposed uses. Further discussion of contamination considerations is outlined in Section 7.16 of this EIS.

5.13.6 State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017 (Vegetation SEPP)

The Vegetation SEPP aims to:

- protect the biodiversity values of trees and other vegetation in non-rural areas of the State, and
- preserve the amenity of non-rural areas of the State through the preservation of trees and other vegetation.

In accordance with Clause 5, the Vegetation SEPP applies to the Newcastle LGA.

The proposed development will require the removal of a small number of trees, however ample replacement landscaping is to be provided on site. No areas of natural vegetation of high value are to be impacted by the development. Through substantial replacement plantings, the project will have a positive outcome in terms of appropriate vegetation quantity post development compared to the existing site conditions.

A Landscape Design has been prepared by Gallagher Studios and is reproduced at Appendix K. It provides details of the proposed new plantings to enhance and soften the built form, paying attention to the landscaping of setback areas.

The Landscape Design has had regard for the proposed built form and identifies trees being retained wherever practicable. The trees proposed to be removed are not known to be of heritage or conservation value. Generous compensatory landscaping is proposed, enhancing and complementing the amenity of the site and surrounding lands.

The proposal is considered to be compliant with the objectives of the SEPP.

5.13.7 Draft State Environmental Planning Policy (Remediation of Land).

The Draft Statement of Environmental Planning Policy (Remediation of Lands) (Draft Remediation of Lands SEPP) intends to supersede SEPP 55 which has been the framework for contaminated lands for 20-years. The new draft SEPP will retain elements of SEPP 55 and add new provisions to establish a modern approach to the management of contaminated land.

As outlined in Section 7.16 of this EIS, a Preliminary Site Investigation and RAP has been prepared by Tetra Tech Coffey. These reports identify past and present contaminating activities, report the site condition and provide an assessment of the site contamination. The RAP concludes that with the implementation of the nominated recommendations, the site can be made suitable for the proposed uses.

5.13.8 State Environmental Planning Policy (Koala Habitat Protection) 2020

In accordance with Clause 5 of this SEPP, the requirements of this SEPP do not apply to this DA.

5.13.9 State Environmental Planning Policy (Koala Habitat Protection) 2021

In accordance with Clause 18 of this SEPP, the requirements of this SEPP do not apply to this DA.

5.13.10 State Environmental Planning Policy (Coastal Management) 2018

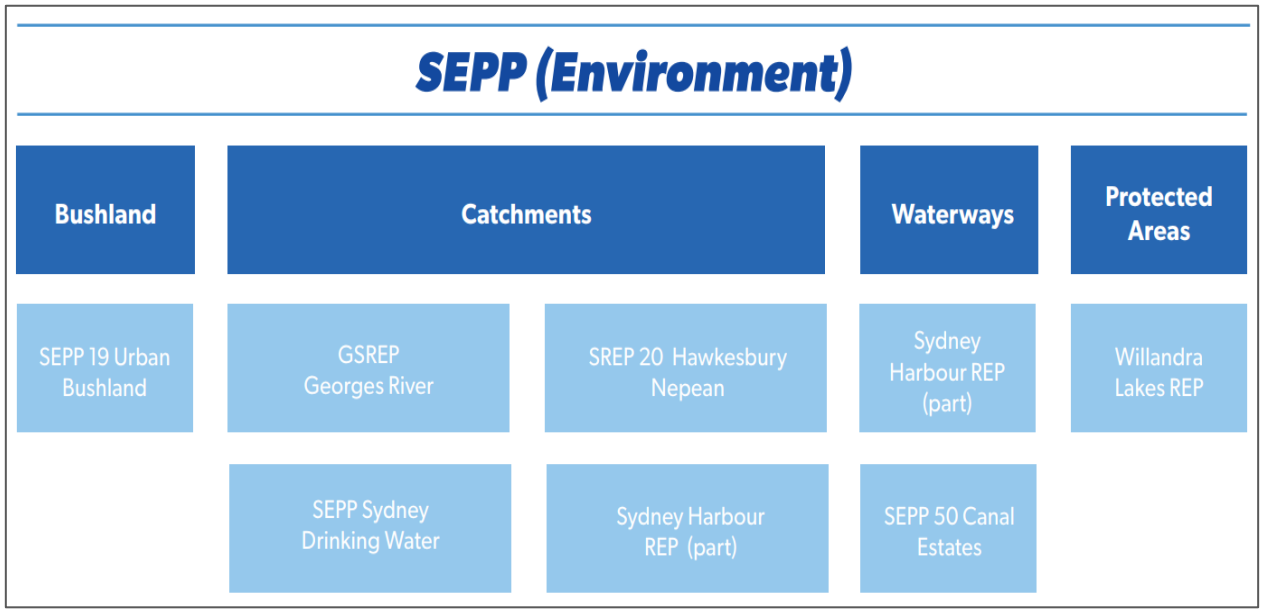
The aim of the State Environmental Planning Policy (Coastal Management) 2018 is to promote an integrated and coordinated approach to land use planning in the coast zone in a manner consistent with the objects of the Coastal Management Act 2016.

The site is not identified as being within the coastal zone, in accordance with the relevant mapping associated with the SEPP. The site is also not identified as having any coastal wetlands or littoral rainforest.

5.13.11 Draft State Environmental Planning Policy (Environment)

The Draft State Environmental Planning Policy (Environment) (Draft SEPP Environment) aims to consolidate environmental SEPPs to simplify the planning rules for a number of water catchments, waterways, urban bushland, and Willandra Lakes World Heritage Property. **Figure 18** illustrates the existing SEPPs and proposed new SEPPs.

Figure 18 Existing SEPPs and proposed new SEPPs (Source: NSW Department of Planning & Environment)



The site is not mapped on the Draft SEPP Environment mapping as being within urban bushland, waterways, Sydney Harbour, critical habitat, seagrass or rocky foreshores area, canal estate development land or Willandra Lakes World Heritage Property.

Coastal wetland management will continue to be protected and assessed against the SEPP Coastal Management, as outlined in Section 5.13.5. No further consideration is required to be given to the Draft SEPP Environment.

5.13.12 Draft State Environmental Planning Policy (Educational Establishments and Child Care Facilities)

The NSW Government has introduced the Planning Reform Action Plan to deliver a better planning system for NSW. Work is underway to improve assessment time frames, reduce red-tape and blockages, eliminate double-handling and fast-track projects that deliver public benefits to NSW.

The State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017 (Education SEPP) was introduced to streamline assessment processes for child-care providers, schools, TAFEs and universities, saving time and money and delivering greater consistency across NSW educational establishments.

The Department is undertaking a review of the Education SEPP aimed at improving the operation, efficiency and usability of the SEPP and supporting documents.

Currently under Clause 15, Schedule 1 of the State and Regional Development SEPP development for the purpose of a new school (regardless of the capital investment value), alterations or additions to an existing school that has a capital investment value of more than $20 million and tertiary institutions that have a capital investment value of more than $30 million are SSD.

It is proposed to amend Subclause 15(2), Schedule 1 of the State and Regional Development SEPP to increase the capital investment value for alterations and additions to existing schools from $20 million to $50 million, and to permit demolition and redevelopment of an existing school via this clause.

A review of the Explanation of Intended Effects has been undertaken, and the other proposed changes do not have relevance to this project.

5.13.13 Draft State Environmental Planning Policy (SEPP) for strategic conservation planning

Strategic conservation planning provides for a landscape scale approach to assessing and protecting biodiversity upfront in planning for large scale future development. It moves beyond a site by site assessment and offsetting approach and will:

- improve ecological resilience and function over the long term
- enhance the network of conservation areas and protect unique and vulnerable species
- provide for publicly accessible green and open spaces for the local community
- streamline the delivery of priority housing, land for employment and transport infrastructure.

The NSW Government's vision for Greater Newcastle is to deliver the infrastructure, housing and jobs needed to cater for future population growth and to create vibrant, liveable, connected urban centres with green spaces and protected biodiversity. The project, being the redevelopment on an inner-city school campus, that is experiencing the growth pressures associated with the urban consolidation of Newcastle, is consistent with this strategic intent.

5.13.14 Draft State Environmental Planning Policy (Housing)

The proposed changes outlined in the Draft Housing SEPP do not have relevance to this project.

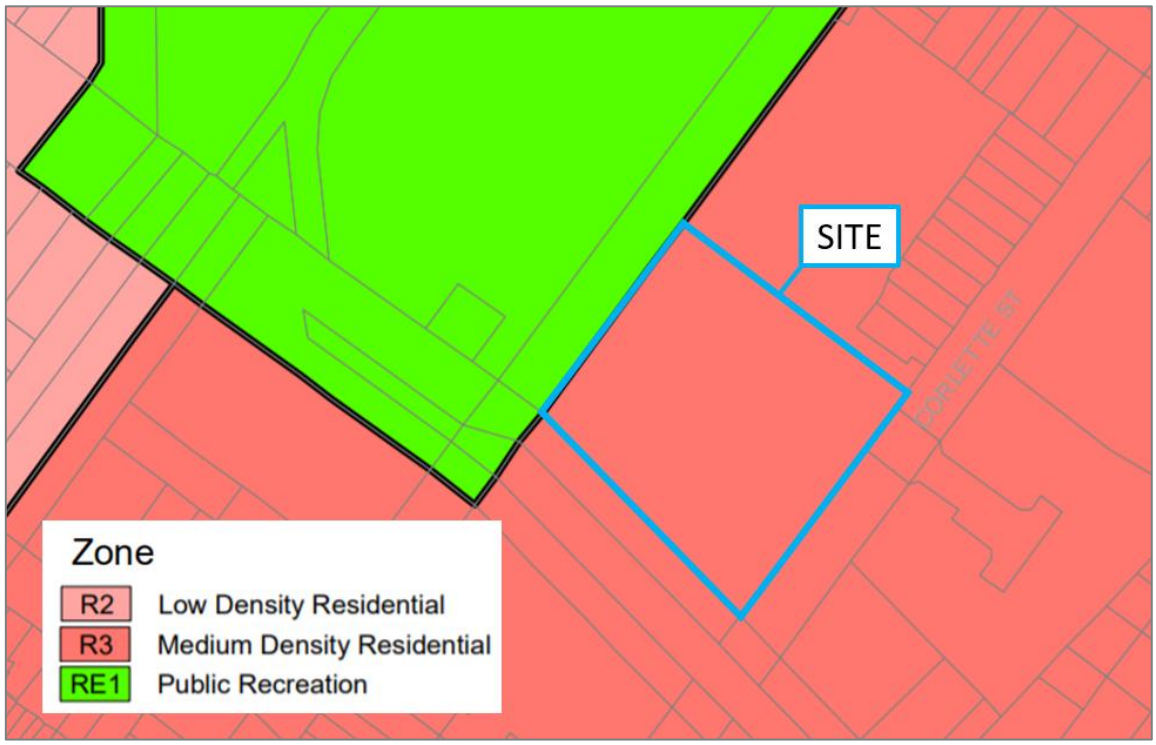
5.14 Newcastle Local Environmental Plan 2012

The Newcastle Local Environmental Plan 2012 (NLEP 2012) applies to all land within the Newcastle LGA.

5.14.1 Zoning

The site is within the R3 Medium Density Residential Zone (see **Figure 19**).

Figure 19 Land Zoning Map (LZN_004G)



2 Permitted without consent

Environmental protection works; Home occupations

3 Permitted with consent

Attached dwellings; Boarding houses; Car parks; Centre-based child care facilities; Community facilities; ***Educational establishments****; Emergency services facilities; Exhibition homes; Exhibition villages; Flood mitigation works; Group homes; Health services facilities; Home-based child care; Home businesses; Multi dwelling housing; Neighbourhood shops; Oyster aquaculture; Places of public worship; Recreation areas; Residential accommodation; Respite day care centres; Roads; Seniors housing; Tank-based aquaculture; Tourist and visitor accommodation*

4 Prohibited

Pond-based aquaculture; Any other development not specified in item 2 or 3

5.14.2 Zone Objectives

The objectives of the R3 Zone are as follows:

1 Objectives of zone

- *To provide for the housing needs of the community within a medium density residential environment.*
- *To provide a variety of housing types within a medium density residential environment.*

- *To enable other land uses that provide facilities or services to meet the day to day needs of residents.*
- *To allow some diversity of activities and densities if—*

    (i) the scale and height of proposed buildings is compatible with the character of the locality, and

    (ii) there will be no significant adverse impact on the amenity of any existing nearby development.

- *To encourage increased population levels in locations that will support the commercial viability of centres provided that the associated new development—*

    (i) has regard to the desired future character of residential streets, and

    (ii) does not significantly detract from the amenity of any existing nearby development.

2 Permitted without consent

Environmental protection works; Home occupations

3 Permitted with consent

Attached dwellings; Boarding houses; Car parks; Centre-based child care facilities; Community facilities; Educational establishments; Emergency services facilities; Exhibition homes; Exhibition villages; Flood mitigation works; Group homes; Health services facilities; Home-based child care; Home businesses; Multi dwelling housing; Neighbourhood shops; Oyster aquaculture; Places of public worship; Recreation areas; Residential accommodation; Respite day care centres; Roads; Seniors housing; Tank-based aquaculture; Tourist and visitor accommodation

4 Prohibited

Pond-based aquaculture; Any other development not specified in item 2 or 3

The project is defined as an 'educational establishment', which

means a building or place used for education (including teaching), being—

(a) a school, or

(b) a tertiary institution, including a university or a TAFE establishment, that provides formal education and is constituted by or under an Act.

school means a government school or non-government school within the meaning of the Education Act 1990.

The project is consistent with the relevant objectives, most notably, it provides facilities or services to meet the day to day needs of residents. The project, being the redevelopment on an inner-city school campus that is experiencing the growth pressures associated with the urban consolidation of Newcastle, is consistent with this strategic intent. The scale and height of proposed buildings is compatible with the character of the locality.

5.14.3 Relevant Clauses

5.14.3.1 Clause 1.2 Aims of Plan

The relevant aims of NLEP 2012 are addressed below;.*(aa) to protect and promote the use and development of land for arts and cultural activity, including music and other performance arts,*

The project will promote arts and cultural activity, including music and other performance arts. It will support arts and cultural activity in the Newcastle inner city area, through the increased ability for NGS to cater for diverse educational outcomes and associated community events.

> *(a) to respect, protect and complement the natural and cultural heritage, the identity and image, and the sense of place of the City of Newcastle,*

Heritage considerations have been addressed in the SOHI (refer to Appendix P of this EIS). In relation to the identity, image and sense of place of the City of Newcastle, the project is consistent with this aim, as it is consistent with the scale of development within the surrounding area. It will provide an architecturally designed building demonstrating design quality excellence, that will contribute to the sense of place of the Cooks Hill and broader Newcastle community.

> *(b) to conserve and manage the natural and built resources of the City of Newcastle for present and future generations, and to apply the principles of ecologically sustainable development in the City of Newcastle,*

The student population will be within a walking catchment of the inner city precincts and will therefore assist in ensuring the efficient use of existing urban infrastructure, including public transport.

The project is consistent with the objectives of Ecologically Sustainable Development (ESD) as demonstrated within Section 7.8 of the EIS.

> *(c) to contribute to the economic well being of the community in a socially and environmentally responsible manner and to strengthen the regional position of the Newcastle city centre as a multi-functional and innovative centre that encourages employment and economic growth,*

The proposed development will have a positive impact within the community as it will provide high quality educational facilities within the catchment of the Newcastle city centre.

The construction of new buildings will support a significant number of jobs directly involved in construction activities on the site or indirectly via manufacturers, suppliers, consultants and other vendors. According to the Master Builders Association, every $1 invested in the construction sector can result in a $3 flow-on economic benefit. Further, workers on site may frequent local convenience businesses and therefore increase local income and employment opportunities in the local area.

The upgrade to the school will increase student capacity by adding years 5 and 6 to the campus. This increase in size and number of students will also require additional teachers, administration, support staff and maintenance personnel.

A number of environmental outcomes will be achieved as demonstrated within Section 7 of the EIS.

(d) to facilitate a diverse and compatible mix of land uses in and adjacent to the urban centres of the City of Newcastle, to support increased patronage of public transport and help reduce travel demand and private motor vehicle dependency,

The additional student population will be accommodated within a walking catchment of the inner city precincts and will assist in ensuring the efficient use of existing urban infrastructure, including public transport. The project is supported by a Green Travel Plan, which seeks to help reduce private motor vehicle dependency (refer Appendix L).

(e) to encourage a diversity of housing types in locations that improve access to employment opportunities, public transport, community facilities and services, retail and commercial services,

While the project does not include housing, it is providing increased services and facilities to the inner city, which is experiencing increased urban population.

(f) to facilitate the development of building design excellence appropriate to a regional city.

The project exhibits design excellence and has undergone review by the State Design Review Panel on two occasions (refer Appendix H).

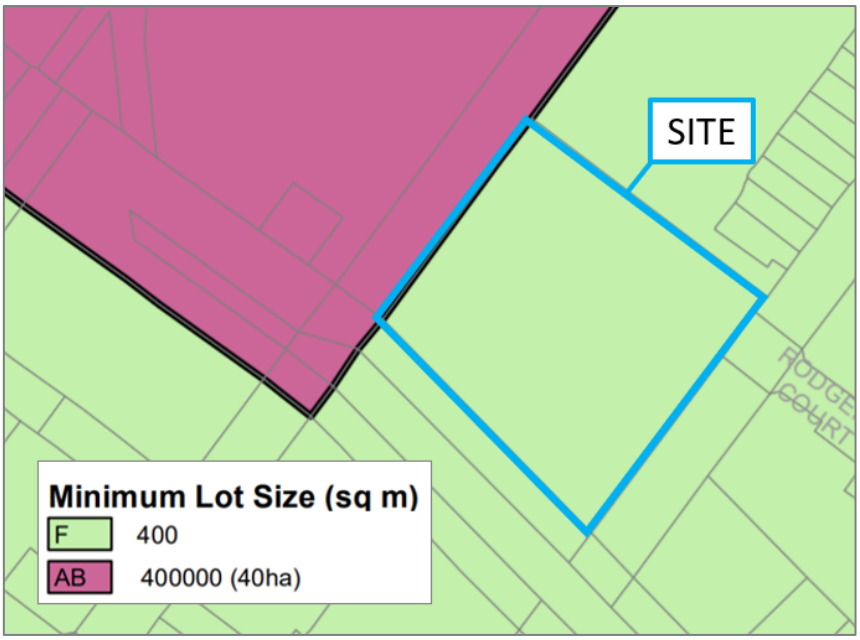
5.14.3.2 Clause 2.7 Demolition requires development consent

The demolition of a building or work may be carried out only with development consent.

5.14.3.3 Clause 4.1 Minimum subdivision lot size

Subdivision is not being sought as part of this application. Notwithstanding the minimum lot size has applicability to the BDAR assessment (refer Appendix C). The minimum lot size for the site is 400m^2 (see **Figure 20**).

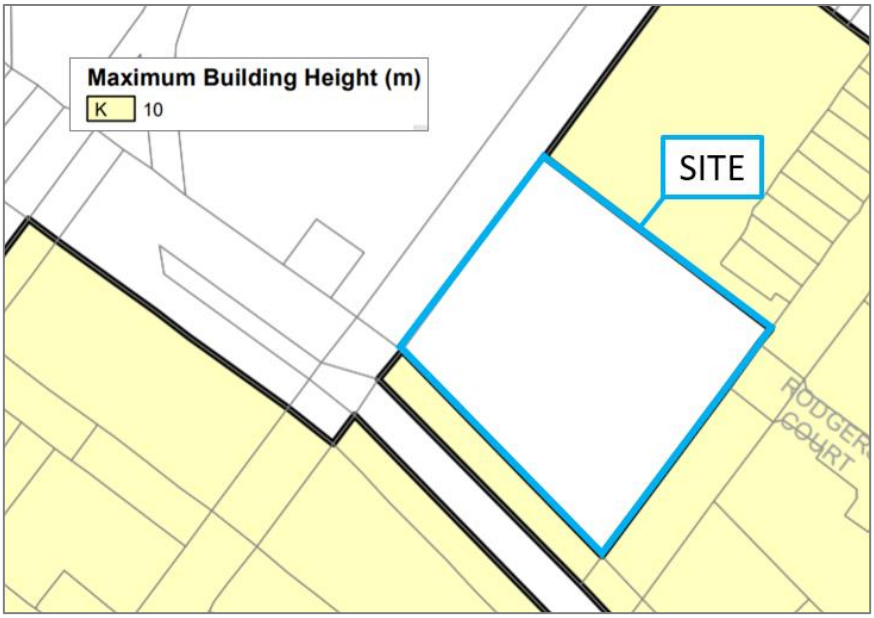
Figure 20 Minimum Lot Size (LSZ_004G)



5.14.3.4 Clause 4.3 Height of buildings

The site is not subject to a height of building control, refer to **Figure 21**.

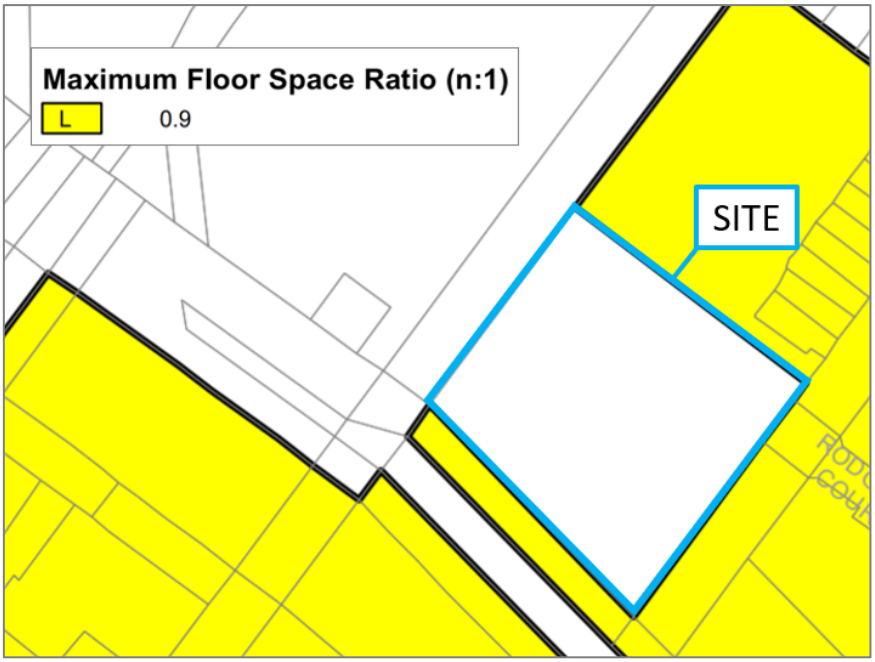
Figure 21 Height of Building Map (HOB_004G)



5.14.3.5 Clause 4.4 Floor Space Ratio

The site is not subject to a floor space ratio (FSR) control, refer to **Figure 22**.

Figure 22 Floor Space Ratio (FSR_004G)



5.14.3.6 Clause 5.10 Heritage Conservation

The site is not subject to heritage controls however is close to the Cooks Hill heritage conservation area (north) and Hamilton South 'Garden Suburb' heritage conservation area (west) (see **Figure 23**).

A detailed Statement of Heritage Impact has been prepared by Heritage Now and is reproduced within Appendix P and further discussed in Section 7.18 of this EIS.

Figure 23 Heritage Map (HER_004G)

5.14.3.7 Clause 5.21 Flood Planning

(1) The objectives of this clause are as follows—

(a) to minimise the flood risk to life and property associated with the use of land,

(b) to allow development on land that is compatible with the flood function and behaviour on the land, taking into account projected changes as a result of climate change,

(c) to avoid adverse or cumulative impacts on flood behaviour and the environment,

(d) to enable the safe occupation and efficient evacuation of people in the event of a flood.

(2) Development consent must not be granted to development on land the consent authority considers to be within the flood planning area unless the consent authority is satisfied the development—

(a) is compatible with the flood function and behaviour on the land, and

(b) will not adversely affect flood behaviour in a way that results in detrimental increases in the potential flood affectation of other development or properties, and

(c) will not adversely affect the safe occupation and efficient evacuation of people or exceed the capacity of existing evacuation routes for the surrounding area in the event of a flood, and

(d) incorporates appropriate measures to manage risk to life in the event of a flood, and

(e) will not adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses.

(3) In deciding whether to grant development consent on land to which this clause applies, the consent authority must consider the following matters—

(a) the impact of the development on projected changes to flood behaviour as a result of climate change,

(b) the intended design and scale of buildings resulting from the development,

(c) whether the development incorporates measures to minimise the risk to life and ensure the safe evacuation of people in the event of a flood,

(d) the potential to modify, relocate or remove buildings resulting from development if the surrounding area is impacted by flooding or coastal erosion.

(4) A word or expression used in this clause has the same meaning as it has in the Considering Flooding in Land Use Planning Guideline unless it is otherwise defined in this clause.

(5) In this clause—

Considering Flooding in Land Use Planning Guideline means the Considering Flooding in Land Use Planning Guideline published on the Department's website on 14 July 2021.

flood planning area has the same meaning as it has in the Floodplain Development Manual.

Floodplain Development Manual means the Floodplain Development Manual (ISBN 0 7347 5476 0) published by the NSW Government in April 2005.

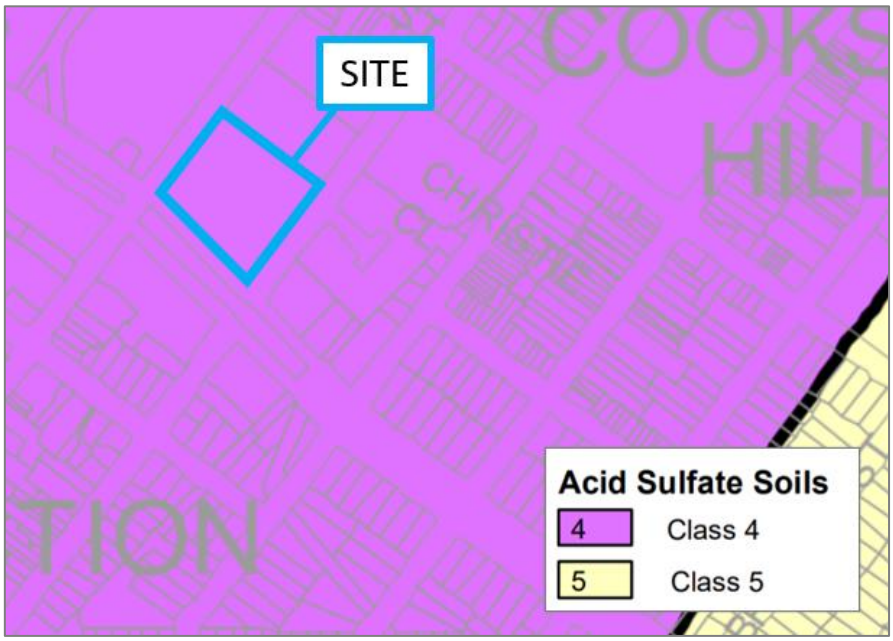
A Flood Impact Assessment Report has been prepared for this development by Torrent Consulting Pty Ltd, including a detailed flood model of the surrounding catchment, focusing on the open concrete drain that is located to the south of the site (refer Appendix BB).

Further discussion of flooding is contained in Section 7.12, demonstrating that the proposal satisfies the requirements of this clause.

5.14.3.8 Clause 6.1 Acid Sulfate Soils

The site is identified as having potential Acid Sulfate Soils Class 4 (see **Figure 24**).

Figure 24 Acid Sulfate Soils Map (ASS_004)



For Class 4 land, development consent is required for work more than 2 metres below the natural ground surface; and for works by which the water table is likely to be lowered more than 2 metres below the natural ground surface. For Class 5 land, development consent is required for works within 500 metres of adjacent Class 1, 2, 3 or 4 land that is below 5 metres Australian Height Datum and by which the watertable is likely to be lowered below 1 metre on adjacent Class 1, 2, 3 or 4 land.

The site is subject to Class 4 acid sulfate soils where the following require consent:

- Works more than 2 metres below the natural ground surface.
- Works by which the watertable is likely to be lowered more than 2 metres below the natural ground surface.

The objective of Clause 6.1 is to ensure that development does not disturb, expose, or drain acid sulfate soils and cause environmental damage. Consideration of Acid Sulfate Soils is contained in the Acid Sulfate Soils Management Plan prepared by Tetra Tech Coffey (refer Appendix QQ).

Soil sampling was undertaken by Tetra Tech Coffey from boreholes advanced as part of geotechnical assessment works. The assessment concluded that there was a high probability that ASS will be disturbed during proposed civil works at the site, particularly during foundation and piling works. Excavations that extend below the fill will also encounter ASS. In the event that ASS materials are encountered, the procedures outlined in a Acid Sulfate Soils Management Plan (ASSMP) must be followed (refer Appendix QQ).

5.14.3.9 Clause 6.2 Earthworks

The objectives of this clause are to ensure that earthworks for which development consent is required will not have a detrimental impact on environmental functions and processes, neighbouring uses, cultural or heritage items or features of the surrounding land, and to allow earthworks of a minor nature without requiring a separate development consent.

Consent for ancillary earthworks to the proposed development is sought under this application. The impacts of the proposed earthworks are discussed in Section 7.15 of this EIS. It demonstrates that the project is acceptable complying with the provisions of Clause 6.2, as summarised in **Table 6**.

Table 6 Responses to Clause 6.2 Considerations

Clause reference	Response
(1) The objectives of this clause are as follows— *(a) to ensure that earthworks for which development consent is required will not have a detrimental impact on environmental functions and processes, neighbouring uses, cultural or heritage items or features of the surrounding land,* *(b) to allow earthworks of a minor nature without requiring a separate development consent.*	The project includes consideration of the environmental impacts of the proposed earthworks, as particularised above. Development consent is sought for the earthworks.
(2) Development consent is required for earthworks unless— *(a) the earthworks are exempt development under this Plan or another applicable environmental planning instrument, or* *(b) the earthworks are ancillary to other development for which development consent has been given.*	Development consent is sought for the earthworks. Any proposed earthworks are ancillary to the proposed alterations and additions and are proposed as part of this application.
(3) Before granting development consent for earthworks, the consent authority must consider the following matters—	
(a) the likely disruption of, or any detrimental effect on, existing drainage patterns and soil stability in the locality of the development,	The DA is supported by the appropriate technical studies, which demonstrate that the project will not involve any detrimental impacts on existing drainage patterns and soil stability in the locality of the proposed development. Reference is made to: • Appendix Z – Geotechnical Assessment • Appendix I – Civil Plans and Report • Appendix EE – Mine Subsidence Report
(b) the effect of the proposed development on the likely future use or redevelopment of the land,	The proposed earthworks in conjunction with the alterations and additions to the educational establishment would have positive benefits in terms of the future use and/ or redevelopment of the land above these works.

Clause reference	Response
(c) the quality of the fill or the soil to be excavated, or both,	The Preliminary Site Investigations and Remedial Action Plan prepared by Tetra Tech Coffey (refer Appendix Y) have made recommendations to ensure that the quality of the fill or the soil to be excavated is appropriately managed. The recommendations of this report will be referenced in a Construction Management Plan, to ensure appropriate management of the construction phase. Any soil to be excavated will be compliant with the relevant requirements, in relation to source and destination. Any excavated material to be removed from the site is to be assessed and classified in accordance with the NSW Environment Protection Authority's 'Waste Classification Guidelines Part 1: Classifying Waste' and be transported and disposed of in accordance with the provisions of the Protection of the Environment Operations Act 1997 and the Protection of the Environment (Waste) Regulation 2014.
(d) the effect of the development on the existing and likely amenity of adjoining properties,	There are unlikely to be any significant impacts to the existing amenity of adjoining properties following the completion of the proposed earthworks. Due to the flat nature of the site, and the relationship of the levels to adjoining lands, no significant regrading of the site is proposed, particularly in relation to site boundaries. A Construction Management Plan (CMP) will be prepared to ensure that any impacts from the construction phase is managed to mitigated impacts to adjoining properties. The CMP will adopt recommendations from the various technical studies, including the Acoustic and Vibration Assessment and traffic assessment (refer Appendix R and L).
(e) the source of any fill material and the destination of any excavated material,	Any fill material imported into the site is to be Virgin Excavated Natural Material or material subject to a Resource Recovery Order that is permitted to be used as a fill material under the conditions of the associated Resource Recovery Exemption, in accordance with the provisions of the Protection of the Environment Operations Act 1997 and the Protection of the Environment (Waste) Regulation 2014. The Preliminary Site Investigations and Remedial Action Plan prepared by Tetra Tech Coffey (refer Appendix Y) have made recommendations ensure that the quality of the fill or the soil to be excavated is appropriately managed. The recommendations of this report will be referenced in a Construction Management Plan, to ensure appropriate management of the construction phase.

Clause reference	Response
(f) the likelihood of disturbing relics,	An Aboriginal Cultural Heritage Report (ACHR) prepared in accordance with the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (DECCW 2010) is attached at Appendix Q of this EIS. The recommendations of the assessment are to be implemented prior to the commencement of any works. Consideration of non-indigenous archaeology was undertaken in the Statement of Heritage Impact (refer to Appendix P). The likelihood of encountering relics is considered to be low. In the unlikely event that any relics are encountered, the relevant legislative requirements will be addressed. The recommendations of these report will be referenced in the CMP, to ensure appropriate management of the construction phase.
(g) the proximity to and potential for adverse impacts on any watercourse, drinking water catchment or environmentally sensitive area.	The proposed development is on land within the prescribed distance of Cottage Creek, which is considered to comprise 'waterfront land', albeit it is a concrete lined drain. A Flood Impact Assessment Report has been prepared for this development by Torrent Consulting Pty Ltd, including a detailed flood model of the surrounding catchment, focusing on the open concrete drain that is located to the south of the site (refer Appendix BB). The earthworks will not involve land or land within 100m of: • A coastal wetlands and littoral rainforests area (within the meaning of the Coastal Management Act 2016); • an aquatic reserve under the Fisheries Management Act 1994; • a marine park under the Marine Parks Act 1997; and • land within a wetland of international significance declared under the Ramsar Convention on Wetlands or within a World heritage area declared under the World Heritage Convention Further, the land is not identified in an environmental planning instrument as being of high Aboriginal cultural significance or high biodiversity significance, nor: • land reserved under the National Parks and Wildlife Act 1974 or land acquired under Part 11 of that Act;

Clause reference	Response
	• land reserved or dedicated under the Crown Land Management Act 2016 for the preservation of flora, fauna, geological formations or for other environmental protection purposes; • land that is a declared area of outstanding biodiversity value under the Biodiversity; and Conservation Act 2016 or declared critical habitat under Part 7A of the Fisheries Management Act 1994.
(h) any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development.	As noted above, various technical assessment have considered the potential impacts from the project, which includes any ancillary earthworks, and have made mitigation recommendations. The recommendations of these reports will be referenced in the CMP, to ensure appropriate management of the construction phase.
Note— *The National Parks and Wildlife Act 1974, particularly section 86, deals with disturbing or excavating land and Aboriginal objects.*	An ACHR prepared in accordance with the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (DECCW 2010) is attached at Appendix Q of this EIS. The recommendations of the assessment are to be implemented prior to the commencement of any works.

5.14.4 Part 7 Additional Local Provisions – Newcastle City Centre

The site is not identified as being within the Newcastle City Centre.

5.15 Newcastle Development Control Plan 2012

The following section of the DCP are applicable to the proposed development:

- Section 3.11 Community Services
- Section 4.01 Flood Management
- Section 4.03 Mine Subsidence
- Section 4.04 Safety and Security
- Section 4.05 Social Impact
- Section 5.01 Soil Management
- Section 5.02 Land Contamination
- Section 5.03 Vegetation Management
- Section 5.04 Aboriginal Heritage
- Section 5.05 Heritage Items
- Section 5.06 Archaeological Management

- Section 7.02 Landscape, Open Space and Visual Amenity
- Section 7.03 Traffic, Parking and Access
- Section 7.04 Movement Networks
- Section 7.05 Energy Efficiency
- Section 7.06 Stormwater
- Section 7.07 Water Efficiency
- Section 7.08 Waste Management

An assessment against the relevant sections of the DCP has been provided at Appendix D.

6 Engagement

In accordance with the SEARs issued by the Department of Planning, Industry and Environment, the project team has carried out consultation with the following stakeholders:

- City of Newcastle Council;
- Government Architect NSW;
- Transport for NSW;
- NSW Roads and Maritime Services;
- Local Aboriginal Land Council and Registered Aboriginal Parties; and
- Adjoining and affected landowners and relevant community groups.

Details of the consultation carried out by the project team are set out in the following sections.

6.1 Community

Community and stakeholder consultation was undertaken by Mara Consulting who have provided a full consultation process within the Consultation Outcomes Report at Appendix E.

Input from the community was invited between September 2020 and August 2021 with feedback able to be received via a range of methods including project website, social media, online survey, two community information sessions, letterbox drop with return mail, and phone interviews.

During this process a total of 2,782 contacts were made with the community and stakeholders, see **Table 7**.

Table 7 Consultation Contact Statistics

Activity	Number of Contacts
Website Visitors	2156
Document Downloads	73
Emails	47
Online Survey	35
Online Information Sessions	2
Video Presentation (views)	10
Letterbox Drop (2km of project site)	450
Phone Calls	4
Interviews	5

6.1.1 Community Feedback Summary

A summary of community feedback with a response noting how the item has been addressed is provided within **Table 8**.

Table 8 Summary of feedback with response (Source: Mara Consulting - Appendix E)

Feedback and issues raised	Proponent response
What is NGS seeking to do?	Newcastle Grammar School is seeking to meet the growing demand in enrolments and bring all primary years together at one campus. The buildings at the Park Campus, Cooks Hill are currently at capacity, with Years 5 and 6 located with high school years at the Hill Campus, Newcastle. The proposed redevelopment will: • Allow the relocation of Years 5 and 6 onto the Park Campus, to allow future growth on the Hill Campus • Consolidate Park Campus in Stage 1 to a 3-stream K-6 primary school. A future stage will see a 4-stream K-6 • Upgrade and replace aging assets and infrastructure • Provide a contemporary learning environment that facilitates STEM and Inquiry Based Learning • Create a welcoming and interesting landscape that compliments learning and encourages discovery • Improve the existing traffic issues related to the School.
Are there under cover play areas?	Yes, the proposal includes a three-storey building along Union Street with an undercover play space at ground level as well as a covered roof top play area. This will have some discreet areas to maximise usage and respond to different aged children ensuring the space can have a multi-use.
As the current football pitch and the basketball/netball court will be removed and replaced with new buildings, has any space been allocated to playing fields/courts for the students?	The landscape design has sought to maximise the active play space across the site. This has been achieved by ensuring that spaces are flexible and robust, supporting both active and passive play for all student ages. There are new open grassed spaces as well as the undercroft of the new building and also a new rooftop sports court area. Therefore, at the end of stage 1, there will be an increase of outdoor play space. Currently, there is 3,905m2 in outdoor play space. The proposed stage 1 outdoor space will be approximately 5,011m2 plus the rooftop play area of 775m2. Future plans for Stage 2 would look at play space as part of development.
What parking will be provided as part of the masterplan including long-term staff parking?	A building along Corlette Street in Stage 2, will comprise under cover car parking with an additional two storeys above. In total, there will be 31-35 onsite carparks.
How many students will the School cater for?	At the online information session, it was stated at completion of Stage 1 the school will cater for 400 students. A future stage 2 will cater for up to 500 students.

	**These numbers were verbally referred to in the community consultation sessions. The correct future student numbers are included in the Environmental Impact Statement*
What are the proposed measures to manage noise?	An acoustic engineer has assessed the potential noise from the proposed development. Noise modelling looks at how noise behaves at different locations around the project site and at nearby properties. It also assesses noise during different stages and operations, including vehicles during drop-off and pick up, outdoor play areas, events and through construction. The noise assessment shows the project will be able to operate within acceptable acoustic levels. The assessment highlighted during construction particular effort should be made to minimise construction noise where feasible and reasonable. This will also be included in the future construction management plan.
When will year 5 and year 6 students move to the Park Campus?	Currently it is anticipated this will occur at the start of the 2024 school year.
Is there an opportunity to add colour to classrooms?	The interior design is still being developed at this time. The colour schemes will continue to be developed with feedback from the school. Colour is a really important part of primary classrooms.
Is there an opportunity to mix grades with open learning, example Year 1 and 2, Year 3 with 4?	The new building will allow for cross grade collaboration. We are excited about the possibilities for teaching and learning and inquiry.
How big is the roof top play space?	The roof top space is approximately 775m2.
Will there be balcony spaces and can they be used for learning?	Yes.
There are currently disability car parks on Union St. Will these remain?	There will be disability car parking available. NGS will work with Council to find an approve location for disability car parking.
Will the new buildings be visible from the surrounding properties?	The new proposed buildings along Union Street and Corlette Street will be visible to the street and public spaces including National Park. The buildings are proposed to be landmark buildings, with innovative and high-quality design and finishes. Extensive landscaping and generous setbacks to adjoining residential properties will also be included in the design, to ensure that the appearance of the site is sensitive to the local area and neighbours.
The design is multi-story, will that impact on my privacy?	Preliminary design work is currently being undertaken by the project architects. Protecting the privacy of adjoining properties and students is a key outcome of the intended design.

What changes to traffic will there be resulting from the proposed redevelopment?	A key part of the proposal is the establishment of a 'kiss and drop' access through the site. The proposed new one- way traffic flow kiss and ride drop off and pick up internal road will have an entry from Corlette Street and exit to Union Street. This access road is designed to provide a safe and quick drop off and pick up facility for parents, to remove carparking demand to the surrounding streets, improving traffic circulation, safety and amenity. In addition, as part of a future development, the proposed Corlette Street Building will provide undercover car parking area, to further alleviate car parking demand in the area.

6.2 Aboriginal Stakeholders

An ACHR prepared in accordance with the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (DECCW 2010) is attached at Appendix Q of this EIS.

Aboriginal consultation has been undertaken and during this process, a total of 13 Aboriginal representatives nominated to become Registered Aboriginal Parties. Feedback from the Aboriginal consultation has been incorporated into the assessment of significance and the development of heritage management and mitigation strategies for the project.

An initial site briefing walk was held with Heritage Now and Peter Townsend (Awabakal Local Aboriginal Land Council representative) on 16 June 2021.

6.3 NSW Government Architect

A meeting with the Government Architect was held on 7 July 2021 to discuss the project. Many elements were discussed, and clarification was required in some areas, as summarised below:

- Play Space: Currently there is insufficient play space for students. It is not deemed feasible to rely on adjoining parklands such as National Park, and thus the development has been designed to cater for play space within the site.
- Flooding: As a response, the buildings are raised to ensure safer and more flood-resistant development. Furthermore, extensive flood research and investigation has been undertaken to ensure the development covers concerns that may arise in regard to flooding.
- Pick Up/Drop Off and General Access: Children and buses currently use the Parkway Avenue frontage as the point of access for the site, with the exception of some access on Union Street during opening and closing times. This often creates congestion concerns due to reliance on the Parkway Avenue network. The project aims to diversify points of access to the site to help alleviate stress on Parkway Avenue. This includes the installation of an internal 'Kiss & Ride' route which allows parents to quickly and safely drop off and pick up their children on the school grounds without additional pressure on the surrounding road networks. Additionally, access is to be provided to Block B in line with the Disability Discrimination Act (DDA) guidelines. This aims to address current connection issues currently occurring on site due to the existing ramp along Block B, hence the change to an amphitheatre.
- Landscaping/Green Space: Clarification was sought in relation to the landscaping and green space areas of the development. It was discussed that existing trees are to be retained, this was justified on the basis that it provides microclimate benefits to play spaces, to define the two landscape spaces proposed – the North and South Green. The North Green is primarily focused on sports play, while the South Green is to be more of a quiet play area, which can integrate to a stage and amphitheatre style area. A path through

the centre of the landscaping is to have informal seating and will act as a 'crossing'. Balance beams are to also be placed under existing melaleuca trees, informal seating and gathering areas. Furthermore, landscaping is proposed to be incorporated with the fence, likely at a dappled depth. The level of detail expressed in these features reflect a purpose for each individual element of landscaping and green space. These ideas are articulated with a motive to provide a successful utilisation of landscaped areas and green space to benefit the students at Newcastle Grammar School.

- Carpark: Justification has been provided as the car park is not fully sunken and only acts as a half storey. This decision is endorsed due to the multitude of constraints which exist on site. These include contamination, mine subsidence and geotechnical constraints. Thus, it appeared that the best method to implement was to keep the carpark at a ground flood level.
- Undercroft Areas: These spaces are strongly encompassed into the development to utilise open space whilst simultaneously providing cover from weather where required. Many additional features are also likely to be co-ordinated into the development, such as the climbing elements proposed at the base of the Union Street building. The floor-to-floor height of the undercroft is 4 metres, allowing for a myriad of activities to be able to be undertaken in the space.
- Possibility for more historical awareness: It is acknowledged that the site was originally a food source for Indigenous people, then used as a government farm, Chinese gardens and a TAFE. This has been acknowledged and it is expected to be factored into the development in future. Ideas included food gardens to touch on the food bowl history of the site which could be placed on the roof.
- Sustainability: Ecologically sustainable development (ESD) is central to the development and is also to be part of the teaching model. This will be achieved by implementing student engagement in the form of energy meters and signs. There is also an existing 80kw solar system on site, with new solar panels likely to be installed in Stage 2.

General architectural features:

- Membrane roof: This is to capture stormwater for re-use, part of the several ESD principles applied on site.
- Roof over the court: Has been proposed to prevent loose balls entering the street or neighbouring properties.
- Cladding: There are multiple uses for the cladding proposed as part of the development. It is to act as a veil to a simple building located behind the site. Furthermore, the cladding of the Union Street building will provide weather protection and shade from the western sun. It will do so without compromising views to the nearby National Park.

A second meeting was held with the GANSW on 1st September 2021 with an aim of discussing the implemented changes and solutions to items raised within the initial meeting.

A number of items were supported including:

- Option two stair proposal, with the parabola shaped stair in plan, batten screening and the landscape buffer at the base;
- Landscape response to create a journey with the elevated boardwalk and activities under the existing trees to create a campus identity;
- Increasing the number of trees on the School campus;

- Façade batten detail with differing batten depths to create the arch and parabola motif; and
- Interior baffle ceiling with curves that relates to the exterior architecture.

The following issues were discussed, as summarised below:

Connecting with Country

1. The planned ongoing consultation with the Awabakal Land Council representatives is supported. Ensure the engagement informs the bush tucker garden placement, internal and external materials, the landscape journey, and the yarning circle.

2. Develop the bush tucker garden and roof planting with consideration to maintenance and input from the Indigenous community consultation. The roof planting next to the sports court is likely to be better suited to decorative landscaping protected by screens, as it has the potential to be damaged by balls.

Masterplan and landscape

3. The street frontages require further development to ensure they are inviting and the entrances to the campus are clear. Consider the following:

    a. Consider the architecture, entries, fencing, landscape and signage together to create a clear hierarchy and sequence of arrival.

    b. Develop the integration of the sandstone boundary walls, so their function is not just to define the corners. For example, at the main entrance on Parkway Avenue, continue the sandstone wall up to the gate, so the sandstone is a marker of the main entry.

    c. As signage pre-empts the entry location, consider reducing the size of the school logo on the proposed stage 1 building so this does not read as the main entry. Additionally, a smaller school logo on the stage 1 building would be more sympathetic to the façade design.

    d. Develop the public seating along Union Street and Parkway Avenue to create a generous public realm. Test different shapes and heights for the seating nooks and sandstone walls to be more sinuous and create a less formal response. Additionally, consider the placement of the seating and indents into the landscaping, so the services and water tanks along Parkway Avenue are not exposed.

4. Provide variation within the tree and plant species across the site, particularly along the boundaries. Consider the following:

    a. Provide canopy trees in between the screening shrubs along the northern boundary to create variation in species, as shown elsewhere in the landscape design. The driveway is primarily a play space and, secondly, a driveway as drop-off and pick-up is for only an hour in both the morning and afternoon.

    b. Plant a variety of tree species along the eastern boundary that can be retained after constructing the stage 2 building.

c. Refine the placement of the western boundary trees to reflect a relationship with the proposed stage 1 building. For example, the trees could align or deliberately misalign with the arches and parabolas.

Architecture

5. Explore the resolution of the external courtyard stair's roof, which could include tilting it or adjusting the height.

6. Consider the internal planning and functions as seen through the arches and parabolas from the eastern courtyard.

7. Regarding the interior design, consider the following:

   a. Use light reflective colours for the interior ceilings. Place darker colours at lower levels.

   b. Develop the wet area bench to feel less commercial.

   c. Incorporate displays for student work to discourage the use of Blu Tack or sticky tape on walls.

   d. Consider the colour and materials palette, which could include adding brighter colours to complement the sophisticated timber and natural base palette.

8. Regarding the lift and stair lobbies:

   a. Continue to explore ways to move the lift to the south of the stage 1 building to allow for equitable and more convenient access to future stages to the south and east.

   b. Use double swing doors for the lift and stair lobbies to allow easier and more comfortable access and circulation.

Sustainability

9. Continue to develop the sustainability initiatives within the design for educational purposes. For example, consider water collection within the landscape design as the soil is sandy.

A full design response to the matters raised has been provided within the Design Report provided at Appendix H.

6.4 Newcastle Council

Discussions with Newcastle Council were undertaken on a number of occasions between 10th February and 20th September 2021. The topics discussed with Council included traffic, driveway access and road related issues. Feedback was requested in relation to the Union Street frontage setback, tree retention, landscaping and acoustic treatments and information regarding complying development criteria.

6.5 Transport for NSW

Correspondence from TfNSW was received on 28th January and 12 April 2021. The consultation clarified the level of detail required for the traffic assessment. Additionally, a Green Travel Plan detailing guiding principles for a final plan is to be reviewed by TfNSW as part of the EIS referral.

6.6 Subsidence Advisory

Correspondence with the Subsidence Advisory was received on 8th June and 9th September 2021 stating that subsurface investigations are required to reduce uncertainty of the state of the historic workings. Once a report is submitted, SA NSW will consider the information and provide feedback.

7 Assessment of Key Impacts

7.1 Built Form and Urban Design

The project seeks to upgrade the site, which currently has ageing infrastructure, to a contemporary built form. The buildings are proposed to be located along the east and west boundaries of the site to continue to facilitate a strong urban street pattern, as well as maximising the central open play space. Buildings were explicitly not proposed along the northern boundary due to the proximity of the neighbouring apartments and to minimise the risk of overshadowing the open play area. An on-site kiss and ride drive through is proposed along the northern boundary to elevate the traffic stress on the surrounding streets.

The proposed Stage 1 Union Street building is located on the low point of a compact flood prone site. To address this concern, the habitable learning stories are elevated one storey to both comply with flood planning advice and to maximise the open play space on site, while also maintaining the visual connection with National Park.

It is noted the site is not subject to height limit restrictions. Modern 4 storey apartment buildings adjoin the site to the north. The Stage 1 building is proposed to be 4 storeys comprising an undercroft, two learning stories and a rooftop play area. See **Figure 25** for render of proposed Union Street building when viewed from within the site.

Figure 25 Render of Proposed Union Street Building

The proposed Stage 2 Corlette Street building will front a residential street. It is proposed to be a 2.5 storey building comprising 2 learning storeys and a half storey in/out basement carpark. This continues the street pattern initiated by the two neighbouring buildings, namely Block B and the contemporary townhouse development found in the visual catchment of the building.

The proposed works will positively impact upon the visual amenity and built character of the area given that the project is in keeping with the scale and height of surrounding residential development and will incorporate high

quality finishes and contemporary materials. The project is set back appropriately to reduce the perceived bulk and scale of the built form. On-site landscape works, vegetation retention and new plantings will make a positive contribution to the streetscape and enhance the overall amenity of the site.

The project is considered to be supportable as a high quality design outcome. One which will make a substantial positive contribution to the public domain in this part of Cooks Hill.

7.2 Design Excellence

The Concept Plan utilises a range of design principles to guide the approach taken to establish the project. These principles include:

- Grid / Axis
- Repetition / Rhythm
- Symmetry / Proportion
- Scale / Geometry
- Order / Hierarchy
- Affordability
- Adaptability
- Flexibility
- Sustainability

Based on these principles, the design responds to the site context and desired future character of the area to provide a high quality and modern design presenting to the surrounding urban area.

The built form emphasises the perimeter of the site continuing the street pattern and building line presentation and create a secured play area centrally located within the site. The existing and proposed buildings face the central play area to create a sense of the School's community.

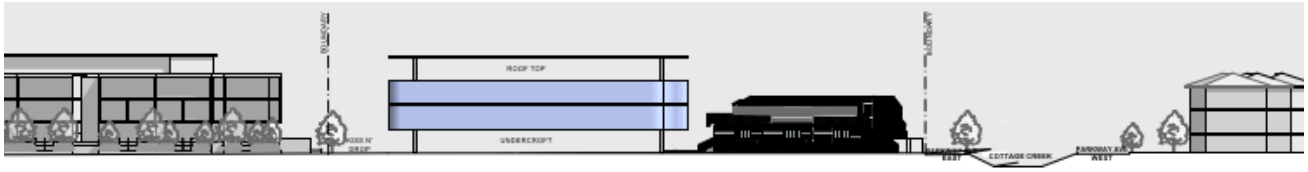
The proposed Union Street building has been designed based on a grid pattern to create efficient structural spaces. This structure affords a level of flexibility for adaptation of the floor plate for future layouts and alterations when required. Natural lighting, ventilation, and an overall connection to nature via views is established for the building through provision of glazing, open spaces and layout to improve outcomes for students. The open spaces are maximised to maintain connection and play areas.

The site is located within a low point of the greater catchment and is identified as being within a high-risk flood zone. The proposed Union Street building is located on the low point of the site. The Union Street building is also opposite National Park, an expansive parkland. Views of this open park counters the physical constraints of the site. Therefore, elevating the building by one full storey addresses the flooding issues, maintains views of the park from the play space & maximises the available play space as the undercroft space will be used as a covered outdoor play area.

Along the Union Street frontage the site is neighboured by a four storey multi-residential building to the north and a three storey multi-residential building to the south. The scale of the proposed building will respect & respond to the existing context (see **Figure 26)**. Capitalising on the surrounding height precedents is essential to

optimising the amenity of the site by allowing for a rooftop play area, maximising the open play space on the site.

Figure 26 Site Elevation Context



The long facades of the proposed building are orientated east & west. While the eastern facade is shaded by the covered decks, the western facade is exposed to the harsh afternoon sun. Therefore, strategies that minimise the direct penetration of the western sun, while maintaining natural daylighting, are required. The proposed design utilises eastern vertical fins oriented perpendicular to the façade which manages sun shading whilst maintaining views to National Park and the central landscaped play area.

A full design report outlining methods and outcomes from the design process along with items addressing input from the Government Architect NSW has been prepared by SHAC and is provided within Appendix H.

7.3 Landscaping and Play Areas

The Landscape Plan at Appendix K by Gallagher Studio provides insight to the landscape structures proposed and play areas within the site. Being able to provide green space and play areas was a key design consideration. The project provides several opportunities for the landscaping and play areas on site, all of which have been explored as part of the design planning for the site.

Flexible Facilities are to be established on site by:

- Development of multi-purpose spaces that allow for active and passive uses.
- Shared use of kiss and drop for active hard court games.
- Sports facilities that utilise rooftop spaces.
- Adapt level changes for seating edges to maximise usability.

Learning and nature outcomes are achieved through:

- Providing dedicated outdoor learning amphitheatres and teaching platforms.
- Integrating water collection and treatment zones for education purposes.
- Integrating demonstration garden spaces for production and ecological education.
- Space for creativity including art spaces and imaginative building zones.
- Creation of dedicated spaces for cultural learning such as yarning circles.
- Create diversity in play offer by expanding with nature play elements.

Shade and microclimates are created by:

- Expanding upon existing tree canopy to maximise shade and cooling offered by trees.

- Locating high use and gathering spaces within areas of shade.
- Review of existing shade structures and expansion if required.
- Consideration of additional water bubblers or refill stations.

These goals have been carefully thought through and incorporated into the Landscape Plan.

As part of the development of the landscape scheme, opportunities for Connection with Country were explored, to enable recognition of the site's past and present nature of landscape. In this regard, the design incorporates:

- Regeneration of indigenous vegetation including potential for edible planting within the School landscape providing learning opportunities;
- Drawing upon the ideas of past creek beds and journey lines within the landscape design;
- Provision of flexible external places for gatherings and learning related to Country;
- Opportunity for integration of indigenous naming of places; and
- Opportunities for collaboration with local Aboriginal stakeholders to share stories and knowledge of local Aboriginal culture within School environment.

A section render of the proposed landscaping through the site is provided in **Figure 27**.

Figure 27 Section Render – Union St to Corlette Street

7.4 Amenity

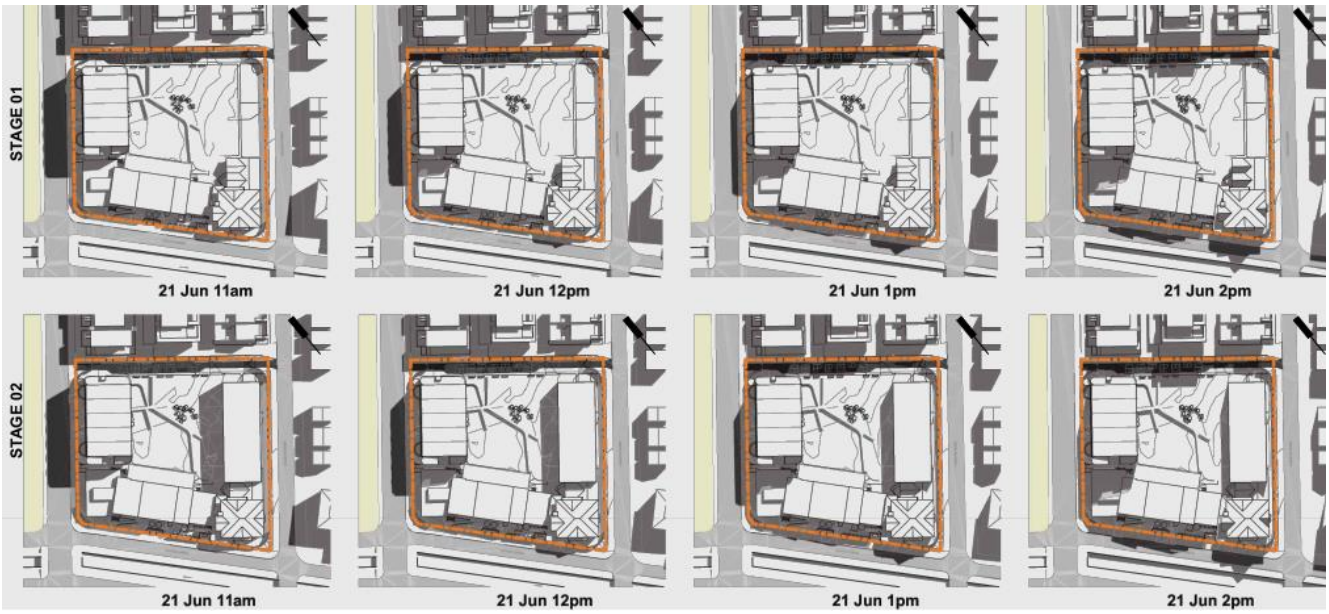
Detailed site analysis was undertaken by SHAC, in designing the alteration and additions to the Park Campus. A key consideration of this exercise was to ensure that any amenity impacts to surrounding land were minimised.

The design has considered the bulk and scale of development abutting the site to the north and sites across the Parkway Avenue and Union Street intersection. The architectural design of the new buildings incorporates the character of existing buildings while also accommodating recession and articulation in the façade. Overall, the design is considered compatible with the adjoining streetscape while improving the amenity of the site and the surrounding area through redevelopment, making the site an iconic feature at the intersection.

7.4.1 Solar access and overshadowing

Shadow diagrams prepared by SHAC (refer to Appendix H) illustrate the overshadowing impacts on 21st June (see **Figure 28)**. The shadow diagrams provide an analysis of the overall overshadowing impacts of the project and also specifically clarifies the extent of overshadowing over the adjoining buildings.

Figure 28 Shadow Diagrams



The following observations are made:

- The significant majority of overshadowing falls on the road network;
- Overshadowing impacts to the Sportsground from the project do not occur after 11am on 21 June;
- Overshadowing impacts do not occur from the project to any adjoining residential property between 9am and 3pm on 21 June;
- The proposed playground areas receive substantial solar access between 9am and 3pm on 21 June; and
- Roof tops of the proposed buildings receive unfettered solar access between 9am and 3pm one 21 June, ensuring optimisation of any solar cells installed.

In conclusion, reasonable daylight access is provided to all surrounding developments, the public domain and the adjoining parklands. Thus, project will not unreasonably overshadow private property nor cause unreasonable shadowing of the public domain.

7.4.2 Visual Impact and View Loss

Consideration of views with specific regard to heritage impacts is discussed in the Statement of Heritage Impact (SOHI) at Appendix P.

The Planning Principle for view sharing has been established under Tenacity Consulting v Warringah [2004] NSWLEC 140. Tenacity Consulting v Warringah [2004] NSWLEC 140 sets out a four (4) step assessment process when considering the view sharing impact on neighbours.

The first step is the assessment of views to be affected. Water views are valued more highly than land views. Iconic views (eg of the Opera House, the Harbour Bridge) are valued more highly than views without icons. Whole views are valued more highly than partial views.

The second step is to consider from what part of the property the views are obtained. For example, the protection of views across side boundaries is more difficult than the protection of views from front and rear boundaries. In addition, whether the view is enjoyed from a standing or sitting position may also be relevant. Sitting views are more difficult to protect than standing views.

The third step is to assess the extent of the impact. This should be done for the whole of the property, not just for the view that is affected. The impact on views from living areas is more significant than from bedrooms or service areas (views from kitchens are highly valued). The impact may be assessed quantitatively, but in many cases this can be meaningless. For example, it is unhelpful to say that the view loss is 20% if it impacts an iconic view. It is usually more useful to assess the view loss qualitatively as negligible, minor, moderate, severe or devastating.

The fourth step is to assess the reasonableness of the project that is causing the impact. A development that complies with relevant planning controls would be considered more reasonable than one that breaches them. Where an impact on views arises as a result of non-compliance with one or more planning controls, even a moderate impact may be considered unreasonable.

Assessment of view impacts

An analysis has been based upon the viewpoints demonstrated in the architectural package has been undertaken. It is noted that the site does not have a height or FSR requirement identified in NLEP 2012. Accordingly, consideration of impacts has been made with regard to the character and general built form of the surrounding area. **Figure 29** shows a render of the Union Street building when viewed from National Park, providing context with the adjoining residential development.

Figure 29 View of site from National Park

Comment:

Step 1 – The view point is not considered to be a water view or iconic view. This view point is located within a park area. No heritage items or items contributing to heritage conservation are located within the view. No long distance or natural views are present in the view. Accordingly, the view is not considered to be highly significant.

Step 2 – While parks are considered a congregation area, the space is large and open and is presented to larger scale residential development. The park is located within an urbanised area co-located with a range of high, medium and low density residential development.

Step 3 – The project is highly visible to this view point.

Step 4 – While the site is highly visible from this vantage point, the proposal appears in context and accordingly there is no significant visual impact to this view point.

Accordingly, the visual impact is considered reasonable within the context of the site and the surrounds.

Figure 30 provides a further view of the proposed Union Street building from within National Park.

Figure 30 Additional view of site from National Park

Comment:

Step 1 – The view point is not considered to be a water view or iconic view. This view point is located within a park area. No heritage items or items contributing to heritage conservation are located within the view. No long distance or natural views are present in the view. Accordingly, the view is not considered to be highly significant.

Step 2 – While parks are considered a congregation area the space is large and open and is presented to larger scale residential development. The park is located within an urbanised area co-located with a range of high, medium and low density residential development.

Step 3 – The project is highly visible to this view point.

Step 4 – While the site is highly visible from this vantage point, the proposal appears in context and accordingly there is no significant visual impact to this view point.

Accordingly, the visual impact is considered reasonable within the context of the site and the surrounds.

Figure 31 provides a southern street level view from Union Street. This perspective provides a view of the building line and pedestrian view from north of the site.

Figure 31 Southern view of site from Union Street

Comment:

Step 1 – The view point is not considered to be a water view or iconic view. This view point is located within a park area. No heritage items or items contributing to heritage conservation are located within the view. No long distance or natural views are present in the view. Accordingly, the view is not considered to be highly significant.

Step 2 – The location is a pedestrian path as part of the Union Street corridor. Any views would be experienced passively as a pedestrian or motorist.

Step 3 – The project is highly visible to this view point.

Step 4 – While the site is highly visible from this vantage point, the proposal appears in context and accordingly there is no significant visual impact to this view point.

Accordingly, the visual impact is considered reasonable within the context of the site and the surrounds.

Figure 32 provides a pedestrian view of the site from the intersection of Union Street and Parkway Avenue.

Figure 32 View of site from the intersection of Union Street and Parkway Avenue

Comment:

Step 1 – The view point is not considered to be a water view or iconic view. This view point is located within a park area. No heritage items or items contributing to heritage conservation are located within the view. No long distance or natural views are present in the view. Accordingly, the view is not considered to be highly significant.

Step 2 – The location is a pedestrian path as part of the Union Street corridor. Any views would be experienced passively as a pedestrian or motorist.

Step 3 – The project is highly visible to this view point.

Step 4 – While the site is highly visible from this vantage point, the proposal appears in context and accordingly there is no significant visual impact to this view point.

Accordingly, the visual impact is considered reasonable within the context of the site and the surrounds.

Figure 33 provides a further pedestrian view from the Union Street pedestrian path which forms part of the larger Union Street and Parkway Avenue intersection.

Figure 33 Pedestrian view of site from Union Street

Comment:

Step 1 – The view point is not considered to be a water view or iconic view. This view point is located within a park area. No heritage items or items contributing to heritage conservation are located within the view. No long distance or natural views are present in the view. Accordingly, the view is not considered to be highly significant.

Step 2 – The location is a pedestrian path as part of the Union Street corridor. Any views would be experienced passively as a pedestrian or motorist.

Step 3 – The project is highly visible to this view point.

Step 4 – While the site is highly visible from this vantage point, the proposal appears in context and accordingly there is no significant visual impact to this view point.

Accordingly, the visual impact is considered reasonable within the context of the site and the surrounds.

Figure 34 provides a northern view of the site from Parkway Avenue reflecting both pedestrian and residential views of the site.

Figure 34 Pedestrian view of the site from Parkway Avenue

Comment:

Step 1 – The view point is not considered to be a water view or iconic view. This view point is located within a park area. No heritage items or items contributing to heritage conservation are located within the view. No long distance or natural views are present in the view. Accordingly, the view is not considered to be highly significant.

Step 2 – The location is a pedestrian path as part of the Union Street corridor. Any views would be experienced passively as a pedestrian or motorist.

Step 3 – The proposal is not highly visible to this view point.

Step 4 – There is no significant visual impact to this view point from the proposal.

Accordingly, the visual impact is considered reasonable within the context of the site.

7.4.3 Privacy

The design has made particular regard to provide measures to ensure privacy for neighbouring residents. The proposed façade treatment utilises battens which facilitates solar access and views whilst affording privacy to the residential properties to the north of the site. The provision of a kiss and ride element along the northern boundary provides building separation which, in combination with the façade treatment, effectively maximises privacy.

7.5 Social Impact

Community consultation and preparation of a Social Impact Assessment (SIA) has been undertaken by Mara Consulting. The full report is reproduced at Appendix V with a Consultation Outcome Report provided at Appendix E.

7.5.1 Demographics and Culture

Demographics

The area of social influence of the project is limited to the communities of Cooks Hill and The Junction in the Newcastle LGA. According to the 2016 Census of Population and Housing, the local area had a total population of 3,914 people (ABS 2016). Some of these residents are the School's immediate neighbours and are most likely to be directly impacted by the proposed works.

The regional area had a 2016 population of 160,919 with an estimated 2021 population of 171,307. The population projections published by DPIE (2021) suggest the projected population of the regional area is estimated to increase by 39,000 people from 2016-2041. This represents a total change of 19.5% and an annual growth rate of just over 0.8% (DPIE 2020).

Cultural Background

Cultural diversity in the local and regional areas is lower than across NSW. In NSW, the proportion of the population born in Australia is 65.5%, as compared to Cooks Hill (69.9%) and The Junction (84.1%). A significantly smaller proportion of households in Cooks Hill (8.9%) and The Junction (7.0%) speak a non-English language compared to NSW (26.5%). The LGA has a slightly higher proportion of households (11.6%) who speak a non-English language.

In 2016, 3.5% of the Cooks Hill population and 3.5% of the LGA population identified as Aboriginal and/or Torres Strait Islander (ABS 2016). The proportion is greater than the proportion of the population who identify as Aboriginal and/or Torres Strait Islander in NSW (2.9%). The Junction contained a lower proportion at 2.2%.

Income and Employment

The median weekly income of all residents over 15 years of age was higher in the local area than in the LGA and NSW. Within the local area, The Junction had a higher median income at $886 compared to $868 in Cooks Hill. These medians were substantially higher than the LGA ($660) and the NSW median of $664.

At the time of the 2016 census, the unemployment rate in the local area was lower than the LGA (7.4%) and NSW rates (6.3%) with Cooks Hill at a rate of 6.1% and The Junction at 5.0%. The rate of full-time work in the local area (61.3% and 58.6%) was slightly higher than the LGA (55.0%) and on par with NSW (59.2%) rates. The rate of part time work was similar across all areas with Cooks Hill (28.8%) and The Junction (31.7%) to the LGA (32.7%) and NSW (29.7%).

7.5.2 Community Impact

As discussed in Section 6 of this EIS, extensive community consultation was undertaken by Mara Consulting between September 2020 and August 2021 (see Appendix E for Consultation Outcomes Report). From the consultation process a number of impacts were identified in accordance with the DPIE Social Impact Assessment Guidelines and are addressed within the Social Impact Assessment at Appendix V.

The positive community impacts include:

- Additional School capacity;
- Access to high quality educational facilities and good building design improving educational outcomes for students;
- Cultural expression opportunities in the design of the campus;
- Availability of play areas and open space improving health outcomes for students;
- New buildings on Union Street and Corlette Street will positively impact on people's sense of place;
- Newly designed buildings and campus will improve safety for students and staff on campus;
- Construction will provide a number of direct and indirect jobs that will benefit a range of individuals and businesses; and
- The School upgrades and higher enrolment will increase opportunities for employment for teachers and support staff.

The negative community impacts include:

- Construction activities will produce noise that disrupt nearby residents and School users;
- The School upgrade will increase the number of students, which will change the character of the community;
- Increased traffic on the local road network during construction will impact residents, commuters, parents, and School staff;
- Increased traffic in the local area due to higher enrolment will impact local community;
- Noise from construction activities will negatively impact the health and wellbeing of surrounding residents;
- Dust and emissions from construction activity will negatively impact the School users and surrounding residents;
- The proximity of construction activity and machinery to students and staff could result in safety impacts for School users;
- Installing a three-storey building near existing residential apartments will negatively impact the privacy of neighbours;
- Flooding across the site will impact the buildings and pose safety risks to School users; and
- Ineffective engagement with surrounding community increasing complaints.

7.5.3 Mitigation Measures

Mara Consulting developed a range of mitigation management measures to minimise the potential impact on the surrounding area during all phases of the proposed development (see **Table 9**). The mitigation measures are informed by the identified negative impacts with an aim to minimise potential for disruption and or changes to way of life.

Table 9 Social Mitigation Measures

Phase	Mitigation Measure
Pre-Construction	• Proactive communication and engagement with the community around the School prior to site establishment. Measures could include newsletter and construction update on the scope of the project, likely high impact activities (noise, vibration, traffic, and pedestrian changes), and contact details for inquiries and complaints. Meetings/presentations with neighbouring properties and parents prior to construction should also be considered • Design a safety campaign for children to effectively explain the construction program, changes and how to get around the campus • Work with the design team to minimise safety risks and implement CPTED principles across the campus • Develop an inquiry and complaint process for the construction • Engage with local Aboriginal groups to identify opportunities to incorporate cultural elements into the school designs and any teaching opportunities • Engage with the local community and neighbours to develop a working relationship to disseminate information during and after construction
Construction Phase	• A Construction Management Plan (CMP) should be prepared that incorporates the findings of the various project technical studies • Ongoing communications with the community around the School to keep residents updated on construction scheduling. This may include signage, notifications, and other appropriate communication channels • Investigate opportunities to use local contractors, suppliers, and service providers
Operational Phase	• Maintain safety measures and strategies for student safety • Ongoing communication and engagement with the community, hosting events and open days • Investigate ways to incorporate Aboriginal culture in the learning process

7.6 Economic Impact

The project will make a positive contribution to the local economy and social infrastructure of the greater Newcastle area. Given the project will allow the school to take in more students whilst also stimulating the economy through development, it will provide opportunities for education for children and employment for adults.

The social and economic impacts include:

- Significant new direct and indirect jobs will be created during both the construction and operational phases;
- Redevelopment of the school will alleviate pressure on other educational establishments in the locality and cater for the anticipated future population growth;

- The project will contribute towards achieving the objectives of the Hunter Regional Plan 2036; and
- The school will have sufficient area for indoor and outdoor recreation to improve the wellbeing of students, staff and the community.

Construction activities represent a direct investment into the local economy through employment opportunities involved in the construction works and indirect flow on investment to suppliers, manufactures, consultants, and other supportive vendors. According to the Master Builders Association, every $1 invested in the construction sector can result in a $3 flow-on economic benefit. This investment during the construction phase can be maximised through a preference for local contractors, suppliers, and service providers. Additionally, workers on site may frequent local convenience businesses and therefore increase local income and employment opportunities in the local area.

Given the proposed increase to the overall student capacity, the campus will require additional teachers. The improvement in school facilities may also improve the capability of the campus to accommodate specialist educators and guest educators such as visiting Aboriginal educators, and education assistance staff enhancing student outcomes and broadening the economic value of the project. The project will also see an increase in supportive staff such as administration, maintenance, and other supporting roles at the School.

7.7 CPTED

The Crime Prevention Through Environmental Design (CPTED) Report at Appendix W identifies and assesses crime risk associated with the project.

Crime Prevention through Environmental Design (CPTED) is a crime prevention strategy that focuses on the planning, design and structure of cities and neighbourhoods. It reduces opportunities for crime by using design and place management principles that reduce the likelihood of essential crime ingredients from intersecting in time and space. CPTED aims to influence the design of buildings and places by:

- Increasing the perception of risk to criminals by increasing the possibility of detection, challenge and capture;
- Increasing the effort required to commit crime by increasing the time, energy or resources which need to be expended;
- Reducing the potential rewards of crime by minimising, removing or concealing ‘crime benefits’; and
- Removing conditions that create confusion about required norms of behaviour (Department of Planning and Environment, formerly the Department of Urban Affairs and Planning, 2001).

CPTED employs 4 key strategies. These strategies are surveillance, access control, territorial reinforcement and space/activity management.

Natural surveillance limits the opportunity for crime by increasing awareness that people can be seen. Potential offenders therefore feel increased scrutiny and limitations on their escape routes. Positive surveillance features of the development include:

- The site is located on a busy intersection (Union Street and Parkway Avenue) as well as being clearly visible from surrounding residential development and the adjacent National Park.
- The improved facilities will encourage higher staffing levels and resulting in increased natural surveillance.

- The multi storey buildings proposed on site allow for natural surveillance through elevated viewing platforms providing an increased line of sight.
- Trees and landscaping should be regularly maintained to ensure clear sightlines remain on site. If not maintained appropriately it may offer concealment opportunities and reduce the opportunity for surveillance. Lower shrubs should be selected restricting mature height to a maximum of one metre.
- The use of technical supervision, such as CCTV cameras, should be considered to provide an additional layer of comfort for staff and parents.
- Broken light fixtures and bulbs should be replaced within 24 hours.

Natural access control limits the opportunity for crime by taking steps to clearly differentiate between public space and private space. Positive natural access control features of the development have been achieved by:

- Clear open space to create high visibility and supervision on the site; and
- Trees along the streetscape to create a clear delineation of the property boundary.

Territorial reinforcement promotes social control through increased definition of space and improved proprietary concern, i.e. it makes the normal user feel safe and makes the potential offender aware of a substantial risk of apprehension or scrutiny. Positive territorial reinforcement features of the development include:

- Signage and lighting, to clearly reinforce the school ownership of the site.
- Improving access by no longer having to walk through the school to access office facilities.
- Fences to be locked at night to deter unauthorised entry to the site.
- Ensure that all access points are legible and inviting and that signage remains in appropriate locations.
- Lighting within the landscaping areas should be considered, to further enhance the feeling of safety for future users.

The project includes the use of some physical barriers associated with target hardening such as bollards at entry points and landscaping in key locations. However, the site allows opportunities for natural surveillance from within the site, with clearly defined boundaries and allows opportunities for natural access control. The proposed development aims to ensure a safe environment for all users.

The overall design is a positive step in creating a safe and welcoming environment for future users. The design is considered to be consistent with the Department of Planning and Environment (former Department of Urban Affairs and Planning) Crime prevention and the assessment of development applications and its associated documents.

7.7.1 Lighting

Lighting Report has also been completed by Marline and is reproduced at Appendix GG. The purpose of the Lighting Report was to review the project and provide concept external lighting recommendations and modelling.

For this project, it is expected that the most at risk sensitive receivers are the existing residents of properties in the vicinity of the site. Due to the proximity of the development to the existing residential area, the control of all external lighting will be critical and must aim to ensure that their existing conditions are maintained. Poorly

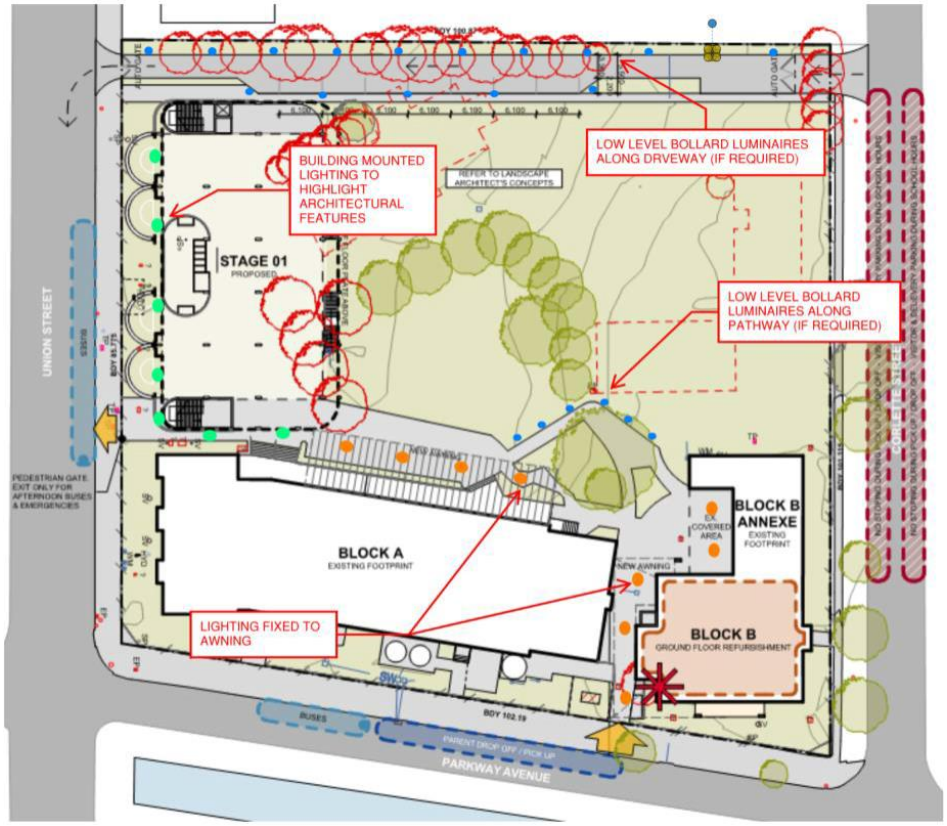
designed or excessive external lighting systems can have impacts well beyond the immediate vicinity of the proposed development.

In order to ensure that the public lighting provided to all open areas does not adversely impact the surrounding properties and residents, the lighting design will be in compliance with AS 4282. Based on the intended use as a school it is considered that the area is categorised as having a 'high district brightness' as classified in AS 4282. This zoning is appropriate for residential areas abutting commercial developments.

Lighting will be positioned to direct light within the site boundary to reduce the risk of obtrusive lighting impacting neighbouring properties. Lighting will be kept to a reasonable level in accident prone areas such as stairs and changes of level.

Figure 35 provides an indicative layout of the proposed lighting throughout the open areas.

Figure 35 Indicative Model Layout



The following measure have been adopted to prevent impacts on sensitive viewers:

- Detailed designs will be certified as compliant with AS 4282 for a suitable district brightness level;
- Low-level luminaires (4m or lower) will be used in preference to higher mounting locations (4m+);
- The use of highly controlled optics to specifically illuminate specific areas in place of wide angle 'flood' type luminaires that incorporate little control of the light distribution; and
- Backlight shields and glare reduction hoods will be installed as a last resort.

Through the careful selection and design of the external public lighting an effective installation can be provided that will comply with all requirements of AS/NZS 1158.3.1, AS 4282, and all other applicable standards. Alignment of the lighting design with the CPTED principles incorporated into the design of the site will also ensure that the lighting system assists in promoting the safe use of the site.

7.8 Ecologically Sustainable Development

7.8.1 Principles of ESD expressed in Schedule 2 of the Regulation 2000

The principles of ecologically sustainable development, as outlined in Schedule 2 of the Environmental Planning and Assessment Regulation 2000 are as follows—

> *(a) the precautionary principle, namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by—*
>
> > *(i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and*
> >
> > *(ii) an assessment of the risk-weighted consequences of various options,*
>
> *(b) inter-generational equity, namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,*
>
> *(c) conservation of biological diversity and ecological integrity, namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,*
>
> *(d) improved valuation, pricing and incentive mechanisms, namely, that environmental factors should be included in the valuation of assets and services, such as—*
>
> > *(i) polluter pays, that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,*
> >
> > *(ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,*
> >
> > *(iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.*

The project, being the redevelopment on an inner city school campus, that is experiencing the growth pressures associated with the urban consolidation of Newcastle, is consistent with this strategic intent.

A Green Star ESD report has been prepared by Marline (refer to Appendix LL). It outlines a range of sustainability initiatives that have been integrated into the project which aims to provide a high-quality built environment with all aspects of environmental sustainability incorporated into the design.

The ESD report demonstrates how the project achieves the GREEN STAR rating in relation to;

- Management;
- Indoor Environment Quality;
- Energy, Transport, Water;
- Materials;
- Land Use and Ecology; and
- Emissions and Innovation.

The ESD report also provides confirmation of how the project achieves the performance measures. These performance measures target 49 Greenstar points in lieu of the minimum 45 points required to achieve an Australian Best Practice 4 Star Rating.

The recommendations of the ESD Report have been adopted and include:

- Developing a metering and monitoring strategy (including a metering diagram) consistent with typical practice and a commissioning specification for meters;
- Developing a Climate Adaption Plan to address the risk assessment component of the plan;
- The adoption of a Site Environmental Management Plan (SEMP) which is accredited/recognised against industry best practice, such as the NSW Environmental Management System Guidelines and ISO 14001.
- Commitment to targeting at least 80% of construction and demolition waste to be diverted from landfill and aim for 90% in accordance with the Green Star requirements. Sufficient space and access for the segregation, storage and removal of general waste and recyclables will be provided as part of the construction and demolition process.
- Formulation of an Operational Waste Management Plan (OWMP) outlining the targets for waste generated during operation and ensuring suitable consideration has been given to spatial requirements and access.
- Air distribution via a number of individual fan coil systems to ensure air is effectively distributed in the occupied spaces through careful design of supply and return air points and appropriate selection of diffusers.
- Installation of a lighting system to achieve the recommended illumination levels as stipulated in AS/NZS 1680. The designed power density of the lighting system will comply as a minimum with Section J6 of the National Construction Code (NCC).
- Optimising occupant health via the reduction of internal air pollutant levels, with the engineered wood products. Products will have low volatile organic compounds and formaldehyde levels;
- The introduction of appropriately controlled VRF air conditioning systems to optimise thermal comfort;
- Providing high performance building envelope featuring vertical timber shadings on the each facades to provide a good shading effect on the glass. Internal shading will be provided where required to aid where additional solar protection is required.
- All buildings will be provided with high efficiency air conditioning systems to ensure that the energy consumption is minimised.

- Implement a comprehensive metering strategy to allow building management to view and manage their real-time consumption of electricity and water. Base building energy & water consumption will be sub-metered to ensure the buildings are operating as efficiently as designed.
- A reduction in potable water consumption compared to a standard practice reference building through the following measures:
    - Water efficient fixtures and fittings including showers, taps, toilets and urinals using the Water Efficiency Labelling Standard (WELS) ratings in accordance with the Green Star requirements.
    - A rainwater harvesting system collecting water from the roof top.
    - All non-potable water demands (toilets, urinals, irrigation) will have reused water (rainwater,) available to them.
    - Reduced peak event discharge post-development has been targeted, and the stormwater discharged from the site is to meet best practice performance objectives as specified in the Stormwater and Water Efficiency for Development.

7.8.2 Climate Change

A NARClim Statement has been produced do demonstrate likely climate chance projections for the Hunter region. Climate change projections are presented for the near future (2030) and far future (2070), compared to the baseline climate (1990–2009).

The Hunter is expected to experience an increase in all temperature variables (average, maximum and minimum) for the near future and the far future. Maximum temperatures are projected to increase by 0.7°C in the near future and by 2.0°C in the far future. Summer and spring will experience the greatest changes in temperatures, with maximum temperatures increasing by 2.3°C by 2070. Increased maximum temperatures are known to impact human health through heat stress and increasing the numbers of heatwave events. Minimum temperatures are projected to increase by 0.7°C in the near future and by 2.1°C in the far future.

The Hunter is expected to experience more hot days in the near future and the far future. Averaging across the region as a whole there are projected to be an additional five hot days in the near future and 14 more hot days in the far future. These increases are projected to occur mainly in spring and summer, although in the far future a small increase in the number of hot days is also projected to extend into autumn. Averaging across the region as a whole, there are projected to be approximately six fewer cold nights per year by 2030. The decrease in cold nights is projected to be even greater by 2070, with an average decrease of 15 nights per year.

Rainfall is projected to decrease in spring and winter and to increase in autumn. Seasonal rainfall projections for the near future and far future span both drying and wetting scenarios.

The region is also projected to experience an increase in average and severe fire weather in the near future and the far future. Increases in severe fire weather are projected in summer and spring. Although these changes are relatively small in magnitude (up to two more days per year on average) they are projected in prescribed burning periods (spring) and the peak fire risk season (summer). Average fire weather risk is projected to increase in all seasons in the far future except for autumn. The increases are in prescribed burning periods (spring) and the peak fire risk (summer), reducing the ability for preventative works. Autumn is projected to have a decrease in severe fire weather.

Considering the aforementioned effects of climate chance, a Climate Adaption Plan has been prepared within the NarClim statement to address these measures and ensure climate change adaption is factored into future development.

The following measures are proposed for the project to address climate change impacts:

- Shading device in each façade
- Building fabric will comply with section J energy efficiency required thermal insulation
- Mechanical equipment will design with 10% margin on equipment sizes that will cover the effect of higher temperature
- Installing the maximum possible solar system to be able to supply emergency power.
- To reduce the risk of devastating fire impacts a regular maintenance and inspection system will be introduced for the fire the hydrant system. A bushfire survival plan will also be prepared.

7.8.3 Water Usage Management

To support the ESD Report, a Water Usage Management Report has also been prepared for the project by Marline (refer Appendix KK).

The existing water minimization strategy utilises rainwater reclamation for landscape watering, washing down and sanitary flushing purposes. The adoption of rainwater reuse, and the use of water efficient fixtures and fittings results in a significant reduction in the potable water demand of the proposed Stage 1 development relative to a comparable standard development.

In addition to rainwater harvesting, reduction of potable water usage will also be achieved by the implementation of the following water efficient devices and procedures:

- Using AAA+ efficient taps, hoses and fittings and undertaking regular maintenance of these fixtures.
- The use of 6/3 dual flush cisterns.
- Providing water efficient basins and showers.
- Landscaping with plant species that require minimal water and irrigating with appropriate systems to minimize water loss and evaporation. This includes using native plant species, using mulch deeply around garden beds, avoiding watering when it's windy, watering during the coolest parts of the day and using a drip irrigation system.

The total anticipated amount of water saved per annum, through the use of rainwater reclamation and water efficient fixtures and tapware, is expected to be as follows:

- Rainwater: 377,790 litres
- Efficient fixtures: 39,333 litres
- Total water saved: 417,123 litres per annum

The report determined that the rainwater reclamation and water efficient measures are able to achieve a saving of 54.09% of the potential potable cold water that would normally have been used.

7.8.4 Green Travel Plan

A Green Travel Plan has been appended to the Traffic Report prepared by Intersect Traffic (see Appendix L). It outlines the strategies and actions the School is taking to encourage the use of more sustainable modes of transport by staff and students. The proposed Union Street building (Stage 1) will benefit from an ideal location close to Newcastle CBD. There are three bus stops adjacent to the school, (approximately 50-100m away) providing a direct connection to the Newcastle CBD and suburbs.

Overall, the Green Travel Plan aims to reduce the number of single-occupancy car trips and promote alternative options. Benefits include:

- Reduction in greenhouse gas emissions;
- Improved health due to reduced vehicle fume exposure;
- Reduced contribution to photochemical smog;
- Alleviating stress on local road networks; and
- Discouraging dependence on finite fossil fuel resources.

The green travel plan utilises a range of initiatives to encourage sustainable travel and includes:

- School Student Transport Scheme which provides eligible school students free or subsidised public transport from home to school.
- Car-pooling initiative which involves the implementation of a car pooling system for staff and the encouragement of car pooling amongst parents/students.
- Sustainable Travel Guide to be developed to provide information and recommendations on sustainable travel options to and from school.

These initiatives are encouraged and will be implemented during all stages of the proposed development.

7.8.5 Biodiversity

More broadly, it is noted that the site benefits from it being a brownfield area. Redeveloping the site is therefore reusing land rather than consuming greenfield land. Hence the site meets the Green Star conditional requirements that it has not been of prime agricultural value, contained old growth forest, etc . The Biodiversity assessment has confirm that there is no threatened species or habitat impacted by this project.

7.9 Noise and Vibration

The Noise Impact Assessment (NIA) prepared by SLR Consulting is reproduced at Appendix R. The NIA presents the study methodology, noise criteria and design goals, and noise mitigation recommendations in relation to the following specific areas of acoustic significance:

- Construction noise and vibration impacts.
- Operational noise emissions from outdoor play areas.
- Operational noise emissions from school events.
- Operational noise emissions from onsite mechanical plant and other project related equipment.

- Noise intrusion impacts from external sources (ie road traffic noise).

7.9.1 Operational Noise

As per the existing operation, there is expected to be some operational noise occurring on site mainly generated by the following:

- Mechanical plant (e.g. air conditioning);
- School bells, PA System, waste collection and maintenance with powered equipment;
- Vehicles during drop off and pick up;
- Children in outdoor play areas; and
- Out of school hours events.

The NSW EPA Noise Guide for Local Government document issued in 2013 provides guidance for the assessment of the noise sources such as a school bell and PA system, waste collection activities and the use of powered equipment.

It is expected that noise sources from the operation of the school would occur during the daytime period only (7:00 am to 6:00 pm Monday to Saturday or 8:00 am to 6:00 pm on Sundays and public holidays).

In order to consider the potential worst case acoustic impacts of the internal roadway, SLR has assumed that approximately 240 vehicles would use the internal road during a worst case 1 hour period between 8:20 am and 8:50 am and 2:45 pm and 3:15 pm. Based on the logging results, the noise limits at the nearest most affected noise sensitive receivers would comply with the EPA Noise Policy for Industry (NPfI) intrusive noise criteria except for R1 (L1 and L2) and R2 (L2) who are located directly north (approximately 7 m) to the proposed internal Kiss and Ride lane. The exceedances are limited to 3dB which based on the NPfI is considered marginal. Further, the Kiss and Ride Lane would only occur during limited morning and afternoon periods considered marginal and not likely to result in adverse impacts or noise related complaints.

As with all schools, noise from children in outdoor play areas is expected. It is considered that noise measures under NPfI is not applicable for schools and does not set the criterion for the purpose of the noise assessment. As a result, the Association of Australasian Acoustical Consultants report “Guideline for Child Care Centre Acoustic Assessment” is considered more appropriate, with acoustic results measured alongside this criterion within the NIA. It has been assumed that all students will be playing outdoors simultaneously as a worst case scenario. Locations where children playing simultaneously have been considered and include the undercover (COLA) area, Courtyard play area and the rooftop sports court play area.

The report has concluded that with the increased student numbers, the most affected receivers (R1 to R10) are located directly north of the proposed project along the boundary fence and east on Corlette Street. Exceedances of up to 8 dB are predicted for these receivers. It should be noted that these noise levels are external predicted noise levels to the most affected façade of the receivers. It is generally accepted that internal noise levels in a dwelling, with the windows open, are 10 dB lower than external noise levels or 25 dB with windows closed.

Additionally, noise associated with children involved in outdoor play would not normally be considered ‘offensive’ in the context of the Protection of the Environment Operations Act 1997 (POEO Act), nor would it be expected to interfere with regular domestic activities. Due to shielding from the closest noise-sensitive receivers and the school buildings, predicted operational noise impacts at other residential properties to the north, south

and east of the site do not exceed the nominated criteria. Predicted operational noise levels for children involved in outdoor play at these locations are therefore considered to be negligible.

Rarely, some out of school hours events may occur. There are not expected to be any significant changes to operation or use of the school hall, for typical operations or out-of-school-hours operations. As such it is not anticipated that the continued use of the school hall would result in any significant impacts.

7.9.2 Construction

Some temporary noise disruptions may occur during construction phases. It is expected that all construction activities would be undertaken during the standard day time construction hours described in the Interim Construction Noise Guidelines (ICNG):

- Monday to Friday: 7:00 am to 6:00 pm
- Saturday 8:00 am to 1:00 pm
- No works on Sundays or Public Holidays.

On this basis, the potential noise impacts from construction works have been predicted for the daytime period only. The potential construction noise impacts at any particular location can vary greatly depending on the following factors:

- The location of construction works within the site relative to the nearest sensitive receiver.
- The overall duration of the construction works.
- The intensity of the noise levels.
- The time at which the construction works are undertaken.
- The character of the noise.

The ICNG acknowledges that where construction activity occurs on construction sites in close proximity to sensitive receptors, the potential for disturbance from noise and vibration is significant. It is common and often unavoidable for the Noise Management Levels (NMLs) to be exceeded in situations where construction activities occur in the vicinity of sensitive receptors. As a result of the exceedances, the construction contractor will be required to use all reasonable and feasible noise mitigation and management measures to reduce noise generation and impacts at nearby receptors.

The Construction Contractor will, where reasonable and feasible, apply best practice noise mitigation measures, and the Acoustic Assessment makes recommendations in this regard (refer Appendix R). These mitigation measures include:

- Judicious selection of mechanical plant and equipment (eg quieter machinery and power tools).
- Maximising the offset distance between noisy plant items and nearby noise sensitive receivers.
- Avoiding the coincidence of noisy plant working simultaneously close together and adjacent to sensitive receivers.
- If possible, undertake noisy works after 9:00 am when disruption to residences would be less likely.
- Orienting equipment away from noise-sensitive areas.

- Carrying out loading and unloading away from noise-sensitive areas.
- Trucks being on-site must not idle.
- Localised shielding of noisy equipment.
- Minimising consecutive works in the same locality.
- Considering periods of respite.

7.10 Transport and Accessibility

A Traffic Impact Assessment (TIA) has been carried out by Intersect Traffic and is attached at Appendix L. The assessment examines the existing road network conditions and the implications of the project. It makes an assessment in terms of access, manoeuvrability, parking provision, traffic generation and effects.

7.10.1 Access

The project involves the construction of two new vehicular accesses to the site at Corlette Street (entry only) and Union Street (exit only) to service the proposed kiss and drop facility. This driveway area provides 7 parking spaces to enable students to enter and exit vehicles. In addition, a semi basement carpark level is proposed as part of Stage 2, under the Corlette Street building which will accommodate 31-35 spaces.

Approach sight distance at the entry and safe intersection sight distance at the Union Street exit exceed the requirements of Australian Standards and Austroads with available sight distance being observed to be in excess of 150 metres. The Australian Standard for a 40 km/h speed frontage is 55 metres or 83 metres for a 60 km/h speed frontage. Austroads requires an approach sight distance (ASD) of 40 metres for a 40 km/h speed frontage and an SISD of 73 metres for a 40 km/h speed zoning and 123 metres for a 60 km/h speed zoning.

A one way internal road servicing the kiss and ride facility and the on-site car park under Australian Standards is required to be a minimum 3 metres wide. This proposed road meets this requirement at 3.3m. Use of the kiss and ride facility may result in some queuing onto Corlette Street particularly during the afternoon pick up period. To mitigate these impacts a traffic management plan has been developed (see Appendix M) for the kiss and ride facility, which seeks to educate parents on the use of the kiss and ride and detail the levels of enforcement to be undertaken by the school in marshalling the facility during the afternoon pick up period.

7.10.2 Traffic

The main intersections impacted by the project will be the Union Street / Parkway Avenue signalised intersection and the Parkway Avenue / Corlette Street priority controlled stop intersection. To determine the extent of this impact these intersections they have been modelled in the TIA as a network using the Sidra Intersection 9 model.

This software package predicts likely delays, queue lengths and thus levels of service that will occur at intersections. Modelling was undertaken for the 2021 and 2031 AM and PM peak school periods with and without the school development. In undertaking this modelling it is assumed:

- The models were developed for the as constructed and operating intersections;
- Traffic count data was as collected by NTPE in November and December 2020; and
- A 1.5 % per annum background traffic growth was assumed for 2031 models.

The results of the Sidra modelling show that the additional traffic from the development does not result in the two-way mid-block road capacities for the adjacent road network being exceeded.

The modelling shows that the Union Street / Parkway Avenue signals already operates with a Line of Sight (LoS) F in the AM peak but operates satisfactorily in the PM peak at a LoS C. The impact of the increased traffic from the school is to increase average delays by 4 to 10 seconds and queue lengths by an average of less than 1 vehicle. This is insignificant and does not result in a deterioration of LoS.

By 2031 the intersection is beginning to fail in the PM with a LoS E however even with the intersection under stress the impact of the development is to increase average delays by less than 30 seconds and queue lengths by an average of less than 5 vehicles. Therefore, even though in the PM peak the project results in a deterioration of LoS from E to F, the development has an insignificant impact on the operation of the intersection. It is therefore reasonable to conclude that the development does not adversely impact on the operation of the Union Street / Parkway Avenue signals.

The modelling also shows the Parkway Avenue / Corlette Street stop intersection will continue to operate satisfactorily with the project through to 2031 and beyond in both the AM and PM peaks. Average delays and back of queue lengths remain within the thresholds set by TfNSW for satisfactory intersection performance. Therefore, it is reasonable to conclude that the project will not adversely impact on the operation of this intersection.

7.10.3 Drop Off/pick up

A Traffic Management Plan has been prepared by Intersect Traffic, to support the operation of the Kiss and Ride driveway through the site (see Appendix M).

The rules for car parking when setting down and picking up children are to be as follows:

- Do not park illegally within disabled car parking spaces,
- Do not park illegally across local resident driveways;
- Do not park for longer than 2 minutes within the school's on-site kiss and ride facility during set-down and pick up times identified within the signposting within the facility;
- Do not park illegally contrary to parking regulation signage particularly near school pedestrian crossings;
- Do not queue on the road at the entry to the on-site school kiss and ride as this impedes traffic and is an illegal traffic manoeuvre;
- Driver must not leave vehicle, if this is not possible, staying within 3 metres of the vehicle;
- Driver must have the handbrake engaged when the vehicle is stationary;
- Do not overtake another vehicle within the kiss and ride;
- Ensure child gets in or out of the vehicle on the kerb side and that all children under the age of 13 years travel in the back seat;
- Ensure bags are ready prior to dropping off in the kiss and ride;
- Students being collected at the kiss and ride gather at the designated meeting point after school under teacher supervision;
- Students are to wait at the designated meeting area under teacher supervision;

- Students are not to play or walk around the kiss and ride zone;
- Students are instructed and reminded by teachers to watch for their collection car; and
- When all cars are in position and have stopped, teachers will direct students to walk to their cars.

Further the school provides staff for supervision of the kiss and ride area and undertakes regular education of staff and students.

The construction of kiss and drop will discourage on street parking, thereby reducing impacts to the locality.

7.10.4 Parking

On-site car parking provision will be in accordance with AS2890.1 – 2004 Parking facilities – Part 1 Off street car parking and Newcastle City Council's DCP (2012) Section 7.03 Traffic, Parking and Access.

While not strictly applicable to the SSD, the relevant section within the Newcastle DCP have been considered. The DCP provides the following advice for schools noting as a primary school this school has no senior students.

Car Parking

- 1 space per 2 staff; and
- 1 space per 100 students for visitors

Bicycle Parking

- 1 space per 10 staff (Class 2)
- 1 space per 10 students (Class 3)

Motor Bike Parking

- 1 space per 20 car spaces.

A previous approval is in place for up to 256 students and 35 staff with no on-site car parks. Therefore, the school already has a historic parking deficiency calculated as 20 car spaces in accordance with the DCP.

<u>Concept Plan</u>

- Car parking required = 60/2 + 640/100 = 30 + 6.4 = say 36.4 car parks.
- Bicycle parking = 60/10 + 640/10 = 6 (secure) + 64 (racks only) = 70 bicycle spaces.
- Motor bike parking = 1 space per 20 car parks = 36.4 / 20 = say 2 motorcycle spaces.

<u>Stage 1</u>

- Car parking required = 50/2 + 480/100 = 25 + 4.8 = say 29.8 car parks.
- Bicycle parking = 50/10 + 480/10 = 5 (secure) + 48 (racks only) = 53 bicycle spaces.
- Motor bike parking = 1 space per 20 car parks = 30 / 20 = say 2 motorcycle space.

In relation to Stage 1, an additional 10 car spaces are required to be provided. While no additional traditional car spaces are being provided, the kiss and ride facility has capacity for 7 cars to drop off children at any time, and further standby capacity. This results in at least 10 car queue spaces. It is noted that the ability for this kiss and ride facility to quickly and effectively manage parent parking results in an optimised parking management strategy, eliminating the need for parents to permanently park and leave their vehicles, and thereby eliminates the associated on street car parking demand.

The temporary additional short fall resulting during Stage 1 would be offset by the parking and traffic benefits resulting from the kiss and ride facility. In the context of the existing on street car parking demand from commuters and residents, it is unlikely that any significant impacts would result from this temporary shortfall.

Whilst bicycle and motorbike parking are not currently detailed on the plans there is sufficient room on site to provide suitable facilities to meet the DCP requirements and these can be conditioned on any consent issued for the development.

The car parking is required to be compliant with Australian Standard *AS2890.1-2004 Parking facilities – Part 1 Off-street car parking.* In assessing compliance, it is noted the staff car parking would be Class 1A parking and the visitor spaces Class 2 parking.

7.10.5 Alternative Transport

The project may generate an increase in patronage of the existing public transport system servicing the site. The site is already serviced by public transport with bus routes and bus stops being within convenient walking distance of the site. Further school bus services are likely to be improved and increased with additional students at the school. There is however opportunity within this development for the school to encourage public transport use among staff and students, particularly through the School Student Transport Scheme which provides free or subsidised public transport for travel to and from school, to reduce light vehicle trips to and from the site and the need for some on-site or on-street car parking. This can be undertaken through the preparation of a Green Travel Plan for the school (refer Appendix L).

Currently all school bus services utilise a bus set down bay along the school frontage in Parkway Avenue between Union Street and Corlette Street for the dropping off and pick up of school students. This provides convenient access to the school grounds for students and allows the buses to use the Union Street / Parkway Avenue signalised intersection for safe and convenient turning movements into the set down area. The school bus bay will not be impacted by the construction works and will be able to be continuously used during construction. The public bus stop on the eastern side of Union Street along the school frontage site may need to be temporarily relocated 70 metres further north during construction works to allow a construction zone to be installed on Union Street along the school frontage during construction. This will however be subject to the approval of Newcastle City Council's Traffic Committee.

However, overall, it is reasonable to conclude that the existing public transport services and infrastructure in the vicinity of the site is suitable for the development and changes to the existing public transport system or additional infrastructure are not required.

The project would generate additional pedestrian traffic however the existing concrete and asphalt footpath network, with crossing facilities, which already exists within the area, is considered suitable for the level of additional pedestrian traffic resulting from this development. Therefore, no nexus exists for additional pedestrian facilities in the area. The development will also generate some additional cycle traffic particularly with the improved end of trip facilities provided at the school though the level of increase would not be sufficient such that a nexus exists for the provision of additional cycle ways in the vicinity of the site.

A green travel plan has been appended to the Traffic Report prepared by Intersect Traffic at Appendix L. It outlines the strategies and actions the school is taking to encourage the use of more sustainable modes of transport by staff and students.

Overall, it aims to reduce the number of single-occupancy car trips and promote alternative options. Benefits include:

- Reduction in greenhouse gas emissions;
- Improved health due to reduced vehicle fume exposure;
- Reduced contribution to photochemical smog;
- Alleviating stress on local road networks; and
- Discouraging dependence on finite fossil fuel resources.

The green travel plan utilises a range of initiatives to encourage sustainable travel and includes:

- School Student Transport Scheme (SSTS) which provides eligible school students free or subsidised public transport from home to school.
- Car-pooling initiative which involves the implementation of a car pooling system for staff and the encouragement of car pooling amongst parents/students.
- Sustainable Travel Guide to be developed to provide information and recommendations on sustainable travel options to and from school.

7.10.6 Construction Traffic and Parking

A Concept Construction Traffic & Pedestrian Management Plan has been prepared by Intersect Traffic (Appendix M). This document provides concept details of the management of traffic and pedestrian movements to be implemented during construction of the proposed works.

The plan covers the following areas:

- Ingress and egress of vehicles to the site.
- Details on loading and unloading zones.
- Onsite parking measures during construction.
- Pedestrian management strategies.

Construction would only be undertaken during ‘standard’ construction hours, namely 7:00am to 6:00pm Monday to Friday, and 8:00am – 1:00pm Saturdays. No construction work would be undertaken on Sundays or public holidays.

Heavy vehicles will be excluded from accessing the site during the school peak drop-off and pick-up periods to avoid any potential vehicle conflicts. As the site is limited with the amount of on site car parking provided, all deliveries and workers will be directed to approach the site via Union Street and Parkway Avenue. To alleviate these concerns, a designated traffic control crew will be employed if there are impacts on the local traffic and pedestrian flow.

The intention is to undertake a large portion of the construction works either within the 7 week end of year school break (December / January) or the 3 week mid-year school break (June / July) to minimise the impact of the construction works on the operation of the school.

The construction works will be undertaken in three stages with the Union Street building being constructed in the first stage. A construction access to the site will be installed at the location of the kiss and drop entry with access off Corlette Street to allow limited construction employees driving utilities with tools and products in the tray to enter the site as well as smaller deliveries and waste collection vehicles.

All construction employees not requiring to carry tools or product to the site will be directed to park in the northern end of the Bar Beach public car park in Memorial Drive and they will be transported to the site via a shuttle service using company utilities or other appropriate vehicles.

It would be expected that up to 30 tradesman / construction employees would be on-site at one time which is likely to represent a traffic generation of approximately 20 to 25 vehicle trips per hour (vtph) at the start and finish of work. Deliveries and waste removals during the day would not be expected to exceed 10 vtph even during major concrete pours. The worst case construction traffic scenario would be an early morning concrete pour when along with concrete pumping services a peak construction traffic generation of up to 35 vtph would be expected. This is less than the additional traffic generated by the Stage 1 extensions therefore as this assessment has concluded that the Stage 1 extensions do not adversely impact on the local road network then it would be reasonable to conclude that the proposed construction works would also not adversely impact on the local road network.

Construction traffic is a short term loading usually lasting less than 6 months and is best mitigated through the preparation and implementation of a Construction Traffic and Pedestrian Management Plan. This document identifies strategies to reduce the impact of the construction works not only on the local road network but also on the operation and amenity of the school and nearby residents. A concept Construction Traffic and Pedestrian Management Plan has been prepared and is reproduced in Appendix M.

7.11 Accessibility

An Access Report has been prepared by Lindsay Perry Access (refer Appendix S) It considers access to the building having regard to the relevant legislation and criteria, including The Building Code of Australia (BCA), The Disability Discrimination Act 1992 and AS1428 – Design for Access and Mobility to ensure that adequate pedestrian and disabled access is provided for the proposed development.

The BCA has three requirements for the approach to the building for persons with a disability namely;

- an accessible path of travel is required to the building entrance from the allotment;
- boundary at the main points of pedestrian entry, from accessible carparking areas; and
- from any adjacent and associated accessible building.

In this instance, the approach to providing disability access to the buildings on the site has been considered as follows:

- from the allotment boundary at the pedestrian entrance along Union Street to the building entrance;
- from the allotment boundary at the pedestrian entrance along Corlette Street to the building entrance; and

- between buildings within the site.

The Access Report identifies that on-grade access will be available from both Union and Corlette Streets. New entrances will be provided from each street through the provision of a central plaza / circulation area. A series of accessible pedestrian links are shown within the landscape documentation to provide access between buildings within the site. This report demonstrates that the fundamental aims of accessibility legislation are achievable within the site.

7.12 Flooding

Flood Impact Assessment

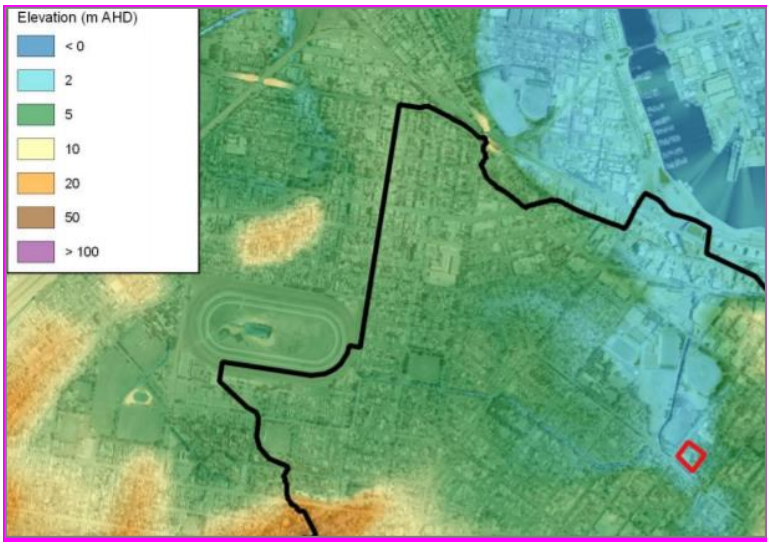
A Flood Impact Assessment (FIA) has been prepared by Torrent Consulting and is reproduced at Appendix BB. The FIA has considered the Stage 1 works proposed within this EIS with any considerations for Stages 2 and 3 to be undertaken with their subsequent applications.

Both the DPIE and City of Newcastle identify flooding as a major consideration for this development. This is attributed its proximity to Cottage Creek.

The site is subject to potential flooding from Cottage Creek and overland flow from the Nesca Park catchment. Flood modelling was undertaken to establish the existing flood risk at the site and to assess any potential flood impacts relating to the project. Detailed flood modelling has been conducted to further establish the flood risk of the site and the mitigation measures required.

The site is depicted as having one of the lower elevations of the Cottage Creek catchment (see **Figure 36**).

Figure 36 Elevation Profile of Newcastle City



The FIA includes a detailed flood model of the surrounding catchment, focusing on the open concrete drain that is located to the south of the site.

The site is not flood affected at the 20% Annual Exceedance Probability (AEP) or 10% AEP storm events. Flooding was shown to occur for all storms above the 5% AEP storm event. During the 5% AEP design storm event, the

capacity of Cottage Creek along Parkway Avenue is exceeded, resulting in overbank inundation along Parkway Avenue encroaching onto the site.

The trunk drainage capacity along Bruce Street to the east of the site is also exceeded during the 5% AEP storm event, which results in overland flow westwards through to Corlette Street and then through the site along the northern boundary, where the new driveway is proposed. Through the site the flood levels reduce from 3.4m Australian Height Datum (AHD) to 2.3m AHD, which is equal to the backwater flood level in National Park. Refer to Appendix BB for flood mapping and other model outputs from the FIA.

Peak flood velocities within the site during the 5% AEP storm event are around 0.1m/s within the Cottage Creek floodplain along Parkway Avenue and Union Street. Along the overland flow path from Corlette Street along the northern boundary of the site the modelled peak velocities are higher, at around 0.2m/s to 0.4m/s.

The flood behaviour at the 5% AEP storm event at the site is exhibited for all rarer design flood events, albeit with typically increased flood levels, depths and velocities. Peak flood levels are provided for four locations, as follows:

- Adjacent the north-east corner of the site in Corlette Street.
- Adjacent the south-east corner of the site at the corner of Corlette Street & Parkway Avenue.
- Adjacent the south-west corner of the site at the corner of Parkway Avenue & Union Street.
- Adjacent the north-west corner of the site in Union Street, i.e., the National Park backwater.

Flood hazards have been determined by Torrent Consulting in accordance with Guideline 7-3 of the Australian Disaster Resilience Handbook 7 Managing the Floodplain: A Guide to Best Practice in Flood Risk Management in Australia (AIDR, 2017). This produces a six-tier hazard classification, based on modelled flood depths, velocities and velocity-depth product. The hazard classes relate directly to the potential risk posed to people, vehicles and buildings.

At the 5% AEP storm event, the site is only impacted by a low hazard H1 flood environment, which presents a low risk to people, vehicles and buildings. At the 2% AEP storm event the increased flood depth creates some low hazard H2 flood conditions along Parkway Avenue in the north-west corner of the site, which presents a potential risk for small vehicles.

During the 1% AEP design storm event the site is exposed to some medium hazard H3 flooding in the north-west corner, which presents a potential risk for all vehicles, children, and the elderly. There is no risk to buildings presented by the modelled flood hazards except at the probable maximum flood (PMF) event when most of the site is impacted by a high hazard H5 flood environment.

7.12.1 Risk to Property

The 1% AEP flood level at the site is around 2.8m AHD where the Stage 1 building construction is proposed and so the standard FPL requirement is that finished floor levels (FFLs) of occupiable rooms be set at or above a level of 3.3m AHD. However, as the Cottage Creek catchment is susceptible to impacts of potential structure blockage, a higher flood planning level (FPL) has been adopted. Torrent Consulting has determined an FPL of 3.55m AHD based on simulated blockages in the drainage system and consideration of the CN adopted FPLFPL for the Honeysuckle Redevelopment Area (inclusive of structure blockages, plus a 400mm freeboard). The ground floor level of the proposed Stage 1 building is 2.57m AHD. The principal use for the ground floor is as an open play

space and so is not subject to application of an FPL. The occupiable rooms are located on the first floor and above, all of which have FFLs over 3m above the FPL.

The ground floor toilets are to be fitted out using flood-compatible materials below the FPL of 3.55m AHD. Electrical circuitry throughout the ground floor level will be located above the FPL (or be on a separate circuit). Access to the lift will be raised to the FPL and ramp access provided if flood proofing measures cannot be achieved. Storage areas are to include shelving to enable any high-value equipment to be stored at or above the FPL. These measures will minimise potential damages in the event of a flood inundating the ground floor of the proposed building.

Council's DCP considers a P1-P5 represents a risk to property classification, which directly correlates to CN H1-H5 hydraulic hazard categories at the 1% AEP event. Whilst the hydraulic hazard categories are not identical to the current best practice AIDR guidelines (adopted in Torrent Consulting's modelling), there are some similarities.

The parking bays along the access driveway are in an area of H2 to H3 hazard at the 1% AEP event and therefore do not satisfy the relevant requirements of Council's DCP relating to vehicle parking. However, these parking bays are for a student drop off zone which will only be used around school opening or closing times, with vehicles being momentarily stopped rather than parked. Therefore, the overall intent of the management of risk to property is satisfied.

The Union Street building is only subject to a H3 hazard at the 1% AEP storm event and so readily satisfies the requirements relating to building construction.

Only hazards above H4 are considered to expose buildings to risk of damage.

7.12.2 Risk to Life

Based on the peak flood depth, velocity and velocity depth product, Torrent Consulting determined the Union Street building to be classified as an L4 risk to life hazard. Council's L4 classification is be defined as:

> *"Short duration flash flooding with no warning time and enclosing waters during the PMF not suitable for wading or heavy vehicles. On site refuge is necessary and if hydraulic threshold exceeds H3, heavy frame construction or suitable structural reinforcement required."*

In accordance with DCP 4.01, the project is required to provide on-site flood-free refuge given its located within a flash flood environment and further than 40m from flood-free land above the PMF. The DCP requires the on-site refuge to comply with the following minimum standards:

> *"The minimum on-site refuge level is the level of the PMF. On-site refuges are designed to cater for the number of people reasonably expected on the development site and are provided with emergency lighting." i.e. a minimum finished floor level of 4.8m AHD.*
>
> *"On-site refuges are of a construction type able to withstand the effects of flooding.*

Because the upper levels of the Stage 1 building (including the first floor) are all located above the PMF level, it inherently provides suitable flood-free refuge for the occupants. The ground floor level is below the FPL but is principally designated as an open play area.

To satisfy the management of risk to life requirements the Stage 1 building requires certification by a Structural Engineer to withstand the hydraulic forces of the PMF conditions.

The existing Flood Emergency Response Plan has been updated to include the upper floors of the Stage 1 building as a flood refuge (refer Appendix CC). The primary function of the emergency response plan for the Park Campus is to provide mechanism for implementing the safe evacuation of staff and students.

Flood Emergency Response Plan

As noted above, a Flood Emergency Response Plan (FERP) has been prepared by Lindsay Dynan Consulting Engineers and is reproduced at Appendix CC.

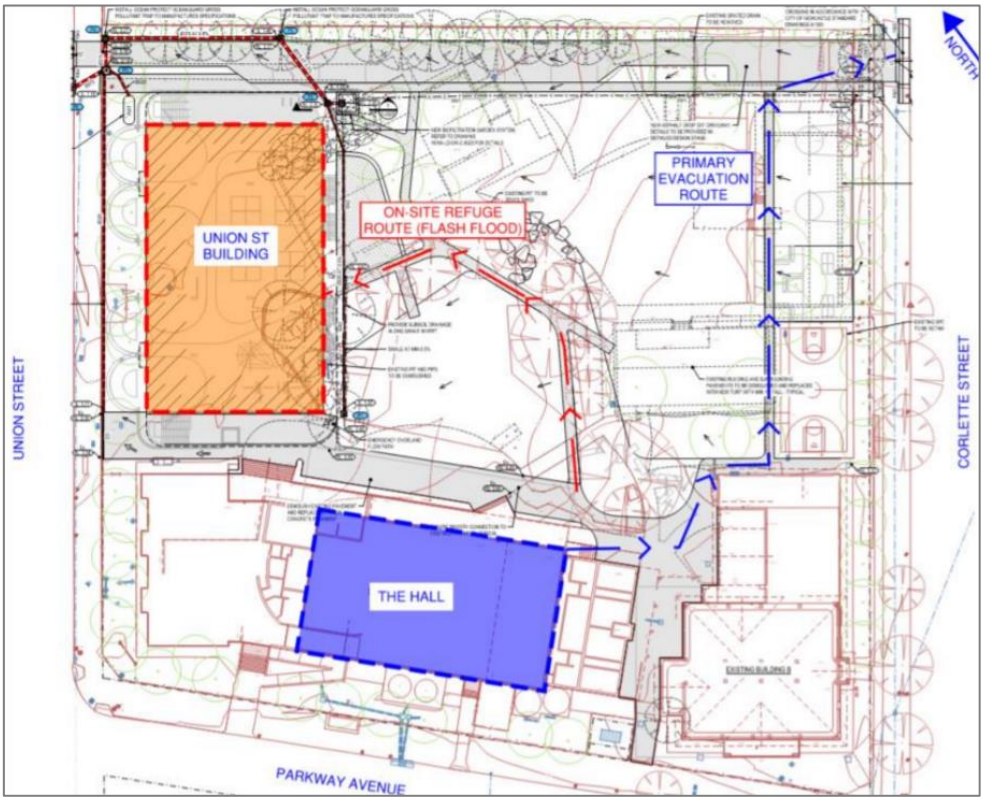
This FERP was prepared in accordance with the following guidelines:

- CN DCP 4.01 Flood Management 2012; and
- The NSW Government Floodplain Development Manual – the management of flood liable land (2005).

LDCE has considered the most suitable flood evacuation route and refuge facilities based on building finished floor levels (FFL), accessibility and location.

The Hall provides a large space which can be used to marshal students and staff. It is located central to other buildings, enabling orderly access from all directions. The Hall has a FFL of 3.3 m (AHD) and connection to Corlette Street at RL 3.1. The primary evacuation route has therefore been selected, as shown in **Figure 37** as the safest and most effective option.

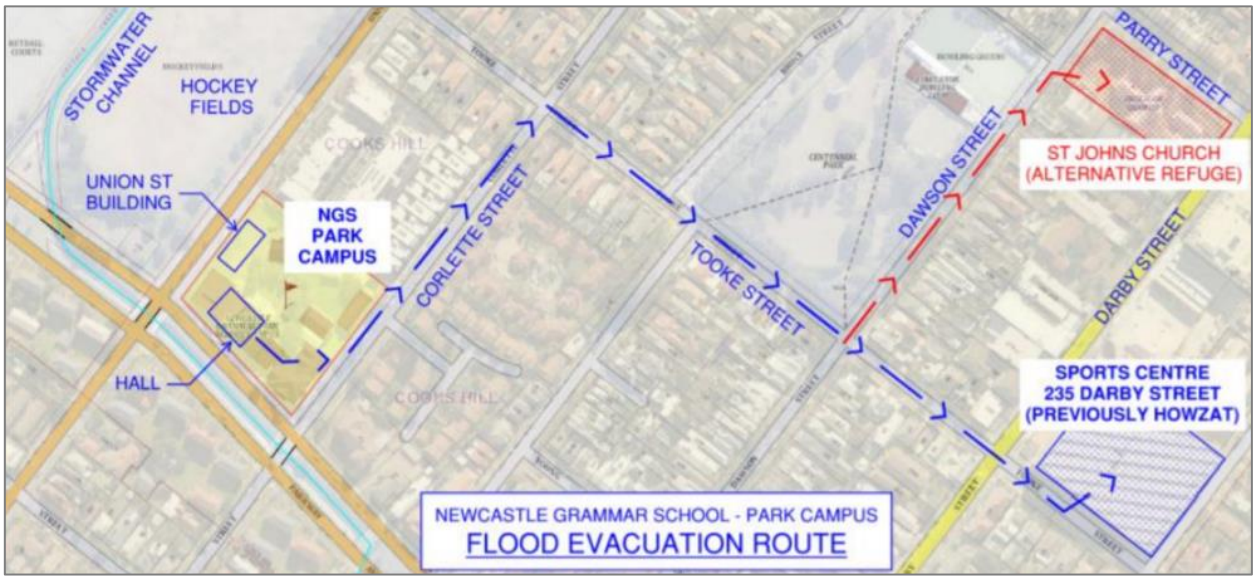
Figure 37 Site Plan and Evacuation Routes



The Sports Centre at 235 Darby Street (previously Howzat) has been selected as the most suitable primary refuge point for the FERP. Given its proximity to the school and elevation above the PMF level, the Sports Centre provides the closest refuge point at a safe elevation. The size of the Sports Centre is also sufficient to facilitate the large group that could be evacuating from the Park Campus. Refer to **Figure 38** for the flood evacuation route and location of suitable refuges.

St John's Church is considered a suitable alternative refuge, located at the corner of Dawson Street and Parry Street. In the scenario where the Sports Centre could not be accessed e.g. construction works or temporary closure of the facility etc., then the Church should be used. Similar to the Sports Centre, the Church provides a direct route to higher ground from the Park Campus, with sufficient space to accommodate the large group that may be evacuating from the campus. St John's Church is located at the fringe of the PMF flood level and should therefore only be used if access cannot be gained to the Sports Centre.

Figure 38 Flood Evacuation Route



As the catchment is relatively small and flooding will generally occur quickly as flash flooding, staff and adult site occupants should be vigilant in extreme weather conditions. In the advert of such weather conditions, nominated staff will monitor flow conditions within the Parkway Avenue storm channel and flood inundation backing up across the National Park playing fields.

When floodwaters encroach into the playground area (likely at the northwest corner where it is lowest), nominated staff will immediately proceed to the Hall where the students have been marshalled by their teachers. The State Emergency Service (SES) will be notified if this level of preparedness is executed.

The following actions will be adopted through the assessment of floodwater rising rates.

1. If this increase takes less than 15 minutes, then evacuation should proceed without further delay.

2. If this increase is between 15 and 20 minutes, then evacuation could be delayed until a level of 2.6m is reached.

3. Should this increase take significantly longer than 20 minutes, the flood may be peaking and there may be no need to evacuate, however, should the level reach 2.8m, evacuation should proceed.

7.12.3 Impacts of Climate Change

Consideration of potential climate change impacts have been factored into the design of the project. This includes the location of occupiable rooms of the proposed Stage 1 building which are significantly elevated above the FPL and potential future climate change impacts.

As noted in the Flood Study, an assessment of potential future climate change has found the combined effects of increased rainfall intensity and sea level rise projections gives an expected increase in the 1% AEP flood level at the site of around 0.15 m to 0.20 m for the 2050 planning horizon and 0.60 m to 0.75 m for the 2090-2100 planning horizon. These potential climate change impacts have been accounted for in the proposed Stage 1 building as the upper floors are significantly elevated above the FPL and potential future climate change impacts.

7.12.4 Off Site Impacts

The FIA modelled the project to assess potential flood impacts to neighbouring properties. The only location where there could be tangible off-site impact is within the open space between the northern end of the Stage 1 building and the existing neighbouring building to the north. The magnitude of impact is a 0.1 m/s increase in the modelled peak flood velocity between the buildings for all the design flood events between the 5% AEP and 0.2% AEP. However, as the increase in modelled velocities is only minor and the velocities are below 2 m/s, the modelled change in velocities is not considered to present an adverse impact to the neighbouring property and therefore, no specific measures are required to manage this impact.

7.13 Drainage

A Stormwater Management Strategy has been prepared by Lindsay Dynan Consulting Engineers (refer to Appendix I).

The proposed Union St building will be connected to a 25kL rainwater tank at the northwest corner of the building. Sizing of the rainwater tank has been undertaken using MUSIC modelling software, to meet 70% of reuse demand. The rainwater tank will include a first flush device and be connected to toilets and used for outdoor purposes. It is intended that runoff from the majority of the landscape areas will be directed by grass lined swales to a 5m^2 bioretention garden before discharging from the site. Runoff from the driveway will sheet flow onto the adjacent landscape strip and be directed to drainage pits. Discharge from the site will connect to the stormwater drainage pit on Union St, near the northwest corner of the site.

On-site detention (OSD) has been excluded from the design as the site is flood affected by storms greater than the 10% AEP event. It is anticipated that an OSD system will have negligible effect due to the impact of flood waters. The SMS considers the adopted drainage design will improve site drainage and nuisance water ponding in low lying areas of the site.

7.14 Mine Subsidence

As is the case with much of the Newcastle, the site is located in the Newcastle Mine Subsidence District, prompting additional measures to be incorporated into the design of the project. The Mine Subsidence Desktop Assessment and Mine Subsidence Investigation and Assessment, prepared by Tetra Tech Coffey (see Appendix DD and Appendix EE) provides a detailed assessment of mine subsidence characteristics in the area.

The site is known to be located over abandoned mine workings within the Borehole Seam completed by the Australian Agricultural Company from their New Winning Pit at a depth of 58m to 61.5m below the ground surface. The Hamilton pit is also located in close proximity to the site to the north west.

In 1888, the Australian Agricultural Company sunk its New Winning Pit in the Cooks Hill Area (the pit utilised to mine the area beneath the site) 680m to the east of the site. The seam was worked by the bord and pillar method with pillar extraction in some areas. The nearest secondary workings are located 120m to the south-east of the site.

The mine workings in the area consists of four areas:

- A small area of secondary mining within the New Winning Pit Mine located 150m south east of the site which is anticipated to have been mined to failure. This secondary mining is likely to be adding abutment loading to the nearby pillars. As such pillar stability calculations should consider abutment loading.
- An area of first workings within the New Winning Pit Mine with a pillar width to height ratio just under 2. These workings are anticipated to be still standing with the bords with residual void heights between 2.3m to 2.85m due to roof fall and poor quality coal left in the mine.
- An area of secondary mining and slender pillars within the combined D Pit, E Pit, No.2 Pit and Hamilton Pit. These workings have previously been shown to have failed. The failure is likely to extend to the barrier between the mines and as such no longer of risk to the project.
- A barrier between the two mines ranging from 10m to 40m wide with locally thinner and wider zones particularly near headings.

Figure 39 provides an overview of the location of the underground mine pillars beneath the site.

Figure 39 Location of Mine Pillars below the site

Tetra Tech drilled four boreholes targeting two bords, a pillar and a heading beneath the site to verify the condition of mine workings. This investigation generally showed the mine plan to be a good representation of the mine workings present.

Voids generally ranged from 2.3m to 2.85m in height with a total pillar height of 6.1m including rubble.

The moderate risk factor for the site means the project will need to be designed to remain safe, serviceable and repairable for the potential subsidence, including:

- Maximum surface subsidence of 770mm.
- Maximum tilt for the building of 25mm/m.
- Maximum tensile strains of 5.5mm/m with a radius of curvature of 1.8km.
- Maximum compressive strains of 6.5mm/m with a radius of curvature of 1.5km.
- The point of inflection 20m from limit of support which is the barrier beneath Union Street.

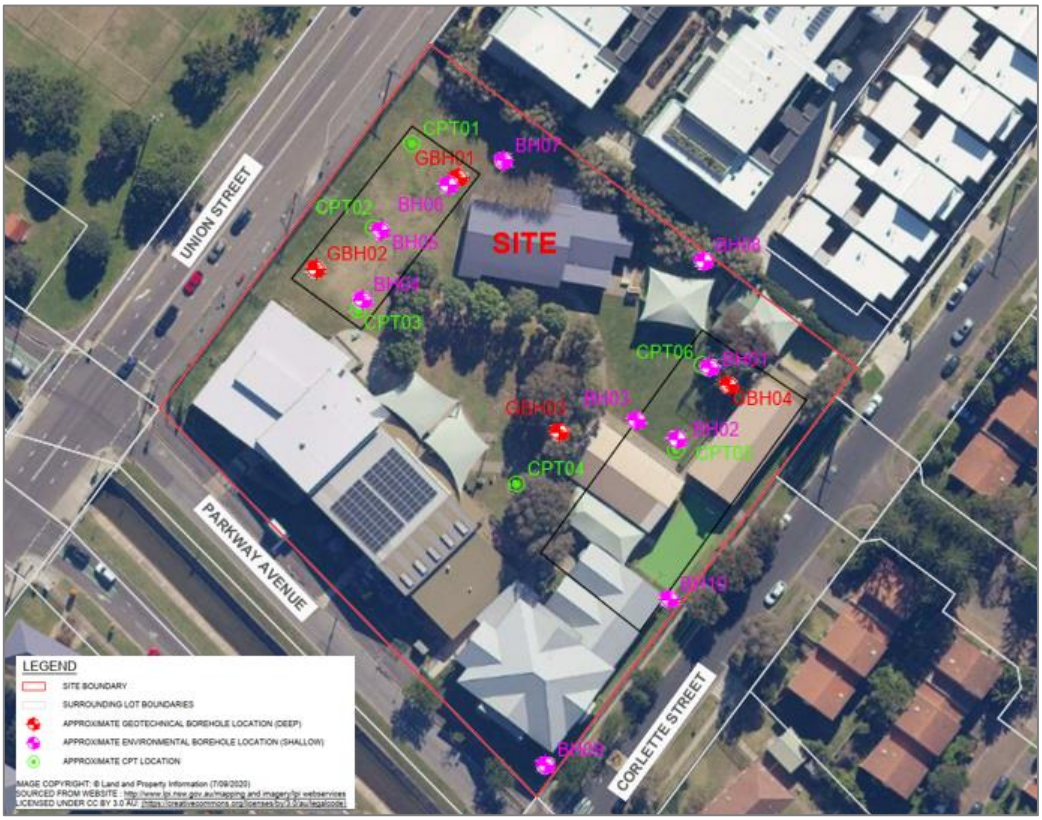
7.15 Geotechnical

The Geotechnical Report prepared by Tetra Tech Coffey is reproduced at Appendix Z. It outlines the site conditions and general issues to be addressed prior to construction.

Fieldwork had to be conducted on site to determine the site conditions. This involved drilling of several boreholes on site to determine the extent of underground works underneath the site and the ground conditions below.

Refer to **Figure 40** for the location of these works on site.

Figure 40 Map of Borehole and CPT locations on site (Source: Tetra Tech Coffey)



It was noted that the water table was 1.2m-2m below the ground surface, which may cause significant issues for surrounding developments if the water table is affected. The site was also noted to have very soft clays which have the potential to cause construction issues. These soft soils will be improved through ground improvement methods, such as deep soil mixing or other mitigation measures, including dynamic compaction, pre-loading or piled embankments.

The area is characterised by:

- Approximately 4m of variable fill over;
- Very soft to soft peat and clay to approximately 10m (swamp and estuarine deposits);
- Very loose to medium dense sands to 11m to 15m (swamp and estuarine deposits);
- Firm clay to 14m to 19.2m (alluvial deposits); and
- Interbedded medium dense to dense sands and stiff to very stiff clays (residual soils).

7.15.1 Uncontrolled Fill

On site, up to 4.2m of variable fill was encountered in varying states including sands, gravels, clays and silts. The sources of material appears to be variable with some coal reject material, dredged sand material as well as clays from unknown sources. This material is understood to be supporting existing 1 and 2 storey buildings onsite and provides significant cover for the very soft to soft underlying peats and clays. As a minimum the following improvement of the uncontrolled fill will occur:

- Excavate 1m of uncontrolled fill below the building footprint.
- The density of the underlying 1m will be assessed with dynamic cone penetration testing at close centres (5m).
- Proof roll subgrade.
- Construction of a 1m thick platform using excavated material. Earthworks will be completed under level 1 supervision in accordance with AS3798-2007 'Guidelines for Earthworks for Commercial and Residential Developments' recompacted to minimum 98% standard maximum dry density (SMDD) at 60% to 90% optimum moisture content (OMC). However, with the water table at 1.2m to 2.0m below the ground surface, compaction of the first layer may need a geogrid and fabric to assist in the construction. Dynamic compaction of this unit is unlikely to be suitable due to the proximity of surrounding buildings and the site being an operational school.

7.15.2 Shallow Water Table

The water table was encountered at 1.2m to 2.0m below the ground surface. As the predominate component of the fill was sand, significant inflow into excavations greater than 1.2m should be expected. The water inflows may be reduced by sheet piling into low permeability layers (Unit 2b) to allow for dewatering of the area.

Dewatering of the surrounding area, if required, may cause settlement on adjacent properties. If dewatering is required, a detailed groundwater extraction plan will be commissioned to assess the potential for causing settlement on adjacent properties and for managing disposal of water.

7.15.3 Very Soft Clays

The very soft to soft clays (10kPa to 25kPa) are likely to cause construction issues. These very soft soils may be improved using ground improvement methods such as deep soil mixing of the clays beneath the proposed building.

7.16 Contamination

A site history review was undertaken as part of the Preliminary Site Investigation (PSI) undertaken by Tetra Tech Coffey (see Appendix X).

The objectives of the PSI were to:

- Identify evidence of potentially contaminating activities that may be currently occurring or had historically occurred on the site.
- Identify Areas of Environmental Concern (AEC's) and Chemicals of Potential Concern (COPC's) for the site and develop a preliminary conceptual site model.
- Provide recommendations for further assessment and or management, as required.

The scope of works included a desktop assessment of the site to understand published information held on file by Coffey including soil, geology and hydrogeology. A site history assessment including a review of Section 10.7 Certificates, Historical Aerial Images and Historical Title and a site walkover was undertaken to assist identifying potential AECs and COPCs.

The PSI noted:

- The Site was part of the Agricultural Company of Australia and or used by graziers up until 1947.
- From 1947 it was used as an education facility, firstly as Crown Land then owned by the NSW Education Department.
- Newcastle Grammar School has owned the site since 1998.
- Prior to the 1950s the site was likely to be low lying and undeveloped and used for agricultural purposes. The aerial photos indicate that between the 1950s and 1960s the site was developed, and likely imported fill was used to raise the site level.
- The site was not listed on the NSW EPA Contaminated Land Register or POEO Act register.
- The risk associated with nearby properties identified on the NSW EPA Contaminated Land Register or POEO public register was considered to be low.
- The site was identified within an area of low occurrence of potential acid sulfate soils above about 3.0m depth.

A soil sampling assessment was undertaken, including sampling of ten locations with the aid of a drill rig and hand auger, to a maximum depth of 2.0mbgs. Collection of soil samples occurred at specific intervals within the soil profile including:

- Two in the fill (or shallow soils <0.3 mbgs and 0.3 to 0.5 mbgs); and
- One in the natural material (where achievable).

Laboratory analysis of the soil samples for the identified COPCs included:

- Heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc)
- Total Recoverable Hydrocarbons (TRH)
- Benzene, Toluene, Ethylbenzene and Xylene (BTEX)
- Polycyclic Aromatic Hydrocarbons (PAHs)
- Asbestos (targeting possible asbestos in fill)
- pH Field Screen (Acid Sulfate Soils); and
- Chromium Reduced Sulfur (Acid Sulfate Soils).

The laboratory results showed concentrations of COPC typically below the adopted criteria for human health with the exception of one location, BH4 at approximately 0.5m depth bgs. The location contained polycyclic aromatic hydrocarbons (PAH) and Benzo a Pyrene (BaP) above the adopted health assessment criteria. The Conceptual Site Model identified a complete exposure pathway related to the PAH contamination to construction workers. The PSI concluded that the exceedances observed at borehole location BH4 would require further assessment.

The PSI determined that the site can be rendered suitable for the proposed development provided that the recommended delineation sampling of BH4 take place, and that a Remedial Action Plan (RAP) be prepared depending on the results of the additional assessment.

7.16.1 Remedial Action Plan

Following the findings of the PSI and Delineation testing, a Remedial Action Plan (RAP) was prepared by Tetra Tech Coffey (refer Appendix Y). The objective of the RAP is to provide guidance on the remediation and validation activities to be undertaken in order to render the site suitable for the proposed land use (development of a primary school).

The RAP has been developed in accordance with the requirements of the NSW EPA (2020) Consultants Reporting on Contaminated Land, Contaminated Land Guidelines (CRCL) and NSW State Environmental Planning Policy No 55 - Remediation of Land (SEPP 55).

As recommended by the PSI, a delineation assessment of the impacted soils in the western portion of the site was carried out, using a higher sample density in the area identified to be impacted by PAH. The delineation assessment was undertaken to investigate the vertical and horizontal extent of fill material impacted by BaPTEQ (carcinogenic PAH) and Total PAHs.

Delineation samples were collected in an east, west, south and northern direction from BH4 at an approximate distance of 1.7m between sample locations. The sampling points were set out in a regular square grid across the site and samples were collected from three vertical intervals in fill material, being 0.0-0.3m, 0.3-0.5m and 0.8-1.0m. The samples were collected from boreholes using a hand auger that facilitated visual observations of the fill and sampling from the four vertical intervals.

The results of delineation assessments undertaken identified exceedances of the ASC NEPM Health Investigation Level HIL-A (Residential Land Use) guideline values for Total PAHs and BaPTEQ within the investigation area. Accordingly, remediation is considered to be required for the site.

Based on consideration of potential remedial options, the preferred remedial strategy for the PAH impacted soil is mixing with grout and placement within mine voids below the site. The material will replace externally purchased fly-ash for use within the grout mix applied within the areas of low-strength grout.

The remediation strategy includes the removal of contaminated fill soils, from the investigation area in the western portion of the site. This will be followed by temporary stockpiling of the impacted soils (segregated from the cleaner overlying soil layer). The material will be assessed for leachability of metals and PAH prior to incorporation into the grout mix. Following the removal of impacted fill soils, the excavation may require the importation of clean fill materials to bring the investigation area level with the existing ground at the site.

The implementation of this RAP includes a combination of contaminated material removal followed by the incorporation of the contaminated boiler ash material into cementitious grout mix for use in mine subsidence void remediation beneath the site. By removing the exposure pathways to sensitive receptors, Tetra Tech considers the site can be made suitable for the proposed uses.

7.17 Hazardous Materials

A Hazardous Substances Management Plan was prepared by Practical Environmental Solutions for the site. An asbestos containing material was identified in the electrical switchboard – Insulation Panel of the Administration/Library building.

The HSMP makes recommendations for the demolition stage of the project, to ensure that any hazardous materials encountered are appropriately managed. Should materials be encountered in areas that were inaccessible during this or previous audits, the removal, handling, and disposal of any asbestos material (ACM)is to be undertaken only by an asbestos removal contractor who holds the appropriate class (Class A_ friable OR Class B_non-friable) of Asbestos Licence, issued by SafeWork NSW and must notify SafeWork NSW a minimum five (5) days prior to any removal operation.

Removal of any Synthetic Mineral Fibre materials will be carried out in accordance with the current requirements of legislation and the Worksafe Australia documentation

The serial numbers of the ballasts units inside any fluorescent lights capacitors should be removed intact at the time of demolition works and checked against a register of known Polychlorinated biphenyl (PCBs) to confirm the presence of PCBs. Any capacitors of an unknown nature should be deemed to contain PCBs.

7.18 Heritage

7.18.1 European Heritage

A detailed Statement of Heritage Impact (SOHI) has been articulated by Heritage Now and is reproduced at Appendix P. As part of this Statement of Heritage Impact, a site visit was undertaken to assess the impact that the project may have on the views within the heritage curtilage of the closest heritage conservation areas and heritage items.

There are no heritage listings within or directly adjoining the site. The Cooks Hill Heritage Conservation Area (HCA) is 110m to the north-east of the site. Views from the HCA to the site will be screened by the existing apartments. The Hamilton South Heritage Conservation Area is located 165m to the west of the site. Views towards the site are obscured by street plantings along Parkway Avenue and therefore the project will not be visible from the HCA.

Additionally, three Heritage Items listed on the Newcastle LEP 2012 that are situated within 230m of the site namely heritage items 93, 94 and 175 are of local significance. There are no items of State significance in the locality. The project will be higher than the school buildings currently on the site, however they will not be higher than the existing apartments to the north.

The Cooks Hill Heritage Conservation Area (HCA) is 110 m to the north of the site and will be screened by the existing apartments. The Hamilton South Heritage Conservation Area is located 165 m to the west of the site which is obscured by street plantings along Parkway Avenue.

Heritage Item 175 is located 195 m east of the site. While the front portion of the site is visible from this heritage item, the project will be screened from view, by existing street plantings. Heritage Item 94 is a house located 122 m south-east of the site. The site is visible from the pavement in front of this item and the project is likely to be partially visible from this item. However, given the distance (122 m) and the topography the project will have a very minor impact on the visual catchment from this item and will have a negligible impact to its significance.

Heritage Item 93 is 230 m south-east of the site. It is located on the north side of Parkway Avenue. The site is not visible from this item due to the existing residences.

The SOHI concludes that the project will enhance the amenity of the Newcastle Grammar School Park Campus and help ease safety and traffic issues associated with the School. The project will also enhance the amenity of the surrounding Heritage Conservation Areas by providing much needed school facilities.

7.18.2 European Archaeological Heritage

Background historical research did not identify any historic structures likely to be present within the site. The site visit also did not identify any evidence of historic archaeological material.

Despite no evidence of archaeological material on site, the following general mitigation strategies are proposed to be implemented for this project:

- A heritage induction will to be provided to all personnel undertaking construction works so that they understand their obligations for protecting heritage under the Heritage Act 1977, which includes the reporting of archaeological or suspected archaeological material.
- In the unlikely event archaeological, or suspected archaeological material is uncovered during works, then works in that area will cease and the area will be cordoned off. The material will be inspected by a heritage consultant and works in that area will only recommence once heritage clearance has been gained and/or mitigation and management measures implemented.

7.18.3 Aboriginal Cultural Heritage

An ACHR has been prepared by Heritage Now (refer Appendix Q).

Aboriginal consultation was undertaken and during this process with the 12 parties identified. Feedback from the Aboriginal consultation has been incorporated into the assessment of significance and the development of heritage management and mitigation strategies for the project. The Aboriginal Heritage Information Management System (AHIMS) was searched (refer to **Figure 41**) and identified there are no previously registered Aboriginal sites within the site.

Figure 41 Project Area and AHMS Sites (Source: Heritage Now)

A survey of the Site Project Area did not identify any surface Aboriginal objects, this is likely due to low ground surface exposure and visibility as well as the amount of fill which was used to build up the ground surface. However, there is high potential for potential archaeological deposit to be present beneath the layers of fill, due to the proximity of the area to a creek line.

The site is sensitive for Aboriginal campsites and the depth of the footings has high potential to impact archaeological deposit associated with these Aboriginal campsites. As such, archaeological testing and salvage of undisturbed natural layers is recommended to prevent harm to Aboriginal objects. As much of the site is currently obscured by buildings, fill and landscaping, this testing and salvage program will be undertaken post project approval, so that adequate access is gained to the underlying soil for archaeological investigation. The post-approval testing and salvage program will be able to target the specific footings posing risk of impact to Aboriginal heritage.

In addition, all on-site personnel (prior to and during construction) will be made aware of their obligations under the National Parks and Wildlife Act. This includes protection of Aboriginal sites and the reporting of any new

Aboriginal, or suspected Aboriginal, heritage sites. This will be done through an on-site induction or other suitable format.

7.19 Sediment, Erosion and Dust Controls

Erosion and sediment control measures have been prepared for the project to reduce the amount of sediment laden runoff leaving the site. It details measures and procedures to minimise and manage the generation and off-site transmission of sediment, dust and fine particles. During construction, erosion and sediment control measures will be provided in accordance with the "Blue Book."

Features of the construction phase erosion and sediment controls adopted for this site include:

- Prevention of sediment and polluted runoff water from entering the existing adjacent watercourse. This involves the provision of silt fences, catch drains and sediment traps.
- Control of actual and potential soil erosion – grassing and stabilization of embankments and drainage outlets where required.
- Stabilised stockpile areas towards the lower end of the site (rather than the higher and more exposed areas of the site) to prevent wind and water erosion.
- Scour protection at discharge locations, comprising combinations of geofabrics (jute mesh), rock-filled mattresses and macrophyte planting.
- Stabilised site access to provide a firm base for vehicle entry/exit and to prevent the main access from becoming a source of sediment.
- Sediment control measures are to be constructed prior to any other site disturbance works.

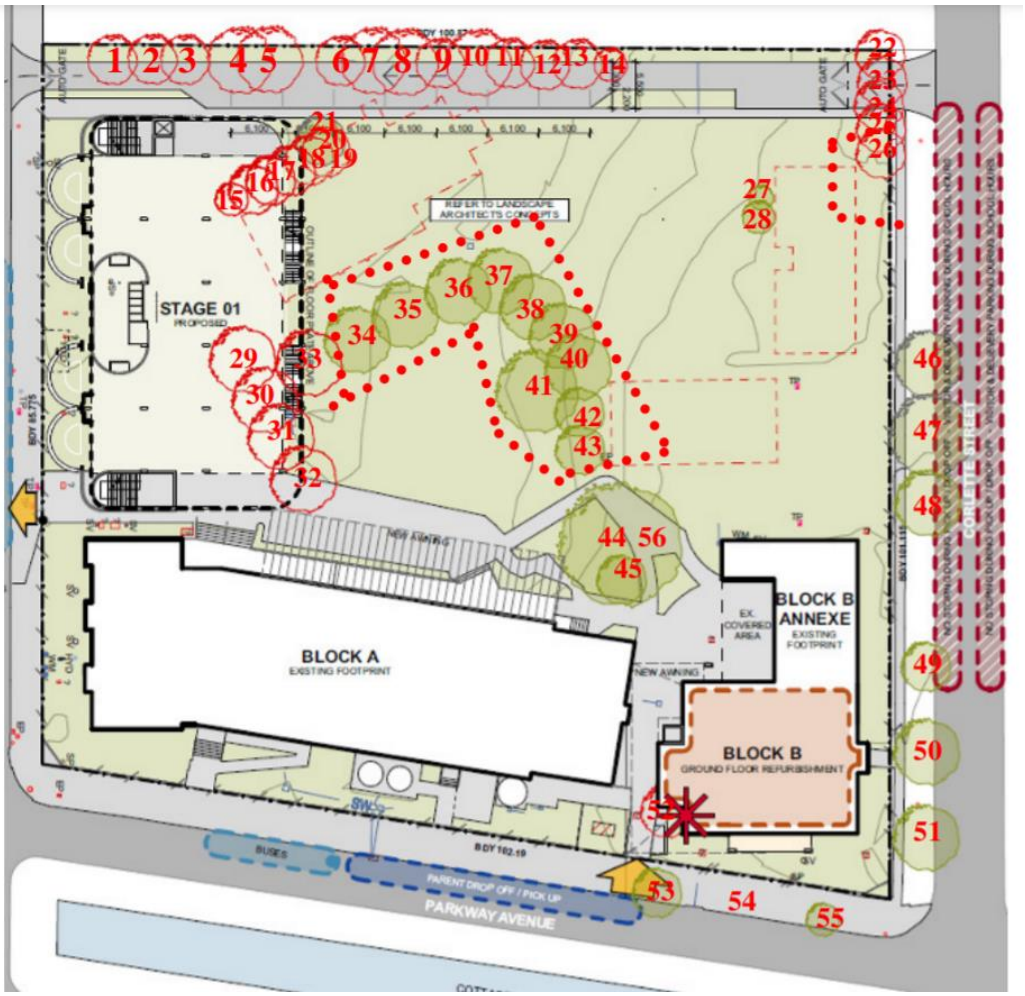
If wind-blown dust is observed, water trucks will be employed to spray exposed areas or stockpiles will be covered with geofabric or similar material.

7.20 Tree removal

An Arborist Report has been prepared by Abacus Tree Services, with the full report reproduced at Appendix O.

Fifty six (56) trees were assessed within the site or adjacent road reserve. 47 trees are located within the site, with the remaining trees located on the nature strip. The location of the trees is shown in **Figure 42**.

Figure 42 Location of Trees on Site



The removal of Trees 1 – 25, 27 – 32 & 52 (32 in total) is proposed. This includes some trees inside the site, hardstand areas and those that do not meet the requirements of AS 4970 – 2009.

The requirement for removal of trees 1-14 and 22-26 (19 in total) is required to construct the proposed new pick up/drop off driveway.

Trees 26, 33 – 51 & 53 - 56 (24 in total) are proposed to be retained and incorporated into the proposed development. Where grass is to be replaced than it will be done by non-mechanised methods inside the TPZ (Trees 34 – 45 & 56). Replacement grass is to be placed by non-mechanised methods inside the TPZ of Trees 34 – 45 & 56.

7.21 Biodiversity

A BDAR Waiver Request was submitted as part of the SEARs request. The only native vegetation present on site is planted landscaping including some native species. The site does have some trees which may offer a small amount of seasonal foraging habitat for highly mobile threatened species. Such habitat occurs commonly in the wider urban area. The waiver request notes that while it is possible that highly mobile threatened species could visit the site on a seasonal basis, such use if at all, is likely to be very limited, and certainly such species would not be dependent on any habitat present.

The relevant clearing thresholds as per the BC act Regulation, for a site with a minimum lot size of less than 1 hectare is 0.25ha.

> *The absence of both remnant native vegetation communities, and habitat resources that may potentially be important to threatened species, shows that no relevant thresholds under the Biodiversity Conservation Act would be triggered to cause the need for a BDAR to be prepared.*
>
> *Under Newcastle Local Environmental Plan 2012 (NLEP 2012) the site is located in an R3 Medium Density Residential zone (minimum lot size of 400 m2.). On this site, vegetation is largely restricted to planted gardens of native and introduced cultivar species with an area of coverage well below the 0.25 ha clearing threshold.*
>
> *This can be evidenced by further analysis of the attached Biodiversity Values Map and Threshold Report, which indicates that if the clearing threshold is not exceeded, that the Biodiversity Offset Scheme is not triggered for this development proposal.*

The waiver request prepared by Anderson Ecology (refer Appendix C) includes a Test of Significance, being a BC Act s7.3 Test for determining whether proposed development is likely to significantly affect threatened species or ecological communities, or their habitats. The findings of this assessment included the following:

- No remnant vegetation communities occurs on site and the only native vegetation present is planted garden landscaping. As such, it is unlikely that a viable local population of any threatened species is likely to be placed at risk of extinction.
- No Endangered Ecological Community (EEC) vegetation is present on site;
- The small area of vegetation to be affected is considered unlikely to be notable habitat for any threatened species;
- Due to location in the urban environment, the site is essentially isolated except for highly mobile species. Movements of such species would not be impacted by project;
- The habitat present is not considered important, being entirely disturbed and isolated from unmanaged natural areas;
- No part of the site or immediate surrounds is a declared area of outstanding biodiversity value; and
- While “Clearing of Native Vegetation” is considered a Key Threatening Process, the vegetation present is largely planted. As such, contribution to this Key Threatening Process is considered negligible.

A waiver under the Biodiversity Conservation Act 2016 has been granted by DPIE and Biodiversity and Conservation Division (refer to Appendix C).

7.22 Utilities

Building Services Report

A Building Services report is reproduced at Appendix II. It was prepared by Marline Building Services following a site inspection. It provides an overview of the existing systems available to support the proposed new works and the proposed systems required for the new works associated with electrical, mechanical and hydraulic services.

There are several Hunter Water Corporation sewers available for connection. 150mm VC Hunter Water sewers are available in Union Street (east side), Parkway Avenue (within the site) and partially within Corlette Street

(southern side). The site has access to the water mains on Union Street and Corlette Street. The existing buildings are currently connected via a single 50mm connection to the Union Street water main towards the southern side of Building A. The site has access to gas mains in Union Street, Parkway Avenue and Corlette Street.

All sanitary plumbing and drainage will be designed and documented to AS 3500.2, Hunter Water Corporation requirements and Newcastle City Council guidelines. The proposed buildings will drain to the northern sewer connection in Union Street, given the fall of the land drops towards Union Street from east to west by approximately 1 metre.

The air conditioning systems proposed will be a combination of single split air cooled reverse cycle heat pump systems and Variable refrigerant flow multi-split systems to provide heating and cooling to each space to suit the load demand. The Building Services Report recommends that all new and refurbished areas are provided with new air conditioning systems selected to handle the high salt environment of the school. The proposed new buildings will be designed accordingly.

Infrastructure Management Plan

An Infrastructure Management Plan has been prepared by Marline (see Appendix JJ). The intent of an Infrastructure Management Plan is to detail the investigations and findings associated with the existing building services (mechanical, electrical, and hydraulic) currently servicing the site, and advise what upgrade works are required (if any) for these services for future works planned. This was conducted in accordance with SEARS requirements.

The investigations for the Infrastructure Management Plan primarily focuses on the following objectives:

- Identify potential opportunities and site constraints;
- Identify the location, size and capacity of all existing services within the vicinity of the site;
- Identify utility confirmation for the site; and
- Identify options to service the site to support the project.

The report's recommendations includes that the existing central sewer manhole be re-located to permit the construction of the new proposed building. The construction of the Union Street building will result in the building being over the existing manhole and main sewer for the existing development. It is proposed to provide sewer diversions as part of the early works, to allow the construction of the building to proceed.

The existing fire hydrant supply to the single attack hydrant standpipe is in a position which will conflict with the position of the proposed Union Street building. This system will be relocated / diverted and extended to new external and internal hydrants positioned to cover the proposed building and existing buildings. Upgrading of the fire hydrant water supply from 100mm to 150mm from the backflow prevention device will enable the ability of the fire hydrant system to serve the future Stage 2 Corlette Street building, without the need for pumps, subject to further detailed calculations / modelling.

7.23 Waste and Servicing

Waste management will be in accordance with the Waste Avoidance and Recovery Act 2001 and Section 7.8 of Council's DCP. The objectives of the Waste Avoidance and Recovery Act are as follows:

(a) to encourage the most efficient use of resources and to reduce environmental harm in accordance with the principles of ecologically sustainable development,

(b) to ensure that resource management options are considered against a hierarchy of the following order—

(i) avoidance of unnecessary resource consumption,

(ii) resource recovery (including reuse, reprocessing, recycling and energy recovery),

(iii) disposal,

(c) to provide for the continual reduction in waste generation,

(d) to minimise the consumption of natural resources and the final disposal of waste by encouraging the avoidance of waste and the reuse and recycling of waste,

(e) to ensure that industry shares with the community the responsibility for reducing and dealing with waste,

(f) to ensure the efficient funding of waste and resource management planning, programs and service delivery,

(g) to achieve integrated waste and resource management planning, programs and service delivery on a State-wide basis,

(h) to assist in the achievement of the objectives of the Protection of the Environment Operations Act 1997.

Assessment of the DCP 2012 has been conducted within the DCP Compliance Tables (see Appendix D). A detailed Waste Management Plan is included at Appendix T.

7.23.1 Construction and Excavation Waste

Builders will remove materials in accordance with local waste authority requirements. Waste reduction and avoidance measures will be encouraged during the construction phase of the development, with the following measures implemented:

- Only demolish the necessary parts of buildings on site and reuse where possible;
- Salvage demolished materials where practical for recycling and reuse;
- Buildings designed to suit typical material sizes, including brick and FC cladding sheet dimensions;
- All fixtures and fittings to be made to measure;
- Recycled materials will be utilised wherever possible;
- Measures will be taken to ensure the construction contractor is aware of the waste management procedures and adheres to appropriate guidelines; and

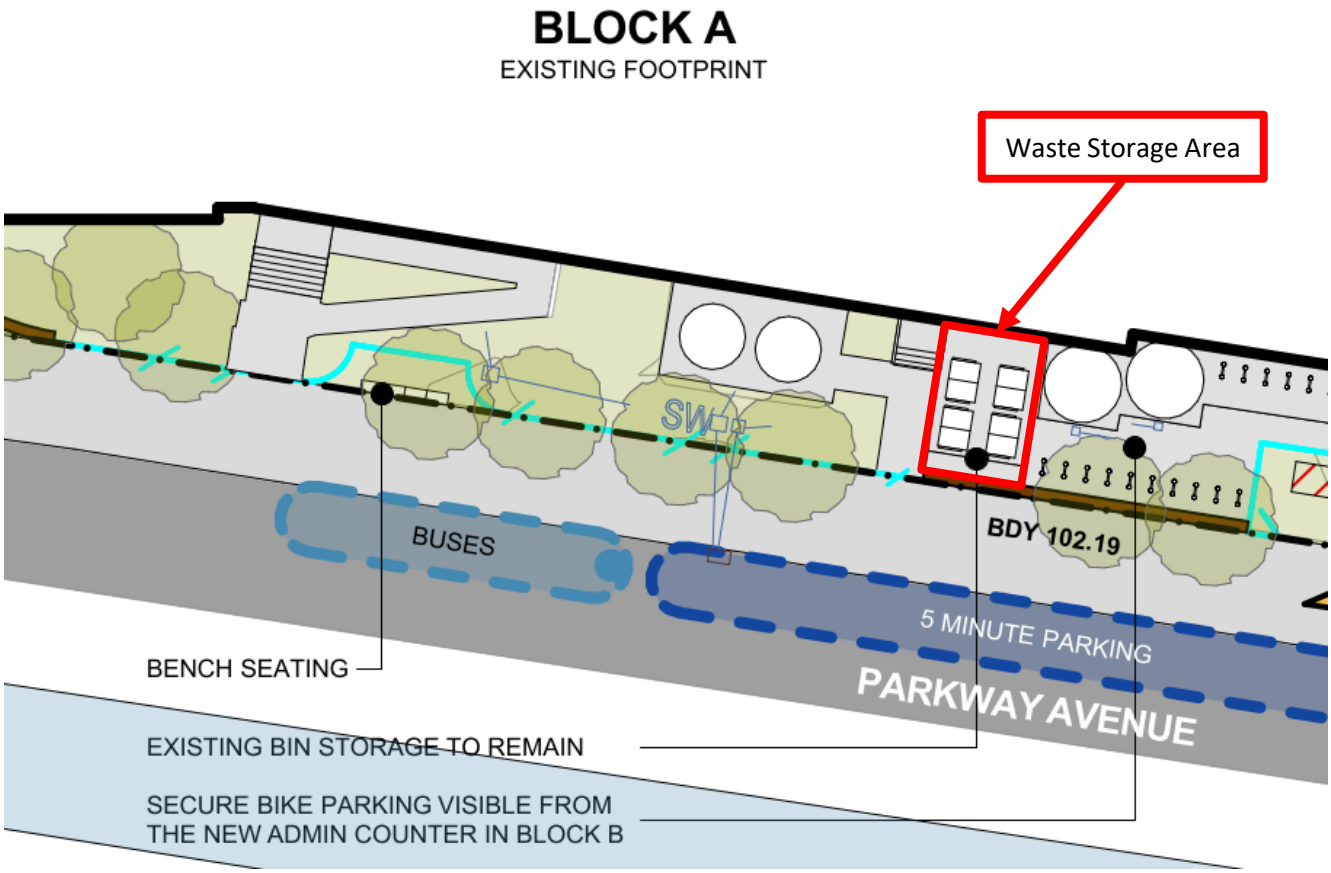
- The remaining waste to be transported to a recognised builders recycling yard or waste facility.

7.23.2 Operational Waste

The waste management contractor will handle the large 1,100L bins located within the existing waste storage area on Parkway Avenue of the site, see **Figure 43**. The following provides a breakdown of the bins and collection:

- Landfill: 2 x 1,100L – Monday, Wednesday and Friday.
- Recycling: 2 x1,100L – Wednesday and Friday.

Figure 43 Proposed Waste Storage Area



There are also have several large Council yellow wheelie bins supporting the existing Block A and B which are located collected off Parkway Avenue, with the bin enclosure near the Building Distributor / Fire Exit and Substation.

The waste minimisation strategies on the site include:

- Return and Earn program;
- Steel / Metal recycling program;
- Photocopier ink recycling program; and

- Compost bins utilised for some green waste.

It is planned that a Waste Audit is conducted on both NGS campuses this year to assess further waste minimisation strategies and targets. Bins are put out by the NGS maintenance team at approx. 7am on morning of collection and brought back in post service.

7.24 Structural Design

Project Engineers Lindsay Dynan have assessed the environmental considerations of the site and developed a strategy and design to ensure structural integrity can be assured during the life of the proposed buildings. A Structural Services Report has been prepared and provided at Appendix FF.

7.24.1 Structural Design Criteria

The proposed building is designed in accordance with the following criteria to ensure structural integrity is maintained during its life:

- **Post Disaster Function.** The building will not be designed for post disaster function, adopting a Building Importance Level of 3;
- Annual probability of exceedance for seismic activity (1 in 1000 year earthquake);
- Annual probability of exceedance for wind (1 in 1000 year wind);
- The design has made no allowance for blast/explosion, vehicular or aircraft impact, etc on the building structures;
- **Strength** and ductility of the building and all its components shall be adequate to resist the load combinations in accordance with AS1170.0:2002 and the relevant current code limit state provisions;
- **Stability** of the building and in particular the stability of the individual primary lateral load resisting structural elements when subjected to wind and/or seismic loading, using the code load combinations, shall be maintained in accordance with AS1170.0:2002 Dead and Live Loads and Load Combinations;
- **Deflection** of the building as a whole and inter-storey height deflections when subjected to serviceability limit state wind loads and/or seismic loading shall comply with the following:

Total lateral deflection shall not exceed height/500 for wind loads; and

Inter-storey drift shall not exceed 1.5% of the storey height under Ultimate Limit State earthquake.

- Floor Deflections calculated to AS3600/AS2327.1 or AS4100 as appropriate and limited to span/250 total long-term deflection or maximum 25mm and span/500 incremental for lightweight partitions and well-articulated masonry walls;
- Durability to be to AS3600:2018/AS4100:1998 provisions.

In general structural elements should achieve the following:

- Building structure - concrete elements 50 years;
- Structural steelwork 50 years; and
- Corrosion Protection Systems 15 years.

- **Fire rating** to AS3600:2018/AS3700:2018/AS4100:1998 as appropriate and the Building Code of Australia;
- **Natural Frequency of floor elements.** Floor vibration design response to occupant activity to generally comply with recommendations of AS2670;
- **Adaptability, Flexibility and Expandability.** The School is to confirm the requirements of future proofing, however the following will be adhered to:
    - The building structural system and grid will optimise functionality and future adaptability and expansion limiting internal shear walls where possible; and
    - The use of post-tensioned concrete will not limit future flexibility in regard to placement of penetrations, etc relative to any other structural system.
- **Set Downs.** Areas requiring set-downs will be identified by the architect and the floor designed appropriately.

To achieve the above criteria, the building is to be designed in accordance with the NCC/BCA under the specifications provided in **Table 10**.

Table 10 NCC/BCA Specification

Description	Specification
Importance Level	3
Annual Probability of Exceedance for Wind (Area A2; non cyclonic)	1:1000
Annual Probability of Exceedance for Seismic	1:1000
Main Building (Fire Rating)	TBC by BCA

7.24.2 Wind Load Assessment

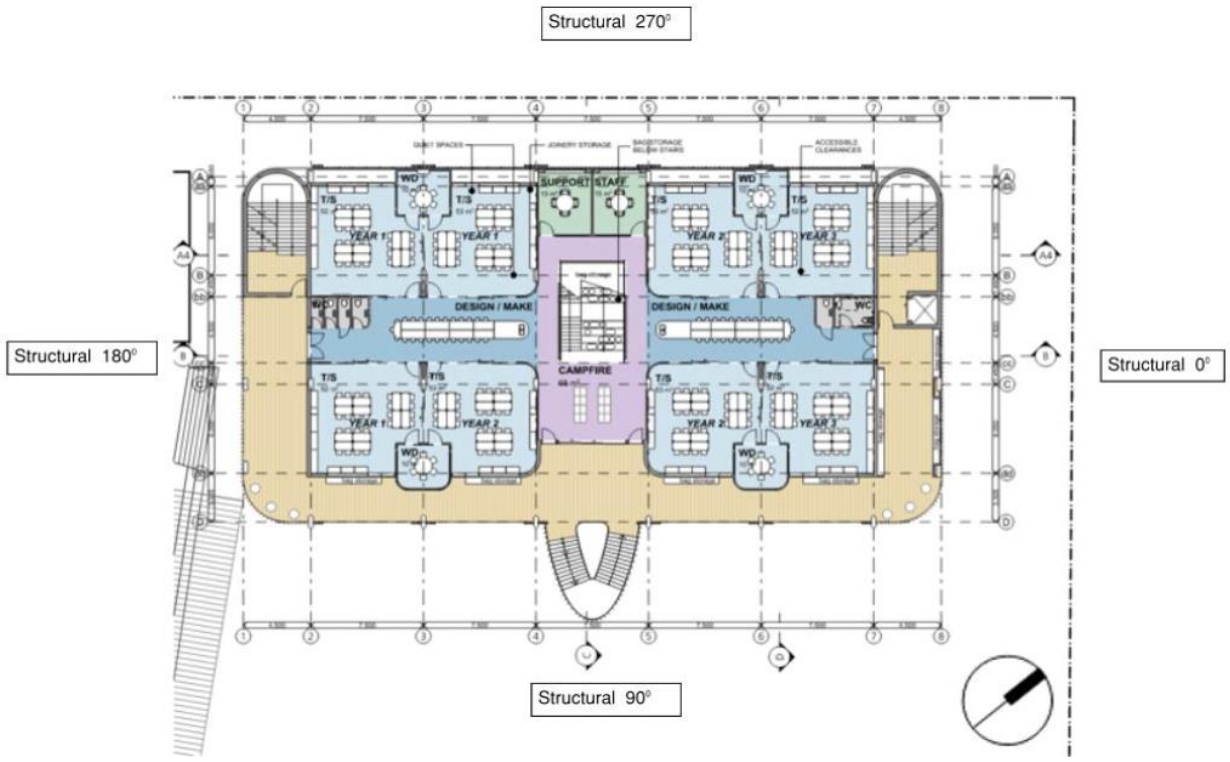
Based on the utilised parameters, a model of site and structural wind speeds has been generated.

Table 10 and **Figure 44** provide the results of the analysis undertaken. The proposed Union Street building is to be designed to meet the wind load requirements projected to be experienced on the site.

Table 11 Design Wind Speed

Site Wind Speed:								
	N	NE	E	SE	S	SW	W	NW
Terrain Category	2	3	3	3	3	3	3	2
M_z,cat	1.056	0.9	0.9	0.9	0.9	0.9	0.9	1.056
Md	0.8	0.8	0.8	0.95	0.9	0.95	1	0.95
Ms	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Site Wind Speed (ULS) (m/s)	38.9	33.1	33.1	39.3	37.3	39.3	41.4	46.1
Site Wind Speed (ULS) (m/s)	31.3	26.6	26.6	31.6	30.0	31.6	33.3	37.1
Structure	θ = 0°	θ = 90°	θ = 180°	θ = 270°				
Design Wind Speeds (ULS) (m/s)	38.86	39.33	41.40	46.15				
Design Wind Speeds (SLS) (m/s)	31.26	31.64	33.30	37.12				

Figure 44 Design Wind Speed Reference Diagram



7.24.3 Earthquake Loads

The expected earthquake loads have been calculated based on the site's location in Newcastle, the adopted annual probability of exceedances, adopted importance level and a number of relevant parameters per AS1170.4:2007. The calculation undertaken are reproduced in **Table 11**.

Table 12 Earthquake Load Calculation

Code	AS1170.4:2007	Output
Structure Classification	Importance Level	III
	Annual Probability of Exceedance	1:1000
	Location	Newcastle
	Probability Factor	Kp = 1.3
	Hazard Factor	Z = 0.11
	Founded	Class Ee
	Structure Height	H>12m, H<50m
Earthquake Design Category		EDC II

7.24.4 Ground Conditions – Mine Subsidence Management

A concept design model has been developed to assess the impact of mine subsidence of the proposed Union Street building taking into account ground conditions informed by the geotechnical report and mines assessment by Tetra Tech at Appendix Z and Appendix EE respectively along with the Subsidence Advisory NSW (SA NSW) Merit Assessment Policy.

Based on the model, the building would see strength demands increase between 40-60% in elements however the building structure is generally capable of achieving compliance with SA NSW requirements. However, tilting was calculated in the order of 25mm per metre and could prevent the use of the building due to impacts. Damage would also be seen in detailing and finishes of the building.

Due to these considerations the proposal would not meet the very slight damage condition under the SA NSW Merit Assessment Policy and would require mine grouting as proposed.

7.24.5 Design Solutions

Stability of the proposed building is to be provided by walls within lift and stair cores along with column to beam connections. Braced reinforced walls are to be utilised to resist wind and earthquake actions improving lateral stability.

The use of shear walls remote from cores will be minimised to maximise the flexibility of the structure and its ability to accommodate changes in the future.

The foundations are to be designed in accordance with the recommendations of the Geotechnical Report at Appendix Z and includes a pile foundation to the residual clays or weathered rock. This design relies on the grouting of the mine shaft due to implications on ground compression and strains on the piles.

Specific design elements to the proposed Union Street building and Block B alterations have been considered.

Block B - Alterations

Ground Floor:

- New wet area rooms will require new drainage to be introduced. Detailed design for these areas will need to consider local steps or ramps to build up above slab surfaces instead of cutting into the existing surfaces.
- New wall penetrations through brickwork requiring new lintels.

First Floor:

- Enclose balconies.
- Likely new minor service penetrations that require review of the existing slabs to ensure it does not impact on the slab adequacy.

Union Street Building – New Building

The three suspended floors are to be supported on a regular column grid with no transfers. The design includes the use of:

- post tensioned banded slab is considered the most appropriate to minimise the structural zone and provide adequate clearance for building services; and
- Reinforced concrete columns and walls.

7.25 Fire Safety

A Fire Safety Strategy (FSS) has been developed by Affinity Fire Engineering with a report provided at Appendix GG. The Fire Safety Strategy (FSS) outlines the fire engineering principles that will be utilised in ensuring that deviations from the prescriptive Deemed-to-Satisfy (DTS) provisions of the BCA, are resolved through a fire engineered Performance Solution in order to conform to the building regulations.

7.25.1 Non-Compliance Review

A number of non-compliances with the deemed-to-satisfy criteria of the BCA have been noted including fire resistant construction, egress distances and hydrant booster locations. **Table 13** lists the proposed departures from the DTS provisions of the BCA for the project and the analysis methodology proposed for the Fire Engineering assessment.

Table 13 BCA DTS Non-Compliance Assessment and Acceptance Criteria

Item	Non-compliance	Variation
Item 1: Fire Resisting Construction	- The proposed fabric shade cloth roof located over the rooftop play storey does not achieve an FRL	A Performance Solution will be considered appropriate if it can be demonstrated that in a top storey fire scenario that the fabric roof will burn away, and the smoke and hot products of combustion will vent naturally into the atmosphere. Furthermore, due to the open nature of the rooftop

Item	Non-compliance	Variation
	- The steel columns supporting the proposed fabric roof located over the rooftop play storey are proposed to not achieve an FRL.	play area and the expected fuel load, temperatures are not expected to reach a temperature sufficient to impact on the steel columns and as such they are anticipated to remain supporting only their individual load. Finally, that there are no adjacent buildings that are in close proximity at the roof level.
Item 2: Egress Provisions (Travel Distance)	The distance between alternative exits (north and south fire-isolated stairs) is 67m in lieu of the DtS maximum of 60m	Analysis shall be undertaken to compare the time at which a smoke detector (on a reduced spacing) in the performance is activated to a smoke detector being activated in a DtS compliant design such that the following equation is satisfied: RSETPS ≤ RSETDtS
Item 3: Hydrant Booster Location	The hydrant booster shall be re-located to the north-west corner of the site which will not be within site of the main entry to the building as there are multiple buildings on the site with multiple entries.	The assessment methodology will adhere to Clauses A2.2(1)(a) and A2.2(2)(b)(ii) of the BCA. The analysis will be absolute and qualitative in demonstrating that the location of the hydrant booster does not negatively impact on fire brigade operations or ability to undertake intervention operations.

7.25.2 Fire Safety Strategy

The following Fire Safety measures are proposed to minimise risk throughout the proposed development an existing site.

Passive Fire Construction and Materials

The building structure including floors, walls, columns, and shafts will be in compliance with the DtS requirements of BCA. Fire ratings for the proposed fabric roof and supportive steel frame are proposed to be omitted representing the proposed alternative solution discussed in **Table 13**.

Internally, all wall, floor and ceiling, and roof and ceiling assemblies must be tested and rated for their fire hazard properties in accordance with the prescriptive requirements of BCA. The internal finishes, internal linings and internal materials used throughout the building should be non-combustible to reduce the spread of fire and the generation of toxic smoke products.

Building Separation

The proposed building is proposed within close proximity to the existing Block A building. As part of the BCA and certification process, it must be demonstrated and accepted that the new proposed building will not result in any significant fire safety issues with existing buildings.

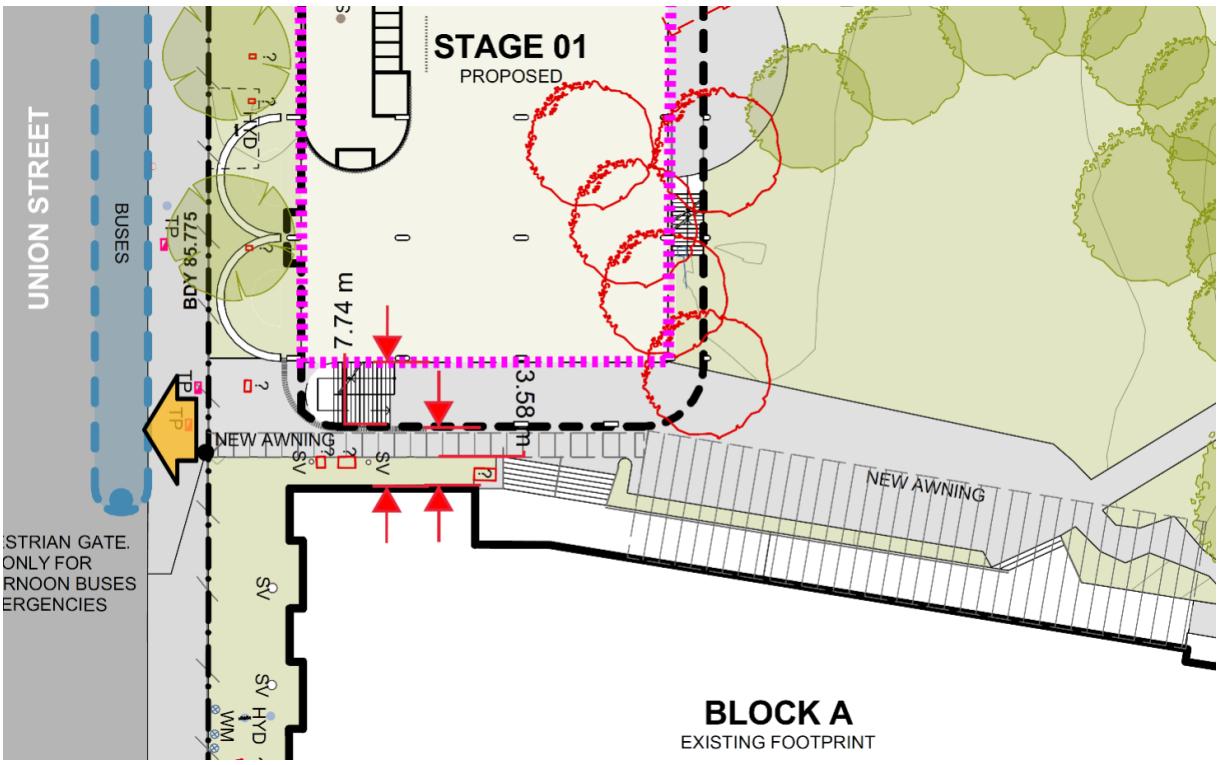
The location of the proposed Union Street building is considered appropriate given the following:

- The external wall line of the proposed Union Street building is indicated in a pink dotted line (see **Figure 45**) and is located approximately 7.5-8m from the external wall line of Block A at its closest point. Any elements of the proposed Union Street building between the external wall line and the balcony edge

of the building must comprise of either the fire-isolated stairway or fire separated external stairway or non-combustible materials. No storage of any materials can occur to the balcony zone.

- The new awning proposed to the north of Block A must be constructed of non-combustible materials only and be open to all sides other than where it adjoins Block A. There must be no direct connection between Block A and the proposed building.

Figure 45 Building Fire Safety Analysis – Separation



Services

To ensure building services do not reduce fire safety effectiveness of the building and are suitably location a range of solutions are proposed including:

- All service penetrations are to be sealed to ensure that the fire and smoke resisting performance of the wall through which it passes is maintained.
- Rooms containing equipment listed below must be fire separated from the remainder of the building with any door opening into that room consisting of a compliance self-closing fire door.
- Electricity supply systems inclusive of electricity substations located within a building and the main switchboards located within the building which sustains emergency equipment operating in the emergency mode.
- Further requirements include:
    - Lift motors and lift control panels (unless the lift installation does not have a machine-room).
    - Emergency generators used to sustain emergency equipment operating in emergency mode.

- Central smoke control plant (other than smoke exhaust systems designed for high temperature operation).
- Boilers; and
- A battery system installed in the building that have a total voltage of 12 volts or more and a storage capacity of 200kWh or more.

Egress and Evacuation

To ensure initiation of evacuation is satisfactory, three management measures are to be implemented:

- Activation of a smoke detector or manual call point shall initiate the emergency warning alarm tones.
- The fire alarm system shall initiate the building EWIS system in both the existing buildings and the proposed building.
- Access and egress from the existing Block A is required to be maintained during and following construction of the proposed Union St building.

The egress pathways generally comply with the BCA however two notable variations are proposed. As discussed in **Table 13** the distance between alternative exits (north and south fire-isolated stairs) is 67m in lieu of the DtS maximum of 60m. To ensure safety, smoke detector spacing throughout levels 1 and 2 will be rationalised such that occupants receive an earlier notification of an emergency when compared to a DtS design.

In addition to the smoke detector positioning, the western fire stair discharge door is required to be re-located further west to ensure compliance.

Active Fire Protection Systems

Table 14 provides an overview of the proposed active fire protection systems to be utilised in the proposed development.

Table 14 Active Fire Protection Systems

Fire Protection System	Proposed
Fire Brigade Alarm Signalling Equipment	An existing automatic link is provided. To be updated to include proposed development elements.
Emergency Warning and Intercom System	The existing Emergency Warning and Intercom System is provided throughout all parts of the exiting buildings and shall be extended and modified as required to provide compliant coverage to the proposed building.

Fire Protection System	Proposed
Automatic Smoke Detection System	An automatic smoke detection is required to be installed throughout the proposed building in accordance with the prescriptive DtS requirements of the BCA. The smoke detector locations shall be designed in accordance with AS1670.1:2018 except that detector spacing shall be reduced throughout the level 1 and 2 as part of the Performance Solution to address the extended travel distance between required exits. The smoke detection system must be connected to the existing Fire Brigade Alarm Signalling Equipment to activate the active fire protection systems on site.

Fire Fighting Facilities

An AS2419.1-2005 fire hydrant system is required to be designed and installed to provide coverage to the proposed building. The existing fire hydrant booster assembly is located within 10m of the proposed building. Due to the design proposed, the existing booster assembly is proposed to re-located the hydrant booster to the north-west corner of the site.

Portable fire fighting equipment such as extinguishers are to be provided throughout the proposed building in accordance with AS2444:2001 and will include the provision of both dry powder and CO_2 extinguishers.

Management Measures

The ongoing management of the building is as important in maintaining a high level of life safety as the provisions recommended during the design phase of the building. The following elements are proposed as part of the management system:

- The fire detection systems, emergency warning systems, fire hydrants, hose reels, portable fire extinguishers, emergency lighting and any other fire safety equipment shall be tested and maintained in accordance with Australian Standard AS1851 or other relevant testing regulatory.
- A no-smoking policy shall be implemented and enforced through all internal areas of the building.
- A hot works policy should be put in place and rigorously enforced to ensure that all hot works, including grinding and welding, are managed to avoid the accidental ignition of fires.
- All fire wardens are to be trained in first-aid firefighting and emergency response. All staff will be inducted with a fire safety brief including the actions necessary on the activation of the building emergency warning system and the location of all emergency egress paths and fire exits. In addition to the former mentioned items, periodic fire drills should be undertaken with any lessons learned included in future fire safety procedures.

7.26 Public Benefit and Contributions

Under the EP&A Act, Council secures local infrastructure contributions as a means of funding local infrastructure required as a result of new development. Local contributions are imposed by way of conditions of development consent. The requirement for a contribution is generally satisfied by paying a monetary contribution.

It is noted that the project is likely to be subject to contributions by way of conditions of consent in accordance with the Section 7.12 Newcastle Local Infrastructure Contributions Plan.

Based on the sites location, **Table 15** provides the contributions rate applicable to the site.

Table 15 Section 7.12 Contributions levy rate

Proposed cost of the development	Maximum % of the Levy
Up to $100,000	Nil
$100,001 - $200,000	0.5%
More than $200,000	1.0%

Based on the provided CIV Estimate prepared by Muller Partnership Quantity Surveyors (See Appendix NN), the applicable CIV cost of the concept development is $33,979,000 with the Stage 1 works totalling $16,740,000.

The Stage 1 works will therefore attract a projected contribution of $167,400. Confirmation of the applicable contributions will need to be established by the City of Newcastle Council.

8 Justification of the Project

8.1 Need for the Development

The project aims to ensure a cohesive campus redevelopment. The Concept Plan prepared for the site seeks to provide an environment that facilitates innovative teaching techniques nurtured by the built environment, as well as meeting the day to day needs of the staff and students.

There has been an identified need to respond to the capacity issues experienced on the site. At present Years 5 and 6 cannot be accommodated on the site. The following project drivers have been identified:

- Park Campus is currently at capacity, with years 5 and 6 located at the Hill Campus.
- The expansion of the Park Campus facilities will enable the Hill Campus to relocate years 5 and 6 back from the Hill Campus, as well as facilitating additional class streams for K-4 and K-6.
- Remove end of life assets and provide contemporary learning environments.
- Ameliorate the existing traffic issues at the school.

The project also aims to maximise open play space, which, due to the smaller size of the site currently cannot be provided at the required rate (10m^2 per student). Utilisation of open space at National Park, adjacent to the site is deemed unsatisfactory due to separation from the School grounds and associated constraints to supervision, reiterating the need for adequate play space on site. This is to be achieved by construction of multistorey buildings to maximise play space which both reduces the footprint of buildings on site and provides new undercroft and rooftop open space areas.

Currently, student drop off and pick up results in congestion on the surrounding streets. This creates delays not only for parents, but for all road users on Union Street and Parkway Avenue. As a solution, an internal ‘kiss n’ ride’ arrangement is proposed to alleviate pressure on the surrounding streets by bringing the cars on site. It also ensures:

- A designated zone is provided at a school access point for drivers to stop and drop off or pick up their children;
- Traffic congestion will be relieved around the School;
- Adult supervision will be provided for students being dropped off and picked up from School by car;
- Smaller children can remain secured in the car while school age children are dropped off and picked up; and
- Road safety messages and safe passenger behaviour to parents and children can be reinforced.

Outside pick up and drop off hours, the kiss and drop zone can be utilised for outdoor play activities, such as handball courts, with the use of automated bollards preventing vehicular access to the area during school hours.

The project also aims to provide privacy for school children on site by providing physical, visual and auditory separation between the School and its neighbours.

The design of the School will passively reinforce the educational priorities of students.

Furthermore, due to its prime location on the corner of Union Street and Parkway Avenue, the School intends to create a prominent street presence. Currently the School lacks a street presence that erinforces the School and its reputation. By locating an iconic building alongside the Union Street frontage, a strong street presence for the School can be created.

The project achieves a number of positive environmental outcomes, primarily that being the redevelopment of an inner city school campus experiencing the growth pressures associated with the urban consolidation of Newcastle. A Green Star ESD report has been prepared by Marline (refer to Appendix LL) that outlines a range of sustainability initiatives that have been integrated into the project. The design of the proposed Union Street building (Stage 1) prioritises passive design and energy efficient solutions.

The proposed building works will deliver a high quality learning space aligning with modern pedagogical goals and facilitate flexible layout arrangements and well resolved finishes ensuring the structures meet the needs of the School in the long term.

8.2 Mitigation Measures

The specialist studies prepared in support of this SSD application have made a range of recommendations that seek to mitigate any impacts associated with the project.

A mitigation table has been provided in Appendix F with measures to address a range of impacts including:

- Traffic and Parking;
- Geotechnical;
- Contamination and Remediation;
- Mine Subsidence;
- Stormwater Management;
- Flood Impacts;
- Tree Removal;
- European Heritage;
- Aboriginal Cultural Heritage;
- Crime Impact;
- Social Impact;
- Access;
- Hazardous Materials;
- Noise and Vibration;
- Lighting;
- Infrastructure;
- Water Usage;
- Climate Change;
- Waste Management;
- Ecologically Sustainable Development; and
- Fire Safety.

8.3 Site Suitability

Through extensive documentation and reporting, the site has been shown to be able to accommodate the project in a manner that meets all stakeholder's expectations. This has been achieved by understanding the existing constraints and opportunities associated with the site and coming to an acceptable solution to ensure the project utilises the site in the most effective manner.

The site will remain consistent with the goals of the Newcastle LEP 2012, in regard to residentially zoned land, by providing facilities meeting the needs of residents. Additionally, given the extensive educational history on site, the site is rendered suitable to continue this use with improved education facilities and materials.

An assessment of the suitability of the site is summarised in **Table 16**.

Table 16 Site Suitability Assessment

Issue	Assessment Comment
Flooding	The site is subject to potential flooding from Cottage Creek and overland flow from the Nesca Park catchment. The site is not flood affected at the 20% Annual Exceedance Probability (AEP) or 10% AEP storm events. Flooding was shown to occur for all storms above the 5% AEP storm event. The proposed FFL of the proposed Stage 1 building is set above the 1% AEP flood level and a calculated potential structure blockage mitigation level of 3.55m AHD. The proposed ground floor of the Stage 1 building is an undercroft open play area with occupiable rooms located on the first floor above the relevant flood planning levels. This arrangement provides suitable flood refuge for students, staff and visitors. To further ensure safety, a Flood Emergency Response Plan is also proposed and provided at Appendix CC. Impacts on surrounding properties were modelled as part of the Flood Impact Assessment at Appendix BB. The magnitude of impact is a 0.1 m/s increase in the modelled peak flood velocity between the buildings for all the design flood events between the 5% AEP and 0.2% AEP. However, as the increase in modelled velocities is only minor and the velocities are below 2 m/s, the modelled change in velocities is not considered to present an adverse impact to the neighbouring property and therefore, no specific measures are required to manage this impact. With the site being presently utilised as a school along with the design choices implemented for the proposed Stage 1 Building the site is considered appropriate for the proposed development.
Heritage	A detailed Statement of Heritage Impact (SOHI) has been articulated by Heritage Now and is reproduced at Appendix P. There are no heritage listings within or directly adjoining the site. The Cooks Hill Heritage Conservation Area (HCA) is 110m to the north-east of the site. Views from the HCA to the site will be screened by the existing apartments. The Hamilton South Heritage Conservation Area is located 165m to the west of the site. Views towards the site are obscured by street plantings along Parkway Avenue and therefore the project will not be visible from the HCA. A survey of the Site Project Area did not identify any surface Aboriginal objects, this is likely due to low ground surface exposure and visibility as well as the amount of fill which was used to build up the ground surface. The site is sensitive for Aboriginal campsites and the depth of the footings has high potential to impact archaeological deposit associated with these Aboriginal campsites. As such, the proposed development will have negligible impact on the heritage significance of any heritage items or areas surrounding the site. Appropriate subsurface testing may be undertaken once existing buildings are demolished to ensure preservation of Aboriginal items. The site is therefore considered suitable in regards to heritage impacts.
Traffic	A Traffic Impact Assessment (TIA) has been carried out by Intersect Traffic and is attached at Appendix L. The results of the Sidra modelling show that the Union Street / Parkway Avenue signals already operates with a Line of Sight (LoS) F in the AM peak but operates satisfactorily in the PM peak at a LoS C. The impact of the increased traffic from the school is to increase average delays by 4 to 10 seconds and queue lengths by an average of less than 1 vehicle. This is insignificant and does not result in a deterioration of LoS.

Issue	Assessment Comment
	By 2031 the intersection is beginning to fail in the PM with a LoS E however even with the intersection under stress the impact of the development is to increase average delays by less than 30 seconds and queue lengths by an average of less than 5 vehicles. Therefore, even though in the PM peak the project results in a deterioration of LoS from E to F, the development has an insignificant impact on the operation of the intersection. It is therefore reasonable to conclude that the development does not significantly adversely impact on the operation of the Union Street / Parkway Avenue signals. Based on the proposed student capacity, an additional 10 car spaces are required pursuant to Newcastle DCP 2012. While no additional car spaces are being provided, the kiss and ride facility has capacity for 7 cars to drop off children at any time, and further standby capacity. It is noted that the ability for this kiss and ride facility to quickly and effectively manage parent parking results in an optimised parking management strategy, eliminating the need for parents to permanently park and leave their vehicles. It thereby eliminates the associated on street car parking demand. The site is already serviced by public transport with bus routes and bus stops being within convenient walking distance of the site. Further school bus services are likely to be improved and increased with additional students at the school. School bus services utilise a bus set down bay along the school frontage in Parkway Avenue between Union Street and Corlette Street for the dropping off and pick up of school students. Existing concrete and asphalt footpath network, with crossing facilities, which already exists within the area, is considered suitable for the level of additional pedestrian traffic resulting from this development. With the implementation of the proposed kiss and ride facility, the presence of suitable alternative transport options in its city location, and the capacity of the surrounding road network the proposed development is considered to be sufficiently catered to on the site.
Geotechnical	A Geotechnical Report prepared by Tetra Tech Coffey is reproduced at Appendix Z. A number of improvement works are proposed to enable the proposed development including: • Excavate 1m of uncontrolled fill below the building footprint. • The density of the underlying 1m will be assessed with dynamic cone penetration testing at close centres (5m). • Proof roll subgrade. • Construction of a 1m thick platform using excavated material. Earthworks will be completed under level 1 supervision in accordance with AS3798-2007 ‘Guidelines for Earthworks for Commercial and Residential Developments’ recompacted to minimum 98% standard maximum dry density (SMDD) at 60% to 90% optimum moisture content (OMC). However, with the water table at 1.2m to 2.0m below the ground surface, compaction of the first layer may need a geogrid and fabric to assist in the construction. Dynamic compaction of this unit is unlikely to be suitable due to the proximity of surrounding buildings and the site being an operational school. • Deep soil mixing of the clays beneath the proposed building. With the proposed earthworks outlined above, the site is considered suitable to accommodate the proposed development.
Contamination	A site history review was undertaken as part of the Preliminary Site Investigation (PSI) undertaken by Tetra Tech Coffey (see Appendix X). The laboratory results showed concentrations of COPC typically below the adopted criteria for human health with the exception of one location, BH4 at approximately 0.5m depth bgs. The

Issue	Assessment Comment
	location contained polycyclic aromatic hydrocarbons (PAH) and Benzo a Pyrene (BaP) above the adopted health assessment criteria. The Conceptual Site Model identified a complete exposure pathway related to the PAH contamination to construction workers. The PSI concluded that the exceedances observed at borehole location BH4 would require further assessment. Following the findings of the PSI and Delineation testing, a Remedial Action Plan (RAP) was prepared by Tetra Tech Coffey (refer Appendix Y). As recommended by the PSI, a delineation assessment of the impacted soils in the western portion of the site was carried out, using a higher sample density in the area identified to be impacted by PAH. The results of delineation assessments undertaken identified exceedances of the ASC NEPM Health Investigation Level HIL-A (Residential Land Use) guideline values for Total PAHs and BaPTEQ within the investigation area. Accordingly, remediation is considered to be required for the site. Based on consideration of potential remedial options, the preferred remedial strategy for the PAH impacted soil is mixing with grout and placement within mine voids below the site. The material will replace externally purchased fly-ash for use within the grout mix applied within the areas of low-strength grout. With the implementation of the RAP, the contamination present on the site will be suitably separated from people resulting in a site suitable for the proposed development.
Mine Subsidence	A Mine Subsidence Desktop Assessment and Mine Subsidence Investigation and Assessment, prepared by Tetra Tech Coffey (see Appendix DD and Appendix EE) provides a detailed assessment of mine subsidence characteristics in the area. The site is known to be located over abandoned mine workings within the Borehole Seam completed by the Australian Agricultural Company from their New Winning Pit at a depth of 58m to 61.5m below the ground surface. The Hamilton pit is also located in close proximity to the site to the north west. Tetra Tech Drilled four boreholes targeting two bords, a pillar and a heading beneath the site to verify the condition of mine workings. This investigation generally showed the mine plan to be a good representation of the mine workings present. Voids generally ranged from 2.3m to 2.85m in height with a total pillar height of 6.1m including rubble. To ensure site suitability the proposed development will need to be designed taking into account a moderate mine subsidence risk to effectively mitigate projected impacts. With design solutions implemented the site is considered suitable for the proposed development.
Groundwater	Groundwater beneath the site was identified to be present in an unconfined or semi-confined aquifer at depths ranging from 1.4 - 1.8m below ground surface (mbgs). Regional groundwater flows to the northwest eventually discharging to the lower reaches of Cottage Creek. Cottage Creek eventually enters Newcastle Harbour. Appropriate arrangements for dewatering are to be put in place if deemed necessary for the works with the site considered appropriate for the proposed development.
Biodiversity	A BDAR Waiver Request was submitted as part of the SEARs request. The only native vegetation present on site is planted landscaping including some native species. The site does have some trees which may offer a small amount of seasonal foraging habitat for highly mobile threatened species. Such habitat occurs commonly in the wider urban area. The waiver request (which was subsequently approved) notes that while it is possible that highly mobile threatened species could visit the site on a seasonal basis, such use if at all, is likely to be very limited, and certainly such species would not be dependent on any habitat present.

Issue	Assessment Comment
Utilities	A Building Services report prepared by Marline Building Services is reproduced at Appendix II. Based on the report, the site has existing connection to utilities with the respective utility networks able to accommodate the proposed development.

8.4 Risk Assessment

A thorough risk assessment was undertaken which looked at the likelihood, frequency and severity of the potential risks. The key risks associated with the proposed development has been considered by a range of specialist consultants with an overview provided in **Table 17**. With the recommended mitigation measures and design input implemented the proposed development is considered to have a low risk.

Table 17 Key Risk Overview

Risk	Nature of Risk/Management	Addressed
Flood impacts	The site is subject to potential flooding from Cottage Creek and overland flow from the Nesca Park catchment. The site is not flood affected at the 20% Annual Exceedance Probability (AEP) or 10% AEP storm events. Flooding was shown to occur for all storms above the 5% AEP storm event. Flood hazard mapping has been produced showing that the Site is of a low risk to property but a high risk to life, which requires appropriate management. Torrent Consulting has determined an FPL of 3.55m AHD based on simulated blockages in the drainage system and consideration of the CN adopted FPLFPL for the Honeysuckle Redevelopment Area (inclusive of structure blockages, plus a 400mm freeboard). The ground floor level of the proposed Stage 1 building is 2.57m AHD. The principal use for the ground floor is as an open play space and so is not subject to application of an FPL. The occupiable rooms are located on the first floor and above, all of which have FFLs over 3m above the FPL. To satisfy the management of risk to life requirements the Stage 1 building needs certification by a Structural Engineer to withstand the hydraulic forces of the PMF conditions, i.e. a flood depth of 2.2 m, flood velocity of 1.8 m/s and velocity-depth product of 1.4. Because the upper levels of the Stage 1 building (including the first floor) are all located above the PMF level, it inherently provides suitable flood-free refuge for the occupants.	Flood impacts and design input has been provided by Torrent Consulting with a Flood Impact Assessment provided at Appendix BB with further discussion and consideration provided within this EIS at Section 7.12 and the site suitability assessment in Section 8.3. A Flood Emergency Response Plan has been prepared by Lindsay Dynan and provided at Appendix CC.

Risk	Nature of Risk/Management	Addressed
	To manage evacuation from the site, a Flood Emergency Response Plan has been prepared by Lindsay Dynan and provided at Appendix CC.	
Mine subsidence	The site is known to be located over abandoned mine workings within the Borehole Seam completed by the Australian Agricultural Company from their New Winning Pit at a depth of 58m to 61.5m below the ground surface. The Hamilton pit is also located in close proximity to the site to the north west. To manage any risk associated with subsidence the proposed development will be designed taking into account a moderate mine subsidence risk to effectively mitigate projected impacts. With design solutions implemented the site is considered suitable for the proposed development.	A Mine Subsidence Desktop Assessment and Mine Subsidence Investigation and Assessment, prepared by Tetra Tech Coffey (see Appendix DD and Appendix EE) provides a detailed assessment of mine subsidence characteristics in the area.
Contamination	Based on the site investigation undertaken by Tetre Tech Coffey, the site is contaminated at a single location. The location contained polycyclic aromatic hydrocarbons (PAH) and Benzo a Pyrene (BaP) above the adopted health assessment criteria. Based on consideration of potential remedial options, the preferred remedial strategy for the PAH impacted soil is mixing with grout and placement within mine voids below the site. The material will replace externally purchased fly-ash for use within the grout mix applied within the areas of low-strength grout. With the implementation of the RAP, the contamination present on the site will be suitably separated from people resulting in a site suitable for the proposed development.	A site history review was undertaken as part of the Preliminary Site Investigation (PSI) undertaken by Tetra Tech Coffey (see Appendix X). Following the findings of the PSI and Delineation testing, a Remedial Action Plan (RAP) was prepared by Tetra Tech Coffey (refer Appendix Y).

9 Public Interest

The project is considered to be in the public interest because it is consistent with the objectives of the R3 Medium Density Residential zone.

The intent of the Medium Density Residential zone is to enable higher density residential development and other land uses that provide facilities or services to meet the day to day needs of residents. The project will support the growing community and generate ongoing employment for skilled workers. The project will provide a number of significant public benefits to the community including:

- Providing permanent classroom facilities to support the growing school population;
- Delivering high quality teaching and learning spaces to support future focused learning to benefit staff and students;
- The project will generate employment in the expanding education sector and therefore provide ongoing economic and social benefits;
- Support the community by providing facilities able to be used for after hours activities and community events;
- High quality facilities will be delivered incorporating CPTED and ESD principles;
- Achieves appropriate environmental performance outcomes in relation to acoustic amenity, traffic movements, stormwater drainage and waste management through both the construction and operational phases;
- Responds to and respects the Aboriginal cultural significance of the site, as part of the ongoing operation of the site;
- Enhances student's overall school experience by providing improved facilities with indoor and outdoor learning spaces; and
- Deliver classroom hubs tailored to the needs and age of students.
- The proposed works will positively impact upon the visual amenity and built character of the area given:
- The project has been designed in accordance with the visions, objectives and expectations of the community;
- The project is in keeping with the scale and height of surrounding residential development;
- The project incorporates high quality finishes and contemporary materials and presents contemporary built form to the road frontages;
- The project seeks to upgrade the site which currently has ageing infrastructure, to a contemporary built form;
- The project is set back appropriately to reduce its perceived bulk and scale;
- The proposed activities on site will be compatible with its surrounding;
- The project is capable of meeting the deemed-to-satisfy provisions of the BCA and the intent of the DDA; and
- On-site landscape works, vegetation retention and new plantings will make a positive contribution to the streetscape and enhance the overall amenity of the site.

The project does not have any unreasonable overshadowing, view impacts or result in unreasonable traffic impacts. The public benefits of the project include improved streetscape outcomes and activation of the street, enhancement of the pedestrian environment across the street frontages and improved public safety through improved traffic arrangements and pedestrian legibility.

The Park Campus has a strategic location so it can service the surrounding precinct in an effective manner and in the process advance the public interest.

10 Conclusion

This EIS has been prepared in accordance with the *Environmental Planning and Assessment Act 1979, Environmental Planning and Assessment Regulation 2000* and responses to each component of the Secretary's Environmental Assessment Requirements. The proposed development seeks approval for a concept development for the site under Section 4.22 of the EP&A Act 1979 which is to be split into three stages. Development consent is also sought for all works associated with Stage 1.

The project will bring Years 5 and 6 back on site while also alleviating pressure on the existing school facilities thereby ensuring the school has capacity to accept additional enrolments. The project aims to deliver future-focused learning spaces in accordance with the Educational Facilities Standards and Guidelines (EFSG). It seeks to balance the needs of the school with the constraints of the site. Once completed the total enrolments at the School will be able to reach 640 students. At the completion of Stage 1, the School will be able to accommodate 480 students. Given the current capacity of the School is only 256 students this is a significant increase that will have multiple benefits to students, staff and the general community.

Potential impacts of the redevelopment of the school have been carefully considered in the evolution of the design. The project generally complies with all applicable planning controls and instruments. The project has been assessed in regards to biodiversity, Aboriginal and European archaeology, flooding, water management, water quality, traffic and access, provision of sufficient parking, safety and security, waste management and recycling, geotechnical site conditions and ecological sustainability and has been found to be a superior outcome for the site.

It achieves the desired planning outcomes for the locality as established in NLEP 2012. The resultant built form is considered contextually appropriate and well suited to the site and consistent with the desired future character of the locality.

Given its overall consistency with planning controls and the absence of any significant adverse environmental impacts, the project is considered to be in the public interest and worthy of being granted development consent subject to appropriate conditions.

Appendices

Appendices

A	SEARs table
B	SEARS letter
C	BDAR Waiver and Report
D	Statutory Compliance Tables
E	Consultation Outcomes Report
F	Mitigation Measures Table
G	Architectural Drawings
H	Design Statement
I	Stormwater Management Plans and Strategy
J	Survey Plan
K	Landscape Plan
L	Traffic and Parking Assessment
M	Kiss and Ride Traffic Management Plan
N	Construction Traffic Management Plan
O	Arborist Report
P	Statement of Heritage Impact
Q	Aboriginal Cultural Heritage Report
R	Noise Impact Assessment
S	Access report
T	Waste Management Plan
U	Lighting report
V	Social Impact Assessment
W	Crime Prevention Through Environmental Design Assessment
X	Preliminary Site Investigation
Y	Remediation Action Plan

Z	Geotechnical Assessment
AA	Flood Certificate
BB	Flood Impact Assessment
CC	Flood Emergency Response Plan
DD	Mine Subsidence Desktop Assessment
EE	Mine Subsidence Investigation and Assessment
FF	Structural Services
GG	Fire Safety Strategy
HH	Hazardous Substances Management Plan
II	Building Services Report
JJ	Infrastructure Management Plan
KK	Water Usage Management Report
LL	Green Star Ecological Sustainable Design Report
MM	Narclim Statement
NN	Capital Investment Value Estimate
OO	EPBC Act Protected Matters Report
PP	Planning Certificate
QQ	Acid Sulfate Soils Management Plan

APPENDIX A
SEARS TABLE

APPENDIX B
SEARS LETTER

APPENDIX C
BDAR WAIVER AND REPORT

APPENDIX D
STATUTORY COMPLIANCE TABLES

APPENDIX E
CONSULTATION OUTCOMES REPORT

APPENDIX F
MITIGATION MEASURES TABLE

APPENDIX G
ARCHITECTURAL DRAWINGS

APPENDIX H
DESIGN STATEMENT

APPENDIX I
STORMWATER MANAGEMENT PLANS AND STRATEGY

APPENDIX J
SURVEY PLAN

APPENDIX K
LANDSCAPE PLAN

APPENDIX L
TRAFFIC AND PARKING ASSESSMENT

APPENDIX M
KISS AND RIDE TRAFFIC MANAGEMENT PLAN

APPENDIX N
CONSTRUCTION TRAFFIC MANAGEMENT PLAN

APPENDIX O
ARBORIST REPORT

APPENDIX P
STATEMENT OF HERITAGE IMPACT

APPENDIX Q
ABORIGINAL CULTURAL HERITAGE REPORT

APPENDIX R
NOISE IMPACT ASSESSMENT

APPENDIX S
ACCESS REPORT

APPENDIX T
WASTE MANAGEMENT PLAN

APPENDIX U
LIGHTING REPORT

APPENDIX V
SOCIAL IMPACT ASSESSMENT

APPENDIX W
CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN

APPENDIX X
PRELIMINARY SITE INVESTIGATION

APPENDIX Y
REMEDIATION ACTION PLAN

APPENDIX Z
GEOTECHNICAL ASSESSMENT

APPENDIX AA
FLOOD CERTIFICATE

APPENDIX BB
FLOOD IMPACT ASSESSMENT

APPENDIX CC
FLOOD EMERGENCY RESPONSE PLAN

APPENDIX DD
MINE SUBSIDENCE DESKTOP ASSESSMENT

APPENDIX EE
MINE SUBSIDENCE INVESTIGATION AND ASSESSMENT

APPENDIX FF
STRUCTURAL SERVICES

APPENDIX GG
FIRE SAFETY STRATEGY

APPENDIX HH
HAZARDOUS SUBSTANCES MANAGEMENT PLAN

APPENDIX II
BUILDING SERVICES REPORT

APPENDIX JJ
INFRASTRUCTURE MANAGEMENT PLAN

APPENDIX KK
WATER USAGE MANAGEMENT REPORT

APPENDIX LL
GREEN STAR ECOLOGICAL SUSTAINABLE DESIGN REPORT

APPENDIX MM
NARCLIM STATEMENT

APPENDIX NN
CAPITAL INVESTMENT VALUE ESTIMATE

APPENDIX OO
EPBC ACT PROTECTED MATTERS REPORT

APPENDIX PP
PLANNING CERTIFICATE

APPENDIX QQ
ACID SULFATE SOILS MANAGEMENT PLAN

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