Appendix J
Social Impact Assessment

PROJECT BOOST

Penrith HV BESS – Social Impact Assessment

AUSCONNEX

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Contents

Appendices

Figures

Tables

Glossary

Term	Description
ABS	Australian Bureau of Statistics
BESS	Battery energy storage system
CSEAP	Communications and Stakeholder Engagement Action Plan
CSEP	Community and Stakeholder Engagement Plan
DPE	Former Department of Planning and Environment
DPHI	Department of Planning, Housing and Infrastructure
EIS	Environmental Impact Statement
LGA	Local Government Area
the Project site	Penrith HV BESS development area (approximately one hectare), see Figure 12.
SAL	Suburb and Locality
SIA	Social Impact Assessment
Social locality	A nominated area around the Project site where the Project's impacts to people may occur.
Socio-economic baseline	Defines the current social and economics characteristics within the study areas for the SIA.

1 Introduction

Aurecon Australasia Pty Ltd (Aurecon) have been engaged by Ausconnex to prepare a Social Impact Assessment (SIA) for the proposed Penrith high voltage (HV) Battery Energy Storage System (BESS) (the Project) which would be located adjacent to the existing Penrith Transmission Substation (Penrith Substation) at 2235-2249 Castlereagh Road, Penrith, New South Wales (NSW) (the Project site).

1.1 Project background

Ausconnex is developing four HV BESS sites and eight MV BESS sites under 'Project Boost,' a wider initiative to strengthen NSW's energy storage capacity. The HV BESS sites would each have a capacity of up to 100 megawatts (MW) and an energy storage capacity of up to 200 megawatt-hours (MWh). The siting of the HV BESS located adjacent to the existing transmission substation minimises environmental impacts by co-locating energy transmission and energy storage infrastructure and maximising land use efficiency.

The Project is classified as State Significant Development (SSD) as it involves electricity generating works with a capital investment value exceeding $30 million, in accordance with Section 20 of Schedule 1 of the *State Environmental Planning Policy (Planning Systems) 2021*. The SSD Application is lodged under Part 4, Division 4.7 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), and this SIA has been prepared to support the required Environmental Impact Statement (EIS) for the Project.

1.2 Purpose and scope of this report

This SIA has been prepared in accordance with the NSW Department of Planning and Environment's (DPE) *Social Impact Assessment Guideline* (SIA Guideline) (DPE, 2023). This SIA report would assist in identifying any potential socio-economic impacts of the Project and provide recommendations to mitigate these impacts.

1.3 Secretary's environmental assessment requirements

The report has been prepared in accordance with the Planning Secretary's Environmental Assessment Requirements (SEARs) for the Project. The requirements specific to this assessment and where these aspects are addressed in this technical report are outlined in Table 1-1.

Table 1-1: Secretary's Environmental Assessment Requirements – Social

Key issues	SEARs to be addressed by the study	Where addressed in this report
Social	An assessment of the social impacts or benefits of the project for the region and the State as a whole in accordance with the *Social Impact Assessment Guideline* (DPE, 2023), including consideration of any increase in demand for community infrastructure services, and consideration of construction workforce accommodation.	Section 6 outlines construction impacts Section 7 outlines operational impacts Section 8 outlines decommissioning impacts Section 9 outlines cumulative impacts

1.4 SIA Declaration

I, Dr Jamie Seaton, confirm that the Penrith HV Battery Energy Storage System social impact assessment (SIA) and this report was completed on 23 May 2025 and contains all information relevant to the SIA.

I confirm that I understand my legal and ethical obligations, and that none of the information in the SIA is false or misleading.

My qualifications and experience are outlined below.

Qualifications:

1. Bachelor of Science Hons. (Human Geography)
2. Community Development Diploma
3. Doctor of Philosophy (Human Geography).

Experience:

I am trained in social science methods and I have demonstrated social research skills in government and private settings. I have conducted SIA's for a range of major projects (in SIA lead, peer reviewer, and technical reviewer roles) in the energy, extractive industry, water, tourism, construction, and waste sectors.

Date: 7 August 2025

Dr Jamie Seaton

2 Project Description

The Project involves the development, construction, operation and decommissioning of a grid-scale HV BESS with a capacity to supply up to 100MW of power and the ability to store up to 200MWh of energy adjacent to the existing Penrith Substation to meet the growing demands of the local Penrith community.

The Project includes the following key components:

- Electrical infrastructure including:
  - a 100MW/200MWh BESS comprised of 48 battery containers installed in enclosures (thermal cabinet) and associated ancillary infrastructure. Lithium-ion phosphate is the preferred Lithium-ion battery chemistry for reasons of safety and widespread availability from BESS Original Equipment Manufacturers (OEM). The battery container includes an integrated AC power inverter;
  - step up transformers, auxiliary transformer and ring main units (RMUs);
  - 33kV switch room and control room;
  - installation of one (1) x 33kV underground cable and entry point for HV BESS cabling to connect the Project to the Penrith Substation via new and existing conduits;
  - two harmonic filters.
- Other permanent ancillary infrastructure including:
  - earth grading and levelling works to allow for installation of concrete pads for the BESS containers and associated infrastructure;
  - Operation and Maintenance (O&M) building;
  - car parking;
  - security fencing, lighting, signage and lightning protection;
  - fire detection and suppression equipment;
  - internal access road (about 6m wide) and driveway access off Thornton Drive;
  - formalised underground stormwater network, and provision for water detention (for water quality and fire water purposes);
  - vegetation clearance of non-native vegetation; and
  - noise attenuation walls (7m high).
- Temporary construction facilities including:
  - site office;
  - construction compounds and laydown areas; and
  - stormwater and sediment controls for the Site.

The overall Project footprint is about one hectare (ha) of land. This includes the temporary construction facilities as well as the 33kV grid connection.

Typically, BESS containers are 2.8m in height, with a total associated footprint of 50m^2 in area per container. There are 48 battery containers proposed. The BESS containers typically contain internal heating, ventilation and cooling (HVAC) controls.

Figure 2-1 shows the concept design for the Project. The final Project configuration would be confirmed pending detailed design.

Figure 2-1: Proposed project layout

3 Methodology

The SIA has been guided by the following:

- NSW EP&A Act - which includes reference to social considerations forming part of decision-making for development. The *Environmental Planning and Assessment Regulation 2021* (2021 EP&A Regulation) specifies social aspects for consideration, as part of an environmental assessment, as discussed in Section 3.1.
- *Social Impact Assessment Guideline* (DPE, 2023) which explains how to assess likely social impacts for State Significant Projects.
- *Undertaking Engagement Guidelines for State Significant Projects* (DPE, 2021).

In accordance with the SIA Guideline, this SIA was prepared using the following methodology:

- Determining the level of assessment for the Project.
- Identifying the social locality of socio-economic influence for the Project.
- Review of legislation and statutory requirements relevant to the socio-economic environment of the study area.
- Review of existing socio-economic environment to establish a socio-economic baseline.
- Identification, analysis and evaluation of the potential socio-economic impacts of the Project, and their significance.
- Identification of management and mitigation measures to address potential impacts.

3.1 Determining level of assessment

Scoping for the Project was carried out in accordance with the SIA Guideline to identify the appropriate level of SIA required. The SIA Guideline specifies three levels of socio-economic assessment (minor, standard and detailed levels of assessment, or 'not relevant') depending on the nature and scale of potential impacts and whether these impacts can be appropriately managed.

Based on the review of the SIA Guideline it was determined that the 'Standard' level of assessment would be most appropriate. The 'Standard' level of assessment is defined in Table 3-1.

Table 3-1: SIA Guideline 'Standard' level of assessment definition

Level of assessment	Definition
Standard	The project is unlikely to result in significant impacts on the matter, including cumulative impacts. While the assessment of the impacts of the project on the matter will involve technical specialists, these impacts are likely to be: ■ well understood; ■ relatively easy to predict using standard methods; and ■ capable of being mitigated to comply with relevant standards or performance measures. Also, the assessment is unlikely to involve any significant uncertainties or require any detailed cumulative impact assessment.

3.2 Assessment stages

3.2.1 Social locality definition

The SIA identifies the potential social locality for social and economic impacts as a result of the construction and operation of the Project. The extent of a SIA social locality is dependent on a range of factors, including the likely scope of potential impacts, and the context within and around the Project site.

The social locality for the Project has been identified based on considerations that represents areas and communities considered to be most likely impacted by socio-economic impacts as a result of the construction and operation of the Project.

The social locality is consistent with the Penrith Suburb and Locality (SAL) defined by the Australian Bureau of Statistics (ABS Census 2021).

The social locality is defined in Table 3-2 and shown in Figure 3-1.

Table 3-2: Study area definitions

Study area	Project study area	Interaction with Project
Social locality	Penrith (SAL13195)	The social locality for this SIA is consistent with the Penrith SAL. This area has been selected as a representation of the area surrounding the Project and it is acknowledged that some indirect impacts may not extend that far, while others may extend further afield. A 400m catchment has been applied to assess any specific direct impacts that would occur within the immediate vicinity of the Project. The 400m catchment is consistent with the SIA Guideline. This catchment is referred to where relevant.
Local Government Area (LGA)	Penrith LGA (LGA16350)	The Project is located within the Penrith LGA. Communities across the LGA may experience impacts (both positive and negative) during construction and operational of the Project.
Greater Capital City Area	Greater Sydney (1GSYD)	This area represents the city within which the Project sits. There may be indirect impacts to this area as a result of interconnecting road networks which may experience impacts.

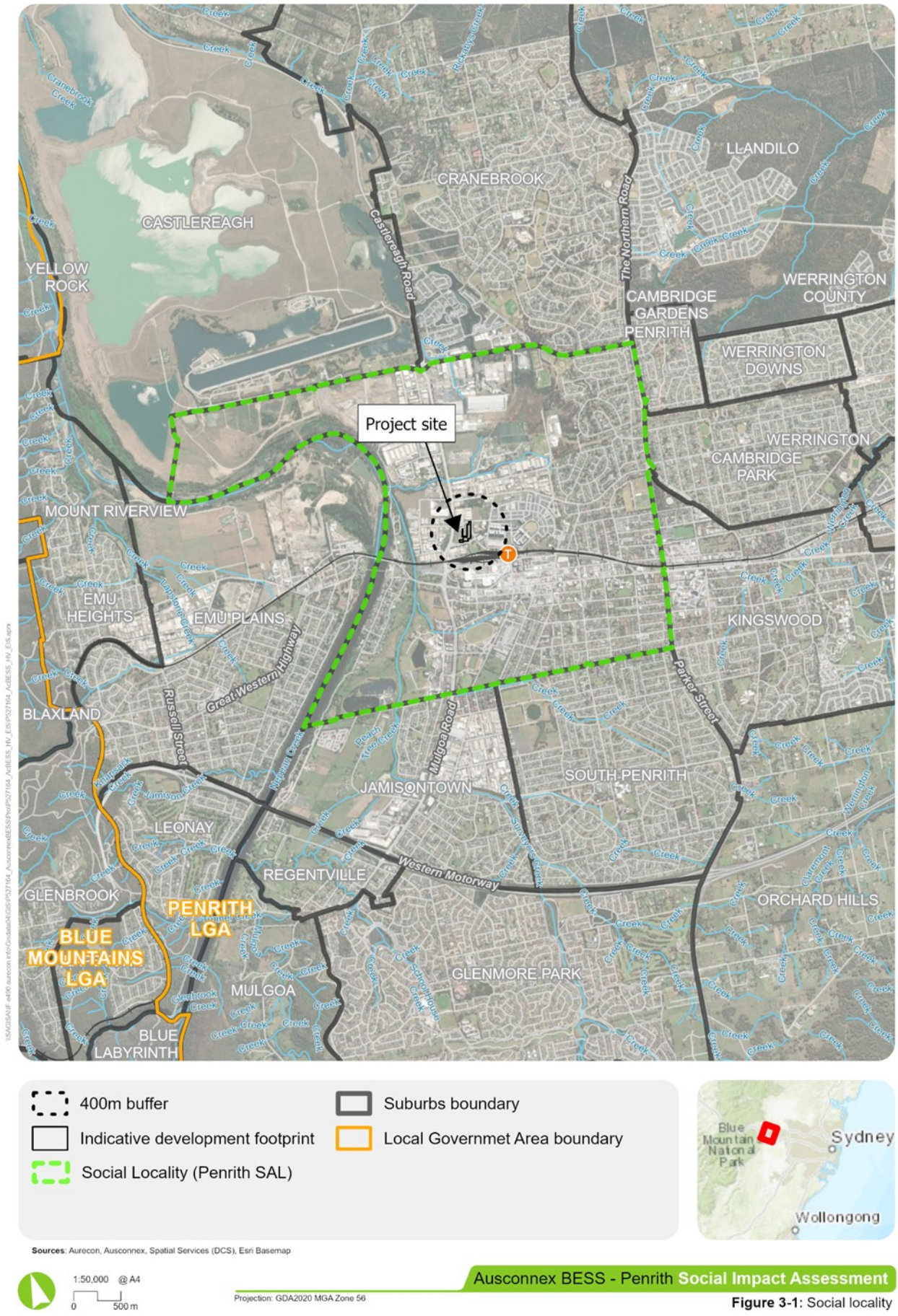

Figure 3-1: Social locality

3.2.2 Stakeholder consultation

The Project's *Communications and Stakeholder and Engagement Action Plan* (Communications and Stakeholder and Engagement Action Plan) outlines the community and stakeholder engagement activities implemented to fulfil its consultation requirements.

It should be noted that a range of community and stakeholder engagement activities have been ongoing since September 2024. Following the engagement activities at the time of lodging the Scoping Report, no feedback was received from the community. Similarly, no feedback has been received at the time of preparing the EIS package.

Whilst the level of community interest has been low to date, this may increase following the Public Exhibition of the EIS. The engagement and communication channels will remain available for community members and stakeholders to provide feedback and contact the team should they have any questions about the Project.

Table 3-3 summarises the engagement and communication activities in line with the relevant requirements and planning stages. For detailed planning processes and engagement requirements, refer to engagement activities outlined in the *Community and Stakeholder Engagement Plan* (CSEP) in the Scoping Report (Aurecon, 2024).

Table 3-3: Community and stakeholder engagement activities

DA process	Engagement activities	Status	Feedback received
Scoping report	▪ HV BESS Community and Stakeholder Engagement Plan (CSEP) ▪ Penrith HV BESS Community and Stakeholder Engagement Action Plan (CSEAP) ▪ Penrith HV and MV BESS key messages and FAQs ▪ Project email and 1800 number (1800 955 224) ▪ Penrith HV and MV BESS introductory newsletter Ausconnex website (22 October 2024) https://www.ausconnex.com.au/bess-project/bess-project-penrith/	Complete September – October 2024	Nil
EIS development	▪ Update notification with supporting visuals where applicable and invitation to online community information session dated 29th April 2025 https://www.ausconnex.com.au/bess-project/bess-project-penrith/#communitymeeting ▪ Penrith HV and MV BESS key messages and FAQs ▪ Online community information session ▪ Ausconnex website update ▪ Targeted stakeholder engagement (as required) ▪ Preliminary Engagement Outcomes Report (EOR) ▪ Project email and 1800 number (1800 955 224) projectboost@aurecongroup.com	In progress March – July 2025	Nil
Public exhibition of the EIS	▪ Update notification with invitation to face to face community information session – to be defined in consultation with Ausconnex team ▪ Face to face community information session ▪ Project email and 1800 number (1800 955 224) projectboost@aurecongroup.com ▪ Ausconnex website update	August – October 2025	Not commenced
Review and respond	▪ Final Engagement Outcomes Report (EOR)	Late 2025	Not commenced
Assessment and determination	-	Early 2026	

3.2.3 Establishing the socio-economic baseline

The socio-economic baseline defines the current social and economic characteristics within the social locality for the SIA. It is used to inform the assessment of the Project's potential socio-economic impacts (both positive and negative).

The socio-economic baseline describes:

- demographic indicators;
- access and connectivity;
- economic and employment profiles; and
- community values and priorities.

Ultimately, the socio-economic baseline identifies potential vulnerable populations that is more likely to experience socio-economic impacts as a result of the Project. "Vulnerable populations" are defined as groups and communities at a higher risk for poor physical, psychological or social health [1][2]. These barriers are further intensified due to social, economic, political, and environmental components. Limitations due to illness or disability ethnic minorities, gender minorities, low-income populations, and those needing assistance[3] can also influence the vulnerability of a population (ibid).

Data used to develop the socio-economic baseline for the Project is comprised of publicly available information gathered from the following sources:

- Australian Bureau of Statistics (ABS) Census, 2021 (ABS, 2022);
- local, State and Australian Government websites and publications (refer to Section 4); and
- various online sources.

A list of sources used to inform the SIA is provided in Section 12.

3.2.4 Social impact categories

An assessment of the Project's potential social impacts is made using the eight categories defined in the SIA Guideline and reproduced in Table 3-4. It should be noted that these prescribed social impact categories are often interrelated, and impacts may be experienced under more than one category. As such, impacts are captured under the category that is considered the most relevant. Interrelated impacts will be cross-referenced where appropriate to avoid repetition.

Where an impact is not considered relevant to the project and no correspondence from external stakeholders has been received, then the impact category will not be assessed in the SIA. As such, 'decision-making systems' has not been assessed in this SIA.

Table 3-4: Categories of social impacts (DPIE, 2021)

Impact category	Description/explanation
Way of life	How people live, how they get around, how they work, how they play, and how they interact on a daily basis
Community	Composition, character, cohesion, function, and sense of place
Accessibility	How people access and use infrastructure, services and facilities, whether provided by local, State, or federal governments, or by for-profit or not-for-profit organisations or groups
Culture	Both Aboriginal and non-Aboriginal culture, including shared beliefs, customs, values, and stories, and connections to country, land, waterways, places, and buildings

[1] Australian Government, 2024. Vulnerable people.

[2] National Collaboration Centre for Determinants of Health (NCCDH), 2022. Vulnerable populations. Glossary of Essential Health Equity Terms.

[3] Profile ID, 2021. Greater Sydney – Need for assistance.

Impact category	Description/explanation
Health and wellbeing	Physical and mental health[4], especially for those who are highly vulnerable to social exclusion or substantial change, plus wellbeing of individuals and communities
Surroundings	Access to, and use of, services that ecosystems provide[5], public safety and security, access to and use of the natural and built environment, and its aesthetic value and amenity[6]
Livelihoods	People's capacity to sustain themselves, whether they experience personal breach or disadvantage, and the distributive equity of impacts and benefits
Decision-making systems	Whether people experience procedural fairness; can make informed decisions; have power to influence decisions; and can access complaint, remedy and grievance mechanisms

3.2.5 Social impact evaluation

The evaluation of the Project's potential social impacts considered the likelihood of social impacts (shown in Table 3-5) and the magnitude of the predicted impacts (shown in Table 3-6). These factors are considered together to determine the significance rating of any social impact, using the SIA Guideline matrix system in Table 3-7.

The final social impact rating is identified within each impact section in Section 6.

Table 3-5: Likelihood levels of social impacts

Likelihood level	Meaning
Almost certain	Definite or almost definitely expected (e.g. has happened on similar projects)
Likely	High probability
Possible	Medium probability
Unlikely	Low probability
Very unlikely	Improbable probability

Table 3-6: Magnitude levels for social impacts

Magnitude level	Meaning
Transformational	Substantial change experienced in community wellbeing, livelihood, infrastructure, services, health, and/or heritage values; permanent displacement or addition of at least 20% of a community.
Major	Substantial deterioration/improvement to something that people value highly, either lasting for an indefinite time, or affecting many people in a widespread area.
Moderate	Noticeable deterioration/improvement to something that people value highly, either lasting for an extensive time, or affecting a group of people.
Minor	Mild deterioration/improvement, for a reasonably short time, for a small number of people who are generally adaptable and not vulnerable.
Minimal	Little noticeable change experienced by people in the locality.

[4] The World Health Organization defines health as a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity. For this guideline, wellbeing is a state in which people have their basic needs met, can realise their potential, can cope with the normal stresses of life, can work productively and fruitfully, and can participate in their community. See: Smyth, E. and Vanclay, F. (2017). The Social Framework for Projects: a conceptual but practical model to assist in assessing, planning and managing the social impacts of projects. Impact Assessment and Project Appraisal, 35:1, p. 78; Schirmer, J., et al. (2016), Wellbeing, resilience and liveability in rural and regional Australia: The 2015 Regional Wellbeing Survey, University of Canberra, p. 23; and OECD. (2011). How's life?: measuring well-being. OECD Publishing, p. 18: http://dx.doi.org/10.1787/9789264121164-en.

[5] "Ecosystem services" include: provisioning services, such as food and water; regulating services, such as flood and disease control; supporting services, such as nutrient cycling, that maintain the conditions for life on Earth; and cultural services, such as spiritual, recreational, and cultural benefits. See: Millennium Ecosystem Assessment (2005). Ecosystems and Human Well-Being: Our Human Planet: Summary for Decision Makers. The Millennium Ecosystem Assessment Series, Volume 5, Island Press, Washington DC.

[6] When considering perceptions of adverse impacts on amenity, an evaluation must be made of the reasonableness of those perceptions. This evaluation involves 'the identification of evidence that can be objectively assessed to ascertain whether it supports a factual finding of an adverse effect on amenity…': Telstra Corporation Ltd v Hornsby Shire Council [2006] NSWLEC 133

Table 3-7: Social impact significance matrix

		Magnitude Level				
		1	2	3	4	5
Likelihood level		Minimal	Minor	Moderate	Major	Transformational
A	Almost certain	Low	Medium	High	Very high	Very high
B	Likely	Low	Medium	High	High	Very high
C	Possible	Low	Medium	Medium	High	High
D	Unlikely	Low	Low	Medium	Medium	High
E	Very unlikely	Low	Low	Low	Medium	Medium

3.2.6 Recommended mitigation measures

Specific measures developed to avoid, minimise, mitigate or manage the socio-economic impacts are recommended in Section 10. These were formulated based on the findings of the socio-economic baseline study and outcomes of the impact assessment. Recommended mitigation measures have been developed using adaptive management principles, recognising that impacts may change over time, and that ongoing monitoring of impacts would provide the flexibility to accommodate such changes.

Impact mitigation measures recommended in technical studies commissioned for the EIS have been considered with regard to the effect or specific mitigation measures identified in those studies which contribute to mitigating potential socio-economic impacts identified in this report. These measures can be found in the relevant technical studies submitted as part of the EIS.

3.3 Assumptions and limitations

Assumptions applied to complete this SIA include:

- The Preliminary SIA contained under Section 6.4 of the *Penrith HV Battery Energy Storage System (BESS) Scoping Report* prepared by Aurecon (13 December 2024) has been used to inform relevant sections of this SIA.
- Data from the 2021 ABS Census is the latest available dataset and comprehensive source of demographic data to understand and inform the socio-economic baseline (refer to Section 6) for the identified study areas.
- The impact assessment of environmental matters including noise and vibration, landscape, and visual is based on information provided in the specialist technical impact assessments completed for the Project (refer to Section 3.4).

Limitations for this SIA include:

- As indicated in Section 3.2.2, the level of community interest for the Project has been low. A range of community and stakeholder engagement activities has been ongoing since September 2024, however no responses or feedback from the community or stakeholders has been received to date. Consequently, no community feedback about the Project has informed this SIA. As such, the assessment of the Project's potential social impacts has made using secondary data from the Australian Bureau of Statistics (ABS) Census, relevant literature, and local community plans.
- The 2021 Census was conducted during the COVID-19 pandemic. Many areas of Australia were in lockdown, and movements within, into and out of Australia were tightly controlled, leading to a significant increase in people working from their homes. These changes in population movement, coupled with various access restrictions caused by the pandemic and associated health orders, may have impacted Census results and may not be illustrative of typical statistics shown in previous census data. For instance, the increase in people working from home may have affected the accuracy of the 'Method of Travel to Work' (refer to Section 5.4.2) variable as it relates specifically to Census Day and may not represent a 'usual' method of travel.

3.4 Information and data sources

Information used to inform the SIA includes:

- Australian Census of Population and Housing (Australian Bureau of Statistics
- Literature review of demographic trends and analysis in Australia to support observations in the socio-economic baseline analysis
- Regional and local council strategic planning and legislation
- The social infrastructure listed in Section 5.5 is indicative and based on data from council social infrastructure lists and Google Maps and is considered accurate. There may be unintended omissions due to unregistered facilities, those without a digital presence, or potential errors in base data.
- Relevant technical reports commissioned for the EIS including:
  - *Traffic and Transport Assessment (Aurecon, 2025)*;
  - *Noise and Vibration Assessment (Aurecon, 2025)*;
  - *Visual Impact Assessment (Aurecon, 2025)*;
  - *Statement of Heritage Impact Assessment (Aurecon, 2025)*;
  - *Electromagnetic Field Assessment (Aurecon, 2025)*; and
  - *Preliminary Hazard Analysis (Aurecon, 2025)*.

4 Legislative and policy context

This section summarises the key legislation, policies and plans relevant to the Project.

The State and Penrith City Council has regional and strategic plans that articulate their vision for the future of their community. The reviewed plans include:

- A Metropolis of Three Cities – the Greater Sydney Regional Plan 2018 (Greater Cities Commission, 2018);
- Our Greater Sydney 2056 – Western Sydney District Plan 2018 (Greater Cities Commission, 2018);
- Resilient Sydney Strategy 2018 (City of Sydney, 2018);
- Penrith Local Strategic Planning Statement 2020 (Penrith City Council, 2020);
- Penrith 2036+ Community Strategic Plan (Penrith City Council, 2020);
- Integrated System Plan (ISP) 2024 (AEMO, 2024);
- NSW Electricity Strategy 2019 (DPE, 2019);
- Net Zero Plan Stage 1: 2020-2030 (DPE, 2020);
- NSW Electricity Infrastructure Roadmap (NSW Government, 2020); and
- NSW Renewable Energy Planning Framework (DPHI, 2024).

Table 4-1 summarises these plans.

Table 4-1: Relevant regional and local government policies and plans

Title	Description and relevant to the Project
A Metropolis of Three Cities – the Greater Sydney Regional Plan 2018	The Greater Sydney Region Plan (GSRP) (Greater Cities Commission, 2018) provides a 20-year plan to manage the expected growth and change in regard to social, economic and environmental matters for Greater Sydney. It guides strategic land use planning across Greater Sydney. Key initiatives of the GSRP includes sustainability, energy-efficient and net-zero emissions initiatives to contribute to mitigating climate change. In particular, Objective 34 aims to increase renewable energy generation and energy efficiency. As a utility scale renewable, the Project facilitates a community's access to battery storage and is capable of reducing a communities carbon footprint in alignment with the objectives of the strategic planning framework for Greater Sydney.
Our Greater Sydney 2056 – Western Sydney District Plan 2018	The Western City District Plan acknowledges the NSW Government's target of achieving net-zero emissions by 2050 and identifies potential pathways to achieve this target. This includes focusing on energy resilience, building efficiency and resilience. The main planning priority in the plan relevant to the Project is 'Planning priority C19 reducing carbon emissions and managing energy, water and waste efficiently'. The Project would support this Plan by improving energy efficiency and resilience in the area so communities can benefit from reliable and sustainable energy supply.
Resilient Sydney Strategy 2018	The Resilient Sydney Strategy 2018 is a program for metropolitan Sydney to build the capacity of individuals, communities, institutions, businesses and systems to survive, adapt and thrive in the face of chronic stresses and acute shocks. One of the key focus areas is to enable affordable access to renewable and resilient energy. In particular, it recognises the investment in complementary battery technology, which has the potential to provide local energy backup in times of peak demand, whilst also reducing our contribution to climate change. The Project aims to be an effective on site electricity supply solution, capable of delivering a clean energy source to western Sydney with direct emission savings for its 20 year lifecycle, aligning to the need for investments in renewable energy projects.

Title	Description and relevant to the Project
Penrith Local Strategic Planning Statement (Penrith City Council, 2020)	Penrith City Council's Local Strategic Planning Statement (LSPS) sets out the 20-year vision for land use in Penrith LGA. The LSPS recognises the special characteristics which contribute to Penrith's local identity and how growth and change will be managed in the future. Key planning priorities include creating an energy efficient city and sustainability outcomes. The Project proposes to use new electrical infrastructure (energy storage) with measurable emissions reduction potential over the 20 year lifespan of the project, which contributes to reducing the carbon footprint. By reducing the community's carbon footprint, the Project aligns with the goal of creating a resilient city by offering a reliable and resilient energy storage solution that ensures a stable energy supply during periods of peak demand.
Penrith 2036+ Community Strategic Plan	Penrith 2036+ Community Strategic Plan (CSP) is based on a shared vision, aspirations and values of our community. It identifies the community's desired outcomes which will inform long-term planning and the strategies to achieve them. In particular, the CSP prioritises sustainability and climate resilience as well as opportunities to diversify the growing economy. The Project would support these initiatives by contributing to the growth of the renewable energy projects which benefit communities. Furthermore, the Project has potential to support these initiatives by reducing emissions and improving consistent and reliable energy supply at times required to meet operational needs, and supporting the expected closure of coal fired energy generation.
Integrated System Plan (ISP) 2024 (Australian Energy Market Operator, 2024)	The ISP is a roadmap for the transition of the National Electricity Market (NEM) to meet future energy needs and enable a net zero economy by 2050. The ISP aim to increase battery storage capacity significantly by 2050. The Project would support these initiatives directly as it contributes to the increasing number of battery storage systems in NSW.
NSW Electricity Strategy 2019 (Department of Planning, Industry & Environment, 2019)	NSW Government's plan for a reliable, affordable and sustainable electricity future that supports a growing economy. It explicitly recognises the way electricity is used and stored in battery storage systems and the potential for it to provide affordable and reliable energy. The Project would support these initiatives directly as it contributes to the increasing number of battery storage systems in NSW.
Net Zero Plan Stage 1: 2020-2030 (Department of Planning, Industry & Environment, 2020)	Lays out the foundation for NSW's action on climate change and goal to reach net zero emissions by 2050. It outlines the NSW Government's plan to protect our future by growing the economy, creating jobs and reducing emissions over the next decade. It supports a range of initiatives including energy efficiency technologies. The Project would support the growth of Penrith towards a transition to cleaner energy by storing power from renewable sources, reduce emissions and improving consistent and reliable energy supply at times of need.
NSW Electricity Infrastructure Roadmap (NSW Climate and Energy Action, 2020)	The Electricity Infrastructure Roadmap is the NSW Government's plan to transform our electricity system into one that is cheap, clean and reliable. The Roadmap coordinates investment in transmission, generation, storage and firming infrastructure as ageing coal-fired generation plants retire. The Roadmap includes actions that will work together to deliver 'whole-of system' benefits. It supports new battery storage and electricity reliability. The Project would support the growth of Penrith towards a transition to cleaner energy by storing power from renewable sources, reduce emissions and improving consistent and reliable energy supply at times of need.
NSW Renewable Energy Planning Framework (Department of Planning, Housing and Infrastructure, 2024)	The Renewable Energy Planning Framework has been developed to help NSW transition to renewable energy. It includes guidelines for renewable energy generation and storage projects in NSW. The Project would contribute to the benefit-sharing guidelines set out under the Framework.

5 Socio-economic baseline

This section provides the socio-economic baseline for the Project. It establishes an understanding of the existing characteristics, values, and way of life of people in the social locality without the Project. The baseline is considered in assessing how the Project's potential social and/or economic impacts might influence people in the social locality.

As noted in Section 3.2.1, the social locality for this SIA comprises of the Penrith SAL. The following socio-economic indicators associated with the social locality have been benchmarked against those associated with the Penrith LGA:

- population and demographics;
- housing and household composition;
- social infrastructure;
- economy, industry and employment; and
- access and connectivity.

5.1 Population and demographics

This section provides an overview of the community profile within the social locality, including consideration of the population, age profile, gender, cultural and linguistic diversity, Aboriginal population, migration, households and need for assistance.

5.1.1 Population

The social locality had a usual resident population size of 17,966 in 2021. This accounts for 12 per cent of the Penrith LGA.

5.1.2 Age distribution

Data on the age distribution of a population can provide an indication of potential need, values, and vulnerability of communities.

In 2021, the median age within the social locality was 36 years, which is relatively consistent with 35 years for Penrith LGA and 37 years for Greater Sydney.

Similarly, children aged 0-14 years made up approximately 14.9 per cent of the social locality, which is lower than 21.2 per cent for Penrith LGA 18.4 per cent for Greater Sydney.

People aged 65 years and over in the social locality made up approximately 21.3 per cent, higher than 13.0 per cent for Penrith LGA and 15.2 per cent for Greater Sydney.

Overall, the age distribution suggests a slightly older population in the social locality and may be more vulnerable to health impacts and less adaptable to changes in their surroundings and way of life.

5.1.3 Gender

Gender information can provide insight to the composition of a community, allowing for consideration of the different community values and how the construction and operation of the Project can impact different genders.

In 2021, the gender distribution in the social locality was evenly spread between males (48.3 per cent) and females (51.7 per cent). This is similar with Penrith LGA and Greater Sydney, which have the same gender distribution proportions, being 49.4 per cent and 50.6 per cent respectively.

Overall, the gender distribution suggests that there are no significant gender priority communities in the social locality.

5.1.4 Cultural and linguistic diversity

In 2021, the proportion of the social locality born overseas was slightly higher than Penrith LGA (24.5 per cent compared to 23.3 per cent respectively). Languages spoken other than English was slightly lower in the social locality compared to Penrith LGA (18.2 per cent compared to 19.6 per cent respectively). However, both are significantly lower compared to Greater Sydney (37.4 per cent).

Collectively, this suggests a lower likelihood of culturally and linguistically vulnerable communities in the social locality.

5.1.5 Aboriginal and Torres Strait Island population

In 2021, the proportion of the social locality population identified as Aboriginal and/or Torres Strait Islander was 6.2 per cent, which is higher than that of Penrith LGA (5.0 per cent) and significantly higher than Greater Sydney (1.7 per cent). This highlights the importance of considering the impacts of the Project to the local Aboriginal and Torres Strait Island communities in the social locality and their cultural values.

5.1.6 Migration

People who have just moved into an area may be more vulnerable as they may not be settled or have an established support network or sense of community. On a larger scale, long-established communities may also experience impacts due to changes in the community.

In 2021, migration in the social locality was slightly higher than Penrith LGA and Greater Sydney (refer to Table 5-1). A much lower proportion of the social locality had resided in the same address for at least five (5) years prior to the 2021 Census (34.7 per cent), compared to compared to Penrith LGA (55.8 per cent) and Greater Sydney (53.6 per cent). Approximately 54.3 per cent of the social locality population had lived elsewhere in the last five (5) years, much higher than Penrith LGA (37.6 per cent) and Greater Sydney (41 per cent).

This suggests a more mobile and transient population living in the social locality which could indicate less stability in living conditions. These residents may be more sensitive to changes as a result of the Project.

Table 5-1: Place of residence

Place of residence	Social locality	Penrith LGA	Greater Sydney
Same address 1 year ago as in 2021	67.6%	81.2%	79.7%
Different address 1 year ago	22.3%	12.7%	15.3%
Same usual address 5 years ago as in 2021	34.7%	55.8%	53.6%
Different usual address 5 years ago	54.3%	37.6%	41.0%

5.1.7 Need for assistance, health and wellbeing

Disability can limit mobility, employment opportunities and consequently access to financial resources. The ABS ‘need for assistance’ dataset provides an indication of the disability status of people in the SIA study area by identifying the proportion of people who need help with core activities (self-care, mobility and communication) due to a disability, long-term illness, or advanced age.

In 2021, the need for assistance was higher in the social locality (7.5 per cent) compared to Penrith LGA (5.5 per cent) and Greater Sydney (5.2 per cent). People with long-term health conditions was much higher in the social locality (32.9 per cent) compared to Penrith LGA (27.7 per cent) and Greater Sydney (23.6 per cent). There is also a much higher proportion of people with psychological distress in the social locality (14.0 per cent) compared to Penrith LGA (8.9 per cent) and Greater Sydney (6.6 per cent).

This suggests that these groups within the social locality may be more vulnerable to changes as a result of the Project.

5.2 Housing and household composition

5.2.1 Household composition

The average household size of the social locality was slightly lower than Penrith LGA and Greater Sydney (refer to Table 5-2). This is consistent with the household composition within the social locality, which shows a much lower proportion of family households (44.9 per cent) compared to Penrith (71.7 per cent) and Greater Sydney (72.6 per cent). This observation is also consistent with the higher proportion of single or lone person households and families without children in the social locality, both of which were almost 10 per cent more compared to Penrith LGA. Further, it is likely that a portion of these single or lone person households would also include elderly people living alone, which correlates to the higher proportions of people aged 65 years or older (refer to Section 5.1.2).

Higher numbers of single or lone person households in the social locality suggests there is a higher likelihood of vulnerable groups to changes to their way of life, health and wellbeing and livelihoods as a result of the Project.

Table 5-2: Household composition

Household type	Social locality	Penrith LGA	Greater Sydney
Average household size	2.1	2.8	2.7
Family households	44.9%	71.7%	72.6%
Single or lone person households	34.4%	23.1%	27.4%
Families with children	30.9%	48.0%	48.1%
Families without children	40.6%	31.0%	34.8%

5.2.2 Dwellings

In 2021, there was a total of 9,388 private dwellings within the social locality. As shown in Table 5-3, the social locality has a much lower proportion of separate houses compared to Penrith LGA and Greater Sydney. Consistent with this, there is more than twice the amount of semi-detached, flats and apartment dwellings in the social locality (53.3 per cent) compared to Penrith LGA (20.4 per cent). Both these observations suggests that there is a higher residential density within the social locality, which indicates a higher likelihood of residents in the social locality experiencing impacts as a result of the Project.

Table 5-3: Dwelling structure

Dwelling structure	Social locality	Penrith LGA	Greater Sydney
Separate house	30.1%	74.3%	51.2%
Semi-detached, flat or apartment	53.3%	20.4%	40.3%

5.2.3 Household tenure

in 2021, the proportion of dwellings owned outright in the social locality is lower than that of Penrith LGA and Greater Sydney (refer to Table 5-4). Additionally, the proportion of dwellings owned with a mortgage is almost half that of Penrith LGA and Greater Sydney. The proportion of rented dwellings in the social locality is almost double (60.2 per cent) that of Penrith LGA (33.4 per cent).

This may indicate a likelihood of housing unaffordability and lack of access to home ownership in the social locality. Correlating to observations in previous sections, this also indicates a more transient population (refer to Section 5.1.6) such as students, young professionals or short-term workers; and higher proportions of single and lone person households (refer to Section 5.2.1).

Table 5-4: Household tenure

Household tenure	Social locality	Penrith LGA	Greater Sydney
Owned outright	15.4%	24.7%	27.8%
Owned with mortgage	20.6%	39.4%	33.3%
Rented	60.2%	33.4%	35.9%

5.2.4 Income and household affordability

Residents in the social locality had a weekly household income of $1,397, which was approximately $500 lower than that of Penrith LGA and $680 lower than Greater Sydney (refer to Table 5-5). Consistent with this trend, the social locality had almost half the proportion of households earning more than $3,000 weekly income (12.8 per cent) compared to Penrith LGA (24.4 per cent and Greater Sydney (32.0 per cent).

Median weekly rental payment was also lower in the social locality ($380) compared to and Penrith LGA ($400) and Greater Sydney ($470). This is consistent with the significantly lower proportion of renter households that spend more than 30 per cent of their income towards rent (16.9 per cent) compared to Penrith LGA (34.8 per cent) and Greater Sydney (35.3 per cent).

This indicates a higher number of lower-income households in the social locality, although this is met with comparatively lower rent and mortgage payments and likely to have access to affordable housing.

Table 5-5: Median income, monthly mortgage repayments and weekly rent

Median weekly income, mortgage repayments and rent	Social locality	Penrith LGA	Greater Sydney
Median weekly income - personal	$812	$866	$881
Median weekly income - family	$1,850	$2,188	$2,374
Median weekly income - household	$1,397	$1,903	$2,077
Less than $650 total household weekly income	21.5%	13.5%	14.1%
More than $3,000 total household weekly income	12.8%	24.4%	32.0%
Median monthly mortgage repayments (monthly)	$1,783	$2,167	$2,427
Median rental payments (weekly)	$380	$400	$470
Renter households where rent payments are less than or equal to 30% of household income	74.3%	57.4%	57.1%
Renter households with rent payments greater than 30% of household income	16.9%	34.8%	35.3%

5.3 Economy, business and employment

5.3.1 Employment status

In 2021, there was a total labour force of 8,750 people in the social locality, equating to 57.2 per cent of the total social locality population (refer to Table 5-6). This was slightly lower compared to Penrith LGA (62.4 per cent) and Greater Sydney (60.0 per cent), which may be correlated to the higher population aged 65 years or older who were not in the labour force. On the contrary, the unemployment rate of the social locality was significantly higher (6.1 per cent) than Penrith LGA (2.8 per cent) and Greater Sydney (3.0 per cent). This may be reflective of a higher student population in the social locality who may be seeking work but not currently employed.

As shown in Table 5-7, the top occupation in the social locality was Professionals, followed by Clerical and Administrative Workers and Technicians and Trades Workers. The proportion of these occupations are similarly observed for Penrith LGA and Greater Sydney. This suggests a generally higher proportion of white-collar workers in the social locality.

Table 5-6: Participation in the labour force and unemployment

Employment status	Social locality	Penrith LGA	Greater Sydney
In the labour force	57.2%	62.4%	60.0%
Not in the labour force	32.6%	31.7%	34.6%
Unemployed	6.1%	2.8%	3.0%

Table 5-7: Top five industries of occupation

Top 5 Occupations	Social locality	Penrith LGA	Greater Sydney
Professionals	21.2	17.0%	29.3%
Clerical and Administrative Workers	15.2%	16.3%	13.8%
Technicians and Trades Workers	12.1%	13.9%	10.5%
Community and Personal Service Workers	11.6%	11.3%	15.2%
Managers	10.6%	11.0%	9.3%

5.3.2 Industry of employment

In 2021, the industries of employment in the social locality were generally consistent with Penrith LGA (refer to Table 5-8). The top industry of employment in the social locality was in Healthcare and Social Assistance, followed by Retail Trade and Construction. There was also a relatively high proportion of workers in the Transport, Postal and Warehousing in the social locality (6.0 per cent), which is reflective of the surrounding land use.

The Construction industry presence was generally higher in both the social locality and Penrith LGA compared to Greater Sydney, which can be largely attributed to the significant amount of ongoing development in the area, making it a major construction hub in Western Sydney[7].

Table 5-8: Top industries of employment

Top industries of employment	Social locality	Penrith LGA	Greater Sydney
Healthcare and Social Assistance	15.0%	13.2%	13.4%
Retail Trade	10.7%	12.0%	8.2%
Construction	9.2%	10.0%	8.8%
Manufacturing	6.6%	10.0%	5.4%
Transport, Postal and Warehousing	6.0%	8.0%	8.5%

5.4 Access and connectivity

5.4.1 Vehicle ownership

Vehicle ownership may reflect the levels of advantage or disadvantage in the local community, the reliance on private motor vehicles to travel to work, and / or limited availability of public transport or active transport options for residents.

In 2021, vehicle ownership of the social locality averaged 1.6 vehicles per household, which was similar to ownership in Penrith LGA (1.9 vehicles per household) and Greater Sydney (1.7 vehicles per household). However, the proportion of households that do not own any vehicles in the social locality was double that of Penrith LGA (13.6 per cent compared to 6.5 per cent).

[7] Penrith City Council, 2024. Innovative Institute launches in Penrith. https://www.penrithcity.nsw.gov.au/building-development/invest-penrith/invest-penrith-news/1684-innovative-institute-launches-in-penrith

The vehicle ownership patterns could suggest a number of characteristics, including lower accessibility to car ownership and an older population that are not equipped with driving skills, which may indicate a higher likelihood of vulnerability to changes associated with the Project. However, it could also suggest well-connected public transportation systems in the social locality such as being in proximity to the Penrith Train Station approximately 520mm southeast of the Project site.

5.4.2 Travel patterns to work

Generally, the travel patterns were relatively consistent across the social locality, Penrith LGA and Greater Sydney (refer to Table 5-9). Of particular note, the proportion of public transport users in the social locality was double (3.6 per cent) that of Penrith LGA (1.8 per cent). This also correlates to the slightly lower number of those driving to work and lower vehicle ownership rates across the social locality (refer to Section 5.4.1).

This may suggest better public transport options within the social locality compared to the Penrith LGA, particularly as the Penrith Train Station is located within the social locality (refer to Section 5.4.4). There is also a large Park-and-Ride location on the north of the Penrith Train Station.

Table 5-9: travel to work methods

Travel to work methods	Social locality	Penrith LGA	Greater Sydney
Car (as driver)	42.3%	47.9%	34.2%
Car (as passenger)	3.0%	3.5%	2.6%
Public transport (train, bus, ferry, tram)	3.6%	1.8%	3.8%
Truck	0.9%	1.4%	0.6%
Motorbike / scooter	0.4%	0.3%	0.4%
Walking and cycling	3.8%	1.2%	2.7%
Taxi	0.3%	0.1%	0.1%
Worked at home	28.4%	26.3%	38.9%

5.4.3 Existing road network

The Project is near the Great Western Highway (A44) and Castlereagh Road, while Museum Drive and Thornton Drive are located to the south and north of the Project. Castlereagh Road is located to the west of the Project, providing a key north-south connection linking the Great Western Highway to the Project site. The main access point to the Project is provided by Thornton Drive.

5.4.4 Public transport

There are several existing public transport options in the vicinity of the Project site, including bus routes and rail, offering several commute options for those who live and work in the social locality.

The Penrith Train Station is located approximately 520mm southeast of the Project location and offers a key transport route between Penrith and the Central Station, as well as the broader western suburbs.

The social locality is also serviced by several bus stops located on Castlereagh Road which provides easy access to public transport. These bus stops accommodate three bus routes (673, 783, and 784) that generally travel between the western suburbs and the Central Business District (CBD).

5.5 Social infrastructure and land use zoning

Social infrastructure refers to the facilities, structures, and services that support physical, social, cultural, and intellectual development. These can be categorised into healthcare, education, sport and recreation, open spaces and cultural assets.

Social infrastructure facilities can often be a sensitive to Project impacts, either directly or indirectly.

Similarly, understanding land use zoning helps to assess whether the Project is compatible with the existing and future planned built and strategic context surrounding the Project.

5.5.1 Land use zoning

The Project is located on E4 General Industrial zoned land in accordance with the *Penrith City Council Local Environmental Plan 2010* (LEP), with surrounding land uses generally comprising commercial and retail, food and hospitality, industrial facilities, residential and recreational facilities. Land use zoning is shown on Figure 5-1 and summarised in Table 5-10).

There is currently the existing Penrith Zone Substation located on the Project site. The closest residential zone is the R1 General Residential zone located approximately 300mm east of the Project site, being a large residential community known as Thornton Central [8]. Further east is R3 Medium Density Residential approximately 1.04km away from the Project site. There is also higher apartment buildings located on land zoned R4 High Density Residential located approximately 700mm south of the Project site.

Table 5-10: Land zoning surrounding the Project site

Penrith City Council – Land Zoning	Approximate distance from Project site
E4 – General Industrial	The Project site
E1 – Local Centre	310m east
E2 – Commercial Centre	350m south
MU1 – Mixed Use	550m south
R1 – General Residential	400m east
R3 – Medium Density Residential	1.04km east
R4 – High Density Residential	700m south
RE1 – Public Recreation	280m northeast
SP2 – Railway	590m southeast
SP2 – Commuter Car Park	320m southeast

5.5.2 Social infrastructure

Socio-economic impacts related to the Project are considered most likely to occur to social infrastructure in close proximity to the Project site. As such, social infrastructure located within a 400m radius has been the primary focus, and notable social infrastructure would be discussed where relevant.

There is an abundance of social infrastructure located in the social locality, largely due to being located in the growing and diverse Penrith city. It offers a mix of urban and suburban amenities with hubs for shopping, dining, entertainment such as Westfield Penrith Shopping Mall, as well as leading educational facilities including Western Sydney University.

The Project site is adjacent to several fast-food hospitality businesses to the north and west of the Project site such as McDonald's Penrith North, Starbucks North Penrith and Oporto Penrith. To the east and south of the Project site are food production and industrial facilities and the Museum of Fire located approximately 200mm to the southeast.

Social infrastructure surrounding the Project is shown on Figure 5-2 and summarised below.

[8] Thornton Central. (2025). https://thorntoncentral.com.au/

5.5.2.1 Community and cultural facilities

Community and cultural facilities identified for this SIA include community facilities (community centres, museums, cemeteries), cultural facilities and historic landmarks.

Within 400m of the Project, notable community and cultural facilities include the Museum of Fire, Combewood House, Penrith Civic Centre, Penrith City Library, North Penrith Community Centre, Thornton Community Centre, Q Theatre and Joan Sutherland Performing Arts Centre. It is noted that the Museum of Fire and the Combewood House are heritage listed historical landmarks [9,10].

Further to the west there is the Nepean Naval Museum, which may also have the potential to attract visitors from outside the social locality and potentially bypass the Project site.

Located approximately 1km southeast of the Project site is a cluster of churches, notably C3 Church Penrith, Penrith Uniting Church, Penrith Anglican Church, St Nicholas of Myra, St Andrew's Presbyterian Church, and Penrith Chinese Presbyterian Church.

Overall, the social locality has good access to a range of community and cultural facilities, however facilities such as the Museum of Fire may experience potential impacts during construction of the Project.

5.5.2.2 Healthcare and emergency services

Healthcare and emergency services identified for this SIA include hospital and medical centres, aged care facilities and emergency services (fire stations and police stations).

Within 400m of the Project site notable healthcare and emergency services include various clinics located inside the Westfield Penrith Shopping Mall, such as MyHealth Penrith, Shine Health Clinic and HCF Dental Centre Penrith.

Other healthcare and emergency services are located to the south of the Project site, such as Penrith Medicare Mental Health Centre, Penrith Community Health Centre, Medico Medical Centre Penrith, Stafford Street Medical Home and Sydney Urology Group Clinic. There are also retirement / nursing facilities including RSL LifeCare Governor Phillip Manor Nursing Home, Mountain View Retreat Retirement Village and Hardi Aged Care.

Overall, the social locality has good access to healthcare and emergency services, particularly to the south of the Project. However, given that the closest healthcare and emergency services are located inside the Westfield Penrith Shopping Mall, it is not considered that access to these facilities would be greatly impacted by the Project, if it proceeds.

5.5.2.3 Educational facilities

Educational facilities identified for this SIA include early childcare education centres (ECEs), primary and secondary schools, and tertiary institutions.

Most of the education facilities within 400m of the Project site are located to its south and east. The closest educational facility is the Australian Institute of Personal Trainers Penrith located approximately 250mm west of the Project site. There are also several ECEs, with the closest being Little Puma Early Learning Centre approximately 600mm southeast and other ECEs further out including Greenwood Penrith Childcare Centre, Spunky Monkeys Early Learning Centre and Sweetpeas Kindergarten & Long Day Care Penrith.

There is also the TAFE NSW Nepean Penrith campus located approximately 720mm southeast of the Project site, which is a major educational facility. Other educational facilities in the social locality include Penrith High School, Kingswood Park Public School, Penrith Selective High School, Penrith Public School, St Nicholas of Myra Primary School and Penrith Conservatorium of Music

[9] NSW State Heritage Inventory. (2025). Shand Mason Manual Fire Engine. https://www.hms.heritage.nsw.gov.au/App/Item/ViewItem?itemId=5061686

[10] NSW State Heritage Inventory. (2025). "Combewood house, garden, trees and original entrance drive". https://www.hms.heritage.nsw.gov.au/App/Item/ViewItem?itemId=2260163

Overall, the social locality has good access to a range of educational facilities, particularly to the east and south of the Project site location. The closest educational facility is the Australian Institute of Personal Trainers Penrith, however is not predicted to be greatly impacted by the Project, if it proceeds.

5.5.2.4 Sports, recreation and open space:

Sports, recreation and open space facilities identified for this SIA include public parks, open spaces/ reserves and sports and recreation.

Within 400m of the Project site, notable sports and recreation facilities include the World of Swimming School located approximately 390mm northeast of the Project. The next closest sports and recreation facility is the Nepean District Tennis Courts approximately 550mm southwest of the Project. The Penrith Showground approximately 1km south of the Project site is a key event space in the Penrith LGA area, hosting events big and small throughout the year. Further to the north approximately 1.5km away from the Project site is a cluster of sports and recreational facilities including Nepean Aquatic Centre, Nepean Rugby Park and Andrews Road Baseball Complex.

To the southwest approximately 1.8km away, there is a large sports and recreational park comprising the Cables Wake Park and Aqua Park, Penrith Ruby League and Aqua Golf Driving Range.

The closest recreational open spaces and parks is the Thornton Common, characterised by a large pond approximately 240mm northeast of the Project. The next closest recreational facilities are the Ron Mulock Oval approximately 700mm east of the Project site, and the Great River Walk and Weir Reserve abutting the Nepean River approximately 740mm west of the Project site. The Penrith City Park approximately 750mm southeast of the Project site is a popular civic plaza near the Penrith Train Station as a place for people to socialise and play.

Overall, the social locality has good access to sports, recreational facilities and open spaces. There are several renowned facilities located within the social locality that may travel past the Project location and experience minor levels of impacts.

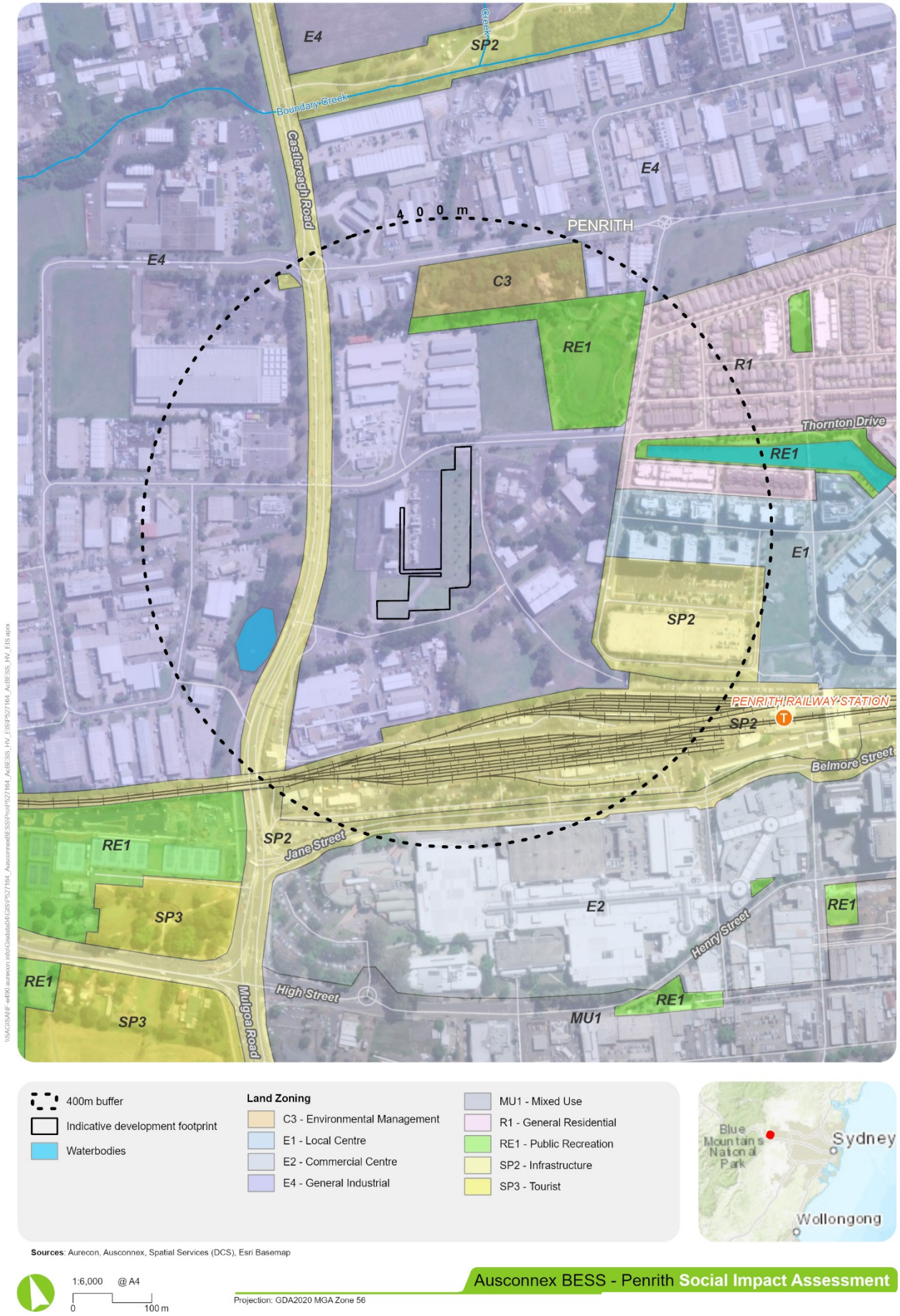

Figure 5-1: Land use zoning of social locality

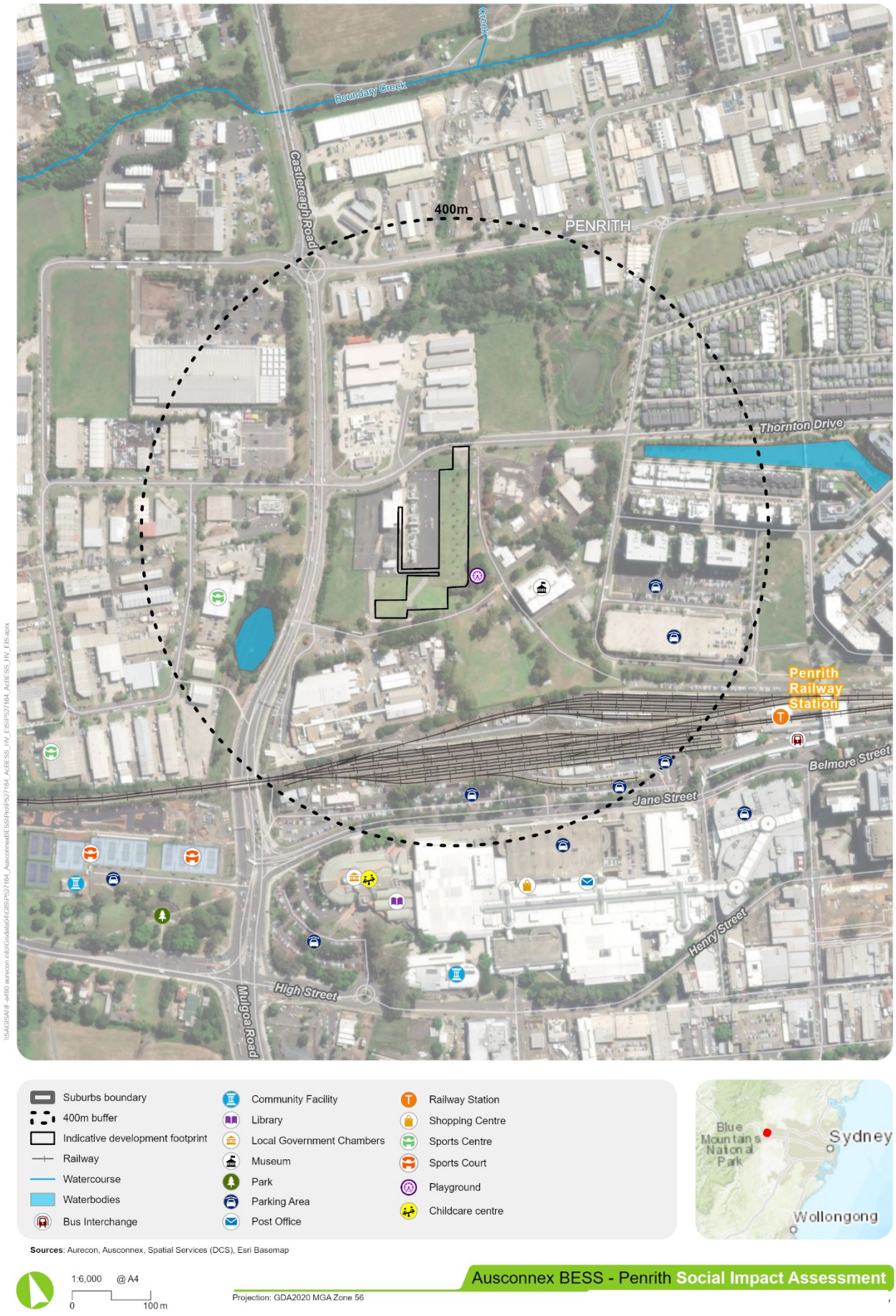

Figure 5-2: Social infrastructure of social locality

5.6 Community and stakeholder values

This section summarises key values important to the communities and stakeholders within the social locality. Note that at the time of writing this SIA report, community and stakeholder feedback has not been received. As such, community and stakeholder values have been informed by ABS Census data as well as a desktop review of local community plans.

It should be noted that community and stakeholder feedback received is more general and non-specific i.e. identifying any trends or emerging themes associated with community and stakeholder values. The specifics of community consultation in relation to the Project are addressed in more detail in the Community and Stakeholder section of the EIS.

Community and stakeholder values have been informed by a combination of general feedback received, ABS Census data as well as a desktop review of local community plans.

5.6.1 Social and community cohesion

Social cohesion refers to the positive social relationships in communities. While difficult to measure, a community's level of participation in voluntary work can be an indicator of community cohesion. Community bonds can be strengthened through voluntary work as it involves giving help and provides opportunities for community engagement.

In 2021, a slightly lower proportion of the social locality reported doing unpaid voluntary work (7.7 per cent) compared to Penrith LGA (8.6 per cent) and Greater Sydney (11.6 per cent). While there could be several underlying factors resulting in the lower levels of participation in voluntary work, one factor may be the land use characteristic of the social locality being an 'economic and industrial hub' with fewer communities compared to surrounding suburbs in the Penrith LGA.

Similarly, those who provided unpaid assistance to a person with a disability, health condition or old age was slightly lower in the social locality (9.2 per cent) compared to Penrith LGA (11.0 per cent) and Greater Sydney (10.6 per cent). Participation in unpaid childcare was also much lower in the social locality (18.9 per cent) compared to the Penrith LGA (28.2 per cent) and Greater Sydney (25.2 per cent). However, this could be due to the fewer proportion of children aged 0-14 years (refer to Section 5.1.2).

There are also community events within the social locality, near the Project site. For example, the Penrith Showground hosts events for the local communities including the weekly Wednesday Markets, the Penrith Annual Show and Carnival of Cups which have estimated to attract several thousands of visitors [11] The Penrith City Park also hosts multiple small community events including 'Lunchtime Tunes' and 'Cinema in the Park' and is a thriving green space for residents, workers and visitors in the area [12,13].

Overall, the social locality is considered to have adequate levels of social cohesion, with lower participation rates in voluntary work but a range of events of all scales in the community.

5.6.2 Wider community values and aspirations

A review of the community plans for Penrith LGA provides an indication of the key community values and aspirations of the social locality and wider communities of Penrith. This section has been largely informed by a review of existing legislation and policies primarily from the *Penrith 2041+ Community Strategic Plan.*

Table 5-11 summarises the key relevant community values and themes of the Penrith community.

[11] Club Paceway Penrith (2025). https://www.clubpacewaypenrith.com/

[12] Visit Penrith (2025). Lunchtime Tunes in City Park. https://www.visitpenrith.com.au/events/performances/lunchtime-tunes

[13] Penrith City Council (2025). City Park. https://www.penrithcity.nsw.gov.au/building-development/revitalise-penrith/city-park

Table 5-11: Community values and themes

Community values and themes	Summary
Sustainability and climate resilience	■ Lowering our carbon footprint should be the number one priority. ■ We need support to reduce household energy use. ■ Help for renters to reduce their power use and better options for their waste.
Resilience, wellbeing, inclusion	■ We want to be involved in community projects ■ More acknowledgement of Aboriginal culture and opportunities for learning
Growing city	■ Jobs to support this growing community, so we don't build a community of just commuters that leave every day for work and come back at night. Build community as a whole. ■ Being able to live and work in the community dramatically improves your feeling of being a part of and desire to support your local community. ■ Diversifying the economy, by up-skilling people for emerging sustainable industries and collaborating with start-ups, would enable the region to achieve more lasting and equitable economic outcomes.

6 Construction impacts

This section identifies the Project's potential socio-economic impacts during construction, having regard to the social locality (refer to Figure 3-1) and socio-economic baseline (refer to Section 5) . The impacts can be both positive and negative. In some instances, impacts may be applicable to the Project's construction and operational phases.

The socio-economic impacts are identified using the categories as defined in Section 3.2.4 in accordance with the SIA Guidelines, being: "way of life", "community", "accessibility", "culture", "health and wellbeing", "surroundings", "livelihoods" and "decision-making systems"

It should be noted that several of these categories are interrelated, and impacts may be experienced in more than one category. As such, impacts are captured under the category that is considered the most relevant. Interrelated impacts will be cross-referenced where appropriate to avoid repetition.

Any recommended mitigation and management measures are discussed in Section 9.

6.1 Way of life

As per the SIA Guideline, "way of life" is defined as *"how people live, how they get around, how they work, how they play, and how they interact on a daily basis".* This includes typical behaviours, activities, travel patterns, habits, values, and customs that define how an individual or group lives, interacts, and experiences life.

Construction activities can disrupt the daily activities of people living and working near the Project site, with impacts in the form of visual and amenity (noise, vibration, dust). For residents of nearby homes east of and including apartment buildings on Thornton Central and Combewood Avenue approximately 200 – 300mm east of the Project location, this may contribute to levels of anxiety, difficulty to relax at home and overall reduced quality of life[14]. For visitors of the Museum of Fire, construction noise and vibration may result in annoyance and detract from their visitor experience of the Museum of Fire. For workers at the Museum of Fire, construction noise and vibration may cause stress and anxiety.

However, the *Noise and Vibration Impact Assessment* (Aurecon, 2025) concludes that construction noise and construction vibration would be compliant during construction standard hours and unlikely to affect identified sensitive receivers within 520m from the Project location, including the Museum of Fire. While Project's construction noise and vibration for a duration of approximately 15 months may still have perceived impacts on someone's way of life for those within the social locality, it is considered that the existing noise environment, standard construction hours and scale of construction activities would have low impacts on surrounding sensitive receivers. The standard mitigation measures applied at the source outlined in the *Noise and Vibration Impact Assessment* (Aurecon, 2025) are sufficient and adequate to effectively reduce noise and or vibration on nearby sensitive receivers, including construction works to be undertaken within standard construction hours. Ongoing consultation and periodic community notification regarding upcoming construction works and out of hours activities would contribute to mitigating any potential impacts of construction noise. Mitigation measures will also be implemented to manage any potential impacts of construction noise, presented in Section 10 and in the *Noise and Vibration Impact Assessment* (Aurecon, 2025).

The *Noise and Vibration Impact Assessment* (Aurecon, 2025) identified that construction traffic noise has potential to impact the way of life for sensitive receivers including the nearest sensitive receivers at Combewood Avenue approximately 200-300m east of the Project location. However, the construction traffic noise has resulted in complying levels during construction standard hours, as indicated in Section 6.5 of the *Noise and Vibration Impact Assessment* (Aurecon, 2025). Impacts on way of life-are expected to be low and managed appropriately as part of standard mitigation measures to ensure compliance with maximum sound levels for plant and equipment during the standard construction hours.

[14] Mir et al. (2023). Construction noise effects on human health: Evidence from physiological measures. Sustainable Cities and Society.

Construction activities may also reduce the enjoyment of the surrounding hospitality and commercial businesses such as Starbucks, Oporto, McDonald's and Peachtree Hotel on the opposite side of the Project location at Thornton Drive and Castlereagh Road. These activities may result in behavioural changes such as speaking with a louder voice which adds discomfort to ones' experience. However, it is considered the construction noise would have a minor influence, occurring periodically and in standard hours only.

The visual presence of construction machinery, vehicles and construction workers on the Project site may also impact how people perceive the landscape character and visual attractiveness when onlooking the site. This is discussed in detail in Section 6.6.

The way people get around may also be impacted as a result of construction activities, particularly traffic movements along Thornton Drive and Castlereagh Road, adjacent to the Project site. The *Traffic and Transport Impact Assessment* (Aurecon, 2025) concludes that the Project's construction is expected to have no impact on daily traffic volumes along Thornton Drive and Castlereagh Road. Oversize and over mass (OSOM) movements would be undertaken outside of standard hours and as such would not have an impact on peak traffic movement. This is discussed in further detail in Section 6.3.

Construction impacts such as noise and traffic are anticipated to be minor and temporary in nature. Considering the existing environment and surrounding land uses, the overall impacts on the way of life for people living and working in the social locality is considered to be low (refer to Table 6-1).

Table 6-1: Evaluation of social impact – Way of life (Construction)

Impact category	Likelihood	Magnitude	Overall impact significance	Comments and mitigation
Way of life (construction)	Possible	Minimal	**Low**	Overall, impacts to the way of life during the Project's construction would be **low.** Mitigation measures for potential impacts on construction noise and vibration and construction traffic is presented in Section 10 and in the Noise and Vibration Impact Assessment (Aurecon, 2025) and Traffic and Transport Impact Assessment (Aurecon, 2025).

6.2 Community

As per the SIA Guideline, "community" is defined as *"composition, character, cohesion, function, and sense of place".* This can be a group of people who share common characteristics, goals or interact with each other in a specific geographic area such as local volunteers and sports teams.

Given the highly transient population and predominant industrial land use in the social locality (refer Sections 5.1.6 and 5.5.1), the Project's construction impacts on the community are expected to be minor and unlikely to be different to the existing community characteristics. This prediction is made in respect to both the Project's potential noise and traffic effects. In turn, impacts to community composition and community cohesion are anticipated to be of low significance (refer to Table 6-2).

An Aboriginal Cultural Heritage Assessment Report (ACHAR) is being prepared and consultation with Registered Aboriginal Parties will be included within the Submissions Report as agreed by DPHI and Heritage NSW.

Should the Project proceed, ongoing community and stakeholder engagement efforts to provide advanced notice of construction work would contribute to mitigating potential impacts on the community.

Table 6-2: Evaluation of social impact – Community (Construction)

Impact category	Likelihood	Magnitude	Overall impact significance	Comments and mitigation
Community (construction)	Unlikely	Minimal	**Low**	Overall, impacts to the community during the Project's construction would be **low.** Early and ongoing community and stakeholder engagement to inform them of Project updates would contribute to mitigating potential impacts on the community. Mitigation measures are presented in Section 10 and in the CSEP.

6.3 Accessibility

As per the SIA Guideline, "accessibility" is defined as *"how people access and use infrastructure, services and facilities, whether provided by local, State, or federal governments, or by for-profit or not-for-profit organisations or groups".* This includes the changes to the demand, availability and ease of accessing social infrastructure during the construction of the Project.

As indicated in Section 5.5.2, most social infrastructure in the social locality is located to the south of the Project, primarily around the Penrith Train Station (approximately 520m southeast) and Westfield Penrith Shopping Mall (approximately 550m south). Some fast-food hospitality businesses are located to the immediate north and west, such as Penrith Civic Centre, Penrith City Library, World of Swimming School and various healthcare clinics located inside the Westfield Penrith Shopping Mall.

During construction, private vehicle access to social infrastructure within 400-m of the Project location may temporarily be congested due to increased levels of traffic on the surrounding road network, particularly along Castlereagh Road. It is predicted this would potentially add travel times to people's commute. The *Traffic and Transport Impact Assessment* (Aurecon, 2025) however does not support the predicted negative accessibility impacts. It states that all internal access roads, parking and loading/unloading have been designed within the existing Project footprint and to eliminate impacts on the surrounding road network in the vicinity of the Project. The peak traffic hours account for 10 trips in the morning and 14 trips in the afternoon, both in and out of the Project site. It concludes that all construction vehicle trips would have little to no impact on road traffic, even during AM and PM peak hours.

Access to and use of social infrastructure via public transport within 400m of the Project location has the potential to affect those who often travel via public transport, particularly those who do not own a car. This is particularly likely in the social locality compared to the wider Penrith LGA, given the higher proportion of the elderly population (refer to Section 5.1) and higher than average public transport users (refer to Section 5.4). Consistent with its conclusion about private vehicle accessibility impacts, the *Traffic and Transport Impact Assessment* (Aurecon, 2025) concludes that the impact of construction traffic on existing public transport routes is expected to be low due to limited overlap of construction traffic with the bus routes in the vicinity.

Considering the traffic assessment findings, the relatively small scale and nature of the construction activities, the estimated workforce (35-40 FTE) and the surrounding industrial and commercial land uses at the Project location, the Project's impacts to the demand, availability, and access to social infrastructure (including the road network) in the social locality is expected to be of low significance (refer to Table 6-3).

Table 6-3: Evaluation of social impact – Accessibility (Construction)

Impact category	Likelihood	Magnitude	Overall impact significance	Comments and mitigation
Accessibility (construction)	Possible	Minimal	**Low**	Overall, impacts to accessibility during the Project's construction would be **low.** Should the use of oversized and over mass (OSOM) vehicles be used during construction, traffic management measures will be implemented. Mitigation measures are presented in Section 10 and in the CSEP.

6.4 Culture

As per the SIA Guideline, "culture" is defined as *"both Aboriginal and non-Aboriginal culture, including shared beliefs, customs, values, and stories, and connections to country, land, waterways, places, and buildings'.*

In terms of non-Aboriginal culture, there are eleven (11) heritage-listed items registered under the Penrith LEP within a 500-metre vicinity of the Project location, with the notable items in the vicinity being:

- Museum of Fire (former Penrith Power Station) including nine (9) mobile heritage items located within the Museum of Fire building, approximately 120m southeast of the Project location;
- Penrith Railway Station group, approximately 520m southeast of the Project location.

The Museum of Fire is adjacent to the Project location and is recorded for its technological, architectural and historical significance [15]. As per the *Statement of Heritage Impact* report (Aurecon, 2025), the Museum of Fire is the former power station which is now a museum for firefighting. The museum exhibits the Shand Mason 7-inch Manual Fire Engine, NSW Fire Brigades No 10 Vehicle Number Plates, Fire and Rescue NSW Heritage Fleet, Ford 21W Fire Brigade Mobile Canteen, Shand Mason Curricle Ladders, Dennis Big 6 Fire Engine and Ahrens Fox PS2 Fire Engine. These mobile heritage listed items are all located within the Museum of Fire. They are valued for their historical and social significance and are held in great esteem by the firefighting community in NSW. The Penrith Railway Station group also represents a symbol of Penrith's identity and historical links for the history of railways in NSW connecting Blue Mountains towards Sydney[16].

Construction activities may result in impacts on cultural values held by communities such as potentially disrupting community identity and cultural heritage [17], which would be particularly relevant for the Museum of Fire and Penrith Railway Station group that both have strong community and cultural significance for the area. While intrinsic and intangible nature of historical values are difficult to quantify, research suggests that people seek physical reminders from the past as a social identification of place and their communities [18]. As such, aesthetic and visual values can be used to indicate the significance of impacts on the Museum of Fire and Penrith Railway Station heritage items.

As concluded in the *Statement of Heritage Impact* (Aurecon, 2025) report, given the existing visual prominence of the adjacent Penrith Zone Substation and low-lying design of the Project (3m height of the HV BESS and 6m height of the harmonic filter), any visual impacts experienced by visitors when viewed from these nearby heritage sites are expected to be minor during construction of the Project. Views from the Penrith Rail Station would not be affected by the Project given its sufficient distance from the Station and the fact it is predominantly visually obstructed by intervening buildings and boundary plantings. Visual impacts stemming from the Project are therefore anticipated to be of low significance, mitigation measures would be implemented to minimise them. These measures are presented in Section 10 and in the *Statement of Heritage Impact* (Aurecon, 2025) report.

In terms of Aboriginal culture, there was only one (1) Aboriginal site identified approximately 300m west of the Project location. The site is highly modified, formerly part of the open-air switchyard to the Penrith Substation and therefore considered to have low potential for Aboriginal heritage to be present. As such, the Site is unlikely to be detrimentally impacted by the construction of the Project [19]. Similarly, the surrounding environment of the Project location is generally highly modified with a range of commercial and industrial land uses.

The Deerubbin Local Aboriginal Land Council (LALC) has been identified as a key cultural stakeholder for the Project. The LALC were notified in October 2024 via email with the project newsletter and an offer to meet the project team. The LALC was also notified about the online webinar in February 2025. No response has been received by the LALC.

[15] Aurecon. (2025). Statement of Heritage Impact – Penrith HV BESS

[16] *ibid*

[17] Yung, E. H. K., Zhang, Q., Chan, E. H.W. (2017). Underlying social factors for evaluating heritage conservation in urban renewal districts. Habitat Journey.

[18] Perovic, M., Coffey, V., Kajewski, S., Madan, A. (2015). The Impact of Retention of Heritage Places.

[19] Aurecon. (2025). Penrith HV BESS – Scoping Report

An ACHAR is being prepared and consultation with Registered Aboriginal Parties will be included within the Submissions Report as agreed by DPHI and Heritage NSW. Additionally, the Project has not received any feedback from Aboriginal people.

In the event of unexpected historical finds during groundbreaking works, the Unexpected Finds Procedure in the Statement of Heritage Impact (Aurecon, 2025) (refer to Appendix P) will be implemented to ensure potential heritage values are assessed and managed appropriately. Overall, impacts to cultural values and heritage connections during construction are considered low.

Overall, the potential for the Project to yield impacts to cultural connections in the social locality during construction is considered to be low (refer to Table 6-4).

Table 6-4: Evaluation of social impact – Culture (Construction)

Impact category	Likelihood	Magnitude	Overall impact significance	Comments and mitigation
Culture (construction)	Unlikely	Minimal	**Low**	Overall, impacts to culture during the Project's construction would be **low.** Mitigation measures for potential impacts on non-Aboriginal heritage are presented in Section 10 and in the Statement of Heritage Impact (Aurecon, 2025).

6.5 Health and wellbeing

As per the SIA Guideline, "health and wellbeing" are defined as *"physical and mental health, especially for those who are highly vulnerable to social exclusion or substantial change, plus wellbeing of individuals and communities".* In the context of the Project, this includes individuals in the social locality who are aged over 65 years, and / or have a need for assistance, and / or suffers from long-term health conditions and / or psychological distress. This also includes individuals or households who are under more financial stress and unstable employment conditions (refer to Section 5).

Construction activities would result in a temporary reduction in amenity (surroundings, noise and vibration, dust and air quality) which may have perceived impacts on mental and physical health. Impacts are anticipated to range from mental health, sleep disturbance, cognitive performance, increased levels of fatigue, stress, anxiety, sleep disturbance and annoyance [20]. Given the comparatively higher proportions of individuals in the social locality aged over 65 years, needing assistance, suffering from long-term health conditions, and under psychological distress, it is feasible that some of these vulnerable populations reside in residences near the Project site and therefore more likely to be impacted.

As indicated in the *Noise and Vibration Impact Assessment* (Aurecon, 2025), construction machinery would be the primary source of noise impacts, with some impacts from construction traffic. Actual impacts from construction noise and traffic are expected to be compliant during construction standard hours for all sensitive receivers, including the residential receivers located along Combewood Avenue and Thornton Drive.

However, perceived impacts may still be experienced particularly by those who are more vulnerable. Any actual and/or perceived construction noise from the Project location may increase stress and anxiety levels, making their experience unpleasant over the construction duration of 15 months. The *Noise and Vibration Impact Assessment* (Aurecon, 2025) concludes that the existing noise environment, standard construction hours and scale of construction activities would have low impacts on surrounding sensitive receivers. The standard mitigation measures applied at the source outlined in the assessment report is sufficient and adequate to effectively reduce noise and or vibration on nearby sensitive receivers. Ongoing consultation and periodic notification to the communities regarding upcoming construction works and out of hours activities would contribute to mitigating any potential impacts of construction noise. Mitigation measures will also be implemented to manage any potential impacts of construction noise, presented in Section 10 and in the assessment report.

[20] EN Health. (2018). The health effects of environmental noise – Department of Health Australia.

Considering the social baseline and the potential for a comparatively higher proportion of vulnerable people living in the social locality, these people may be more likely to have actual and/or perceived health and wellbeing impacts from construction noise and vibration. However, noise and vibration mitigation measures coupled with early and ongoing community and stakeholder engagement to inform them of Project updates would contribute to mitigating potential impacts on perceived health and wellbeing concerns. As such, the Project's overall impacts to health and wellbeing are assessed to be of low significance (refer to Table 6-5).

Table 6-5: Evaluation of social impact – Health and wellbeing (Construction)

Impact category	Likelihood	Magnitude	Overall impact significance	Comments and mitigation
Health and wellbeing (construction)	Unlikely	Minor	**Low**	Overall, impacts to health and wellbeing during the Project's construction would be **low** Early and ongoing community and stakeholder engagement to inform them of Project updates would contribute to mitigating potential impacts on perceived health and wellbeing impacts. Mitigation measures for potential impacts on health and wellbeing are presented in Section 10 and in the Noise and Section Impact Assessment (Aurecon, 2025) and in the Communications and Stakeholder and Engagement Action Plan and the CSEP.

6.6 Surroundings

As per the SIA Guideline, "surroundings" is defined as *"access to, and use of, services that ecosystems provide*[21]*, public safety and security, access to and use of the natural and built environment, and its aesthetic value and amenity*[22]*".* This includes changes in land uses, amenity (landscape and visual, noise and vibration), and air quality surrounding the Project location as a result of construction activities.

The Project's potential impacts to surroundings during construction would most likely be experienced by residents, workers and visitors within 400m the Project location, particularly during the daytime where peak construction activities would occur.

6.6.1 Landscape and visual amenity

The presence of construction equipment, vehicles and workers at the Project location would result in temporary visual intrusiveness, reducing the visual appeal when viewed from surrounding sites and therefore contribute to an unpleasant experience and enjoyment of surrounding spaces [23]. This has potential to result in increased stress, anxiety and diminished quality of life, particularly for vulnerable populations (refer to definition in Section 3.2.3). Construction activities would be partially screened by existing trees near the condemned playground. However, earthworks and installation of components may still be noticeable to visitors to the Museum of Fire, when using the playground, picnic tables or temporarily when driving past or parking their cars along Museum Drive.

[21] "Ecosystem services" include: provisioning services, such as food and water; regulating services, such as flood and disease control; supporting services, such as nutrient cycling, that maintain the conditions for life on Earth; and cultural services, such as spiritual, recreational, and cultural benefits. See: Millennium Ecosystem Assessment (2005). Ecosystems and Human Well-Being: Our Human Planet: Summary for Decision Makers. The Millennium Ecosystem Assessment Series, Volume 5, Island Press, Washington DC.

[22] When considering perceptions of adverse impacts on amenity, an evaluation must be made of the reasonableness of those perceptions. This evaluation involves 'the identification of evidence that can be objectively assessed to ascertain whether it supports a factual finding of an adverse effect on amenity…': Telstra Corporation Ltd v Hornsby Shire Council [2006] NSWLEC 133

[23] Hassan, N.E. & Khalil, S. (2024). Visual Pollution: Causes, Health Impacts, And Mitigation Strategies for Enhancing Environmental Aesthetics and Public Well-Being – A Review. https://ijmra.in/v7i11/Doc/11.pdf

The *Visual Impact Assessment* (Aurecon, 2025) describes a different scenario. The report states that there would be limited adverse visual impacts for nearby sensitive receivers, who include neighbouring business visitors, Museum of Fire visitors, motorists and pedestrians. During construction, the assessment report suggests that visual impacts are expected to be very low to low. Construction activity including site clearance, surface works and installation of BESS components would be experienced by neighbouring visual receivers including motorists on Thornton Drive, Productivity Bootcamp staff/students and Museum of Fire visitors. Views further away experienced from upper-level apartment residents of high sensitivity, are likely to be noticeable but not prominent, resulting in a low visual impact.

Given the Project's surrounding commercial and industrial environment and the existing substation onsite, its landscape and visual amenity impacts are not predicted to result in significant impacts to receivers and their overall experience of their surroundings. Mitigation measures such as additional visual screening will also be implemented, where appropriate, to manage any potential impacts of visual impacts. These details are in Section 10 and in the *Visual Impact Assessment* (Aurecon, 2025).

6.6.2 Noise and vibration

If the Project proceeds, its surrounding industrial and commercial businesses would most likely experience construction noise caused by equipment and machinery, construction vehicles and construction workforce. Construction noise may also be experienced by the nearby residential receivers located at Thornton Drive and Combewood Avenue approximately 200-300m east of the Project location.

However, as stated in the *Noise and Vibration Impact Assessment* (Aurecon, 2025), the existing noise environment is influenced by surrounding industrial and commercial activities, train station and railway line, and road traffic. The construction activities are taking place at the Project location, therefore are not expected to be significantly different to the existing noise levels in the surrounding environment. The assessment concludes that construction noise and vibration are unlikely to affect sensitive receivers near the Project, including the Museum of Fire.

In summary, it is expected that the existing noise environment, standard construction hours and scale of construction activities would have low impacts on surrounding sensitive receivers. The standard mitigation measures applied at the source, as outlined in the *Noise and Vibration Impact Assessment* (Aurecon, 2025) are sufficient and adequate to effectively reduce noise and or vibration on nearby sensitive receivers. Mitigation measures would also be implemented to manage any potential impacts of construction noise. These are described in Section 10 and in the *Noise and Vibration Impact Assessment* (Aurecon, 2025). Assuming the measures would be implemented, the Project's predicted impact on the surrounding in the social locality is predicted to be of significance (refer to Table 6-6).

Table 6-6: Evaluation of social impact – Surroundings (Construction)

Impact category	Likelihood	Magnitude	Overall impact significance	Comments and mitigation
Surroundings (construction)	Unlikely	Minor	**Low**	Overall, impacts to the surroundings during the Project's construction would be **low.** Mitigation measures for potential impacts on the surroundings are presented in Section 10 and in the Visual Impact Assessment (Aurecon, 2025) and the Noise and Vibration Impact Assessment (Aurecon, 2025).

6.7 Livelihoods

As per the SIA Guideline, "livelihoods" is defined as *"people's capacity to sustain themselves, whether they experience personal breach or disadvantage, and the distributive equity of impacts and benefits".* This includes changes to financial and / or economic wellbeing to which an individual obtains resources and assets such as income or employment to main their quality of life.

Impacts to the livelihood of an individual or community in the social locality during construction depends on their current financial situation. Given the comparatively lower household income and higher unemployment rates in the social locality, these individuals are more likely to be under financial stress (refer to Sections 5.2 and 5.3). Further, the comparatively higher proportion of single-person households (likely to include elderly single-person households) in the social locality suggests a higher likelihood of being disadvantaged during the construction of the Project.

During construction, landowners may be concerned about anticipated loss of land or property value as a result of the Project [24] influence on noise and vibration or visual amenity, particularly the residential properties along Combewood Avenue and Thornton Drive. While there was no technical assessment prepared which directly links the presence of construction activities with devalued properties, the perception of decreased property values may impact the livelihoods and wellbeing of relevant landowners and stakeholders in the social locality. For example, some landowners might feel the need to decrease rent to compromise for the perceived reduced appeal of their property. It is noteworthy that community engagement activities did not yield any concerns about this matter. Further, both the Project's *Noise and Vibration Impact Assessment* (Aurecon, 2025) and *Visual Impact Assessment* (Aurecon, 2025) concluded that construction noise and vibration and visual impacts would be minimal for sensitive receivers in the social locality. Mitigation measures for these impacts are presented in Section 10 and in the respective assessment reports. Prior to construction, landowners and stakeholders would be informed of the mitigation measures proposed for the Project which would aim to minimise impacts on their properties.

The construction of the Project may generate opportunities for the employment of approximately 35-40 individuals. The workforce would come from Greater Sydney, with a priority on sourcing a local workforce to fulfil the Project's construction workforce positions. This would positively benefit the livelihoods of people in the social locality by providing job opportunities and an income source to financially support their livelihoods. This scenario would also benefit those people in the wider LGA working in the construction industry, identified as the third top industry in the social locality and Penrith LGA (refer to Section 5.3).

The additional construction workers would also positively contribute to the surrounding hospitality and retail businesses by increasing expenditure on food, drinks and other products such as from Starbucks, Oporto, McDonald's and shops inside the Westfield Penrith Shopping Mall. This may produce some net economic benefits to these local businesses and therefore benefiting the economic livelihood of the community.

As the workforce would be sourced from within the Greater Sydney region and employees would travel to the Project site from their homes, there is no temporary accommodation associated with the Project and no anticipated increase in local demand for temporary accommodation.

Overall, the Project's impacts to livelihoods in the social locality during construction is forecasted to be of low significance (negative) relating to potential financial vulnerabilities (refer to Table 6-7). However, the Project would have a high significance (positive) relating to the potential benefits for the local workforce and community. As discussed in Chapter 2 of the EIS, the Project would have a number of advantages including positive impacts on livelihoods such as economic opportunities and grid reliability and stabilisation for the Penrith community.

[24] CM Lawyers. (2024). Construction Noise: The Hidden Cost of Off-the-Plan Purchases in NSW That Could Shatter Your Peace

Table 6-7: Evaluation of social impact – Livelihoods (Construction)

Impact category	Likelihood	Magnitude	Overall impact significance	Comments and mitigation
Livelihoods – negative (construction)	Unlikely	Minor	**Low (negative)**	Overall, impacts to livelihoods during the Project's construction would be **low**. Early and ongoing engagement with residential landowners to inform them of Project updates would contribute to mitigating potential impacts on their livelihoods. Mitigation measures for potential impacts are presented in Section 10.
Livelihoods – positive (construction)	Almost certain	Moderate	**High (positive)**	Positive impacts to livelihoods during the Project's construction would be **high.** The construction of the Project may generate opportunities for the employment of approximately 35-40 individuals. The Project's construction would also have positive impacts on livelihoods including employment and educational opportunities towards renewable energy.

6.8 Decision-making systems

Impacts to decision-making systems has not been assessed as it is not considered to generate any relevant impacts.

7 Operational impacts

7.1 Way of life

Impacts to the way of life for people living and working in the social locality once the Project is operational would be minimal as the Project would be integrated and functionally similar to the existing Penrith Zone substation. If approved, the Project would then co-exist onsite with the existing Penrith Substation.

It is predicted that if the Project is approved, the daily activities and way of life for people in the social locality would largely be similar to the existing conditions, except for potential increased noise levels. Given that the Project site currently accommodates the Penrith Substation, the overall function of the site remains for the purpose of electricity storage and generation. The visual character of the Project is consistent with the existing Penrith Substation and visually compatible with the surrounding built form. The location of the Project is also situated behind the existing Penrith Substation, away from the public domain. As such, the Project is considered to have minimal impacts to the way of life of surrounding residents, businesses and visitors.

Additionally, the operation of the Project requires minimal attendance by personnel and would be remotely monitored with maintenance visits as needed and therefore vehicle trips associated with the Project's operation would be minimal. As such, it is considered that the operation of the Project would have negligible impacts to the way of life of surrounding receivers in the social locality.

As concluded in the *Noise and Vibration Impact Assessment* (Aurecon, 2025), operational noise from the Project has been identified to exceed the noise criteria, largely generated from the BESS components. This may have impacts on the way people live and work nearby, including health and wellbeing, discussed in Section 7.5. A noise wall will be implemented approximately 15m east of the Project, aligned along the existing fence and will be approximately 7m in height. Targeted mitigation measures (such as noise enclosures or at source treatments) are being developed to ensure impacts will be at acceptable levels, presented in Section 10 and in the *Noise and Vibration Impact Assessment* (Aurecon, 2025). Further design refinement, a compliance monitoring program and a detailed mitigation planning are recommended to ensure acceptable acoustic performance during the operational phase.

Positive impacts of the Project include increased reliable energy supply, which can improve the way of life and overall convenience for communities in the wider Penrith LGA.

Table 7-1: Evaluation of social impact – Way of life (Operational)

Impact category	Likelihood	Magnitude	Overall impact significance	Comments and mitigation
Way of life – negative (operational)	Unlikely	Minor	**Low (negative)**	Overall, impacts to the way of life during the Project's operation would be **low.** The operational BESS components may generate noise levels above noise criteria which may affect some people's way of life. However, the noise wall and targeted mitigation measures will be implemented to ensure impacts will be at acceptable levels. All other aspects of the way of life for surrounding receivers are expected to remain unchanged to existing baseline conditions. Mitigation measures for potential impacts on way of life are presented in Section 10 and in the Visual Impact Assessment (Aurecon, 2025) and the Noise and Vibration Impact Assessment (Aurecon, 2025). All other operational and maintenance details would be outlined in the Operational Environmental Management Plan (OEMP).
Way of life – positive (operational)	Possible	Moderate	**Medium (positive)**	Once operational, the Project has potential to improve the way of life for communities in the wider Penrith LGA.

7.2 Community

It is predicted that the operational Project would yield a positive impact to people in the social locality if it receives panning approval. This prediction is based on the premise that a renewable energy facility would enhance community cohesion.

The Project is anticipated to benefit the community by providing a resilient, sustainable and cost-effective energy source.It would positively contribute to the community's shared vision of transitioning towards an energy efficient city, lowering carbon footprint and diversifying the local industries (refer to Section 5.6.2). This would likely foster community cohesion and sense of place among community members who value environmental responsibility in the social locality and broader Penrith LGA. The positive impact in this scenario is anticipated to be of high significance (refer to Table 7-2).

Table 7-2: Evaluation of social impact – Community (Operational)

Impact category	Likelihood	Magnitude	Overall impact significance	Comments and enhancement
Community (operational)	Almost certain	Moderate	**High (positive)**	Overall, impacts to the community during the Project's operation would be **high (positive)** The Project's contribution to the shared community aspirations of people in the social locality would create a positive social impact.

7.3 Accessibility

In its operational phase, the Project's social infrastructure accessibility impacts are predicted to be minimal. The Project would not require regular attendance by personnel and would be remotely monitored with maintenance visits only, as required. It is not expected to provide barriers or hinder an individual or communities' ability to access social infrastructure in the social locality.

As stated in the *Transport Impact Assessment* (Aurecon, 2025), information from comparable projects indicates that a very low number of staff members are expected to visit the Site at any given time to carry out maintenance or operational services. The Project would operate over a 24-hour period 365 days per year and would generally be managed and monitored remotely except for site maintenance. Therefore, it is anticipated that the Project would generate very minimal vehicle movements accessing the Site. In addition, on-site parking would be provided for Project personnel which would alleviate any general traffic, public transport and public carparking demand.

In summary, the Project's operation is expected to have negligible impacts on accessibility in the social locality, preserving the surrounding road network conditions for residents, workers and visitors.

Table 7-3: Evaluation of social impact – Accessibility (Operational)

Impact category	Likelihood	Magnitude	Overall impact significance	Comments and mitigation
Accessibility (operational)	Very unlikely	Minimal	**Low**	Overall, impacts to the accessibility during the Project's construction would be **low.** All other operational and maintenance details would be outlined in the Operational Environmental Management Plan (OEMP).

7.4 Culture

Impacts to culture in the social locality once the Project is operational would be minimal. The presence of the Project is not expected to have additional or different impacts on cultural connections to the Site.

Any protocols would have been implemented during the construction phase and unlikely to have cultural potential or discovery. As concluded in the *Statement of Heritage Impact* (Aurecon, 2025) report, the operational impacts on heritage values of the adjacent Museum of Fire are expected to be low. To mitigate against any accidental direct impacts to the Museum during operation (for example movement of vehicles and machinery during maintenance works), the Museum of Fire is to be included within the Operational Environmental Management Plan (OEMP) mapping and as a heritage constraint.

Table 7-4: Evaluation of social impact – Culture (Operational)

Impact category	Likelihood	Magnitude	Overall impact significance	Comments and mitigation
Culture (operational)	Unlikely	Minimal	**Low**	Overall, impacts to culture during the Project's operation would be **low.** Mitigation measures for potential impacts on way of life are presented in Section 10 and in the Statement of Heritage Impact (Aurecon, 2025) report. All other operational and maintenance details would be outlined in the Operational Environmental Management Plan (OEMP).

7.5 Health and wellbeing

The Project is forecast to impacts the health and wellbeing of people in the social locality when it is operational. This is forecast on the premise that it is likely to include some perceived concerns about operational noise emissions and EMF emissions from the BESS plant and equipment.

The perception of potential health concerns can manifest in anxiety and stress which has the potential to affect someone's health and wellbeing. The *Noise and Vibration Impact Assessmen*t (Aurecon, 2025) concludes that any operational vibration emitted from the Project is not expected to have any impacts to surrounding receivers. However, operational noise from the Project has been identified to exceed the noise criteria, largely generated from the BESS components. This may have impacts on the way people live and work nearby, including sleep disturbance, cognitive performance, increased levels of fatigue, stress, anxiety, sleep disturbance and annoyance [25]. To address this impact, a noise wall will be erected approximately 15m east of the Project, aligned along the existing fence and will be approximately 7m in height. Other targeted mitigation measures (such as noise enclosures or at source treatments) are being developed to ensure impacts will be at acceptable levels. These details are described in Section 10 and in the *Noise and Vibration Impact Assessment report* (Aurecon, 2025). Further design refinement, a compliance monitoring program and a detailed mitigation planning are recommended to ensure acceptable acoustic performance during the operational phase.

The presence and proximity of a HV BESS facility to nearby residences and businesses may also lead to perceived health concerns such as electromagnetic fields (EMF) and hazardous substances relating to batteries, both of which may impact perceived risks on mental, emotional and physical wellbeing. These can manifest in anxiety, stress, unhealthy behaviours and overall reduced quality of life [26]. However, in accordance with the *Electric and Magnetic Fields Report* (Aurecon, 2025), no electric fields would be emitted. Further, the *Preliminary Hazard Analysis* (Aurecon, 2025) concludes that none of the potential identified hazards post a risk to public health and wellbeing.

Ongoing and continued community engagement activities will convey factual information about the HV BESS facility, EMF and hazardous substances, to inform and educate the community on potential risks relating to the Project, as outlined in the *Communications and Stakeholder and Engagement Action Plan*.

[25] EN Health. (2018). The health effects of environmental noise – Department of Health Australia.

[26] Ferrer, R. & Klein, W. M. (2015). Risk perceptions and health behaviour. https://pmc.ncbi.nlm.nih.gov/articles/PMC4525709/

Based on the above considerations, the Project is predicted to create a social impact of low significance on health and well-being in the social locality (refer to Table 7-5).

Table 7-5: Evaluation of social impact – Health and wellbeing (Operational)

Impact category	Likelihood	Magnitude	Overall impact significance	Comments and mitigation
Health and wellbeing (operational)	Unlikely	Minor	**Low**	Overall, impacts to health and wellbeing during the Project's operation would be **low**. During operation, the noise wall and targeted mitigation measures would be implemented to ensure impacts would be at acceptable levels. Mitigation measures for potential impacts on health and wellbeing are presented in Section 10 and in the Noise and Vibration Impact Assessment (Aurecon, 2025), Preliminary Hazard Analysis (Aurecon, 2025) report, and in the Communications and Stakeholder and Engagement Action Plan. All other operational and maintenance details would be outlined in the Operational Environmental Management Plan (OEMP).

7.6 Surroundings

7.6.1 Landscape and visual amenity

The presence of the Project is not expected to have unacceptable impacts on landscape and visual amenity when viewed from nearby viewpoints. The *Visual Impact Assessment* (Aurecon, 2025) also explains that the Project is co-located behind the existing Penrith Substation which onlooks Castlereagh Road and is consistent with the industrial landscape that is already visually dominated by electricity infrastructure. The noise wall would be erected approximately 15m east of the Project, aligned along the existing fence and would be approximately 7m in height. The wall is considered to be consistent with the existing landscape and visual amenity surrounding the Site.

Based on the details described above, and given the Project would be set back from the existing road frontages of Castlereagh Road and Thornton Drive, it is predicted to have minimal impacts on landscape and visual amenity. This prediction is further supported by the fact that the Project would be largely screened from the public domain by vegetation and intervening land uses, and buildings and roads separating the nearest residential dwellings from the Site. Mitigation measures would also be implemented, where appropriate, to manage residual visual impacts of visual impacts. These measures are described in Section 10 and in the *Visual Impact Assessment report* (Aurecon, 2025).

7.6.2 Noise and vibration

The *Noise and Vibration Impact Assessment* (Aurecon, 2025) concludes that operational vibrations emitted from the Project would not have any impacts to surrounding receivers and would be within acceptable standards of human comfort.

However, operational noise from the Project has been identified to exceed the noise criteria, largely generated from the BESS components. As indicated in the *Noise and Vibration Impact Assessment* (Aurecon, 2025), this would likely be experienced at most nearby sensitive receivers surrounding the Project site. A noise wall referred to earlier in this report would provide noise mitigation in addition to targeted mitigation measures such as noise enclosures or at source treatments. These measures are expected to minimise impacts to acceptable levels. Details are provided in Section 10 and in the *Noise and Vibration Impact Assessment* (Aurecon, 2025). Further design refinement, a compliance monitoring program, and detailed on-site mitigation plan is recommended to ensure acceptable acoustic performance during the operational phase.

Should the above mitigation measures be implemented, the Project's impact on surroundings is forecast to be of low significance for people in the social locality. Refer to Table 7-6 for details.

Table 7-6: Evaluation of social impact – Surroundings (Operational)

Impact category	Likelihood	Magnitude	Overall impact significance	Comments and mitigation
Surroundings (operational)	Unlikely	Minor	**Low**	Overall, impacts to the surroundings during the Project's operation would be **low.** While operational noise levels have been assessed to exceed noise criteria, the noise wall and targeted mitigation measures would be implemented to ensure impacts would be at acceptable levels. Mitigation measures for potential impacts on the surroundings are presented in Section 10 and in the Visual Impact Assessment (Aurecon, 2025) and Noise and Vibration Impact Assessment (Aurecon, 2025). All other operational and maintenance details would be outlined in the Operational Environmental Management Plan (OEMP).

7.7 Livelihoods

The Project is predicted to positively impact the livelihoods of people in the social locality once the Project is operational.

Throughout the operational life of the Project, two workers would be required for maintenance, with potential for additional workers employed to fulfil ad hoc operational activities and site visits. Assuming these operational workers would be sourced from the social locality, the Project would benefit their livelihoods by providing a source of income.

An additional Project benefit for livelihoods relates to energy supply across the wider LGA. The Project is expected to improve grid stability and energy reliability if it proceeds, especially during peak demand periods or emergencies. This would create a positive livelihood impact to communities by ensuring consistent power supply, supporting local businesses, and contributing to the overall livelihood of the community.

In summary, the Project's operation is predicted to have an impact of high significance on livelihoods in the social locality. Refer to Table 7-7 for details.

Table 7-7: Evaluation of social impact – Livelihoods (Operational)

Impact category	Likelihood	Magnitude	Overall impact significance	Comments and enhancements
Livelihoods (operational)	Almost certain	Moderate	**High (positive)**	Overall, the Project's impacts to livelihoods would be of **high (positive)** significance, as it would contribute to the financial livelihood of operational workers whilst creating grid stability and energy reliability across the wider LGA..

7.8 Decision-making systems

Impacts to decision-making systems has not been assessed as it is not considered to generate any relevant impacts.

8 Decommissioning impacts

In the case of decommissioning non-functional battery systems, it is expected that the Site will be restored to its original condition. Components would be repurposed or recycled using appropriate methods for the safe handling and transportation of equipment to a recycling facility, in compliance with regulations concerning the disposal of battery packs. The standard construction hours established for the Project would also apply to the decommissioning process, with any OSOM movements to occur out of hours.

Impacts from the decommissioning phase are likely to be temporary in overall duration and its effects are expected to be short-term once the decommissioning is complete.

Community feedback will continue to be sought throughout the assessment process. In addition, engagement channels for community and stakeholder feedback will continue to be available throughout the decommissioning phase of the Project in accordance with the Communications and Stakeholder and Engagement Action Plan and the CSEP. This may include work notifications distributed to residences and businesses in the social locality via letterdrop / email / published on Ausconnex Website to provide overview of current and upcoming decommissioning activities. The notifications would provide advanced notice of potential disruption (e.g. traffic changes or noisy works) to assist in reducing the impact on people.

9 Cumulative impacts

Cumulative impacts may arise from the interaction between this Project and other projects in the area. When considered in isolation, individual projects impacts may be considered minor however these can become more substantial when the impact of multiple projects on the same receivers is considered cumulatively.

Based on the **Standard** level of assessment for this SIA in accordance with the SIA Guideline (Section 3.1), this section will not require a detailed cumulative impact assessment. As such, only those projects in the immediate vicinity of the Project have been considered for cumulative impacts.

The project that may contribute to cumulative impacts in the vicinity of the Project is the **Penrith MV BESS**, which is planned adjacent to the Project location within the same site. Both the Project and the Penrith MV BESS are expected to have a 20-year lifecycle and likely to operate concurrently during this time.

During construction and decommissioning, potential cumulative impacts would be largely related to construction traffic, noise and vibration, landscape and visual amenity. However, the Penrith MV BESS is expected to commence construction in early 2026, while the Project is expected to commence construction in late 2026 over an 15-month duration and unlikely to have overlapping construction periods. Specifically, potential cumulative impacts may include:

- Potential cumulative construction vehicle movements are considered to result in minimal to negligible cumulative impacts given the different construction timeline (Traffic and Transport Impact Assessment (Aurecon, 2025) report).
- Potential construction noise and vibration impacts are considered to be consistent with the existing industrial noise environment and would be able to be controlled (Noise and Vibration Impact Assessment (Aurecon, 2025)).
- Potential landscape and visual amenity impacts are considered to be low, given representative views by key sensitive receivers is an industrial setting made up of electricity infrastructure electricity infrastructure (Visual Impact Assessment (Aurecon, 2025)).
- During operation, potential cumulative impacts would relate primarily to increased ambient noise levels from the concurrent operation of both the HV and MV BESS developments. A noise wall will be implemented approximately 15m east of the Project, along with targeted mitigation measures that will be developed to ensure cumulative operational noise impacts will be at acceptable levels. All operational activities will be undertaken in accordance with the mitigation measures set out in the Noise and Vibration Impact Assessment (Aurecon, 2025).

Overall, cumulative impacts from the Project and the Penrith MV BESS are considered to be manageable with implementation of mitigation measures specified in relevant technical assessments as part of the EIS.

10 Recommended mitigation measures

This section provides a summary of identified social impacts and measures to improve the outcomes of the Project.

Summary of mitigation measures paraphrased from other technical reports commissioned for the EIS that are relevant to the SIA are provided in Table 10-1.

Table 10-1: Recommended measures

Potential social impacts	Management measure
All social impacts	Early and ongoing community and stakeholder engagement to inform them of Project updates would contribute to mitigating potential impacts on the community. A *Community and Stakeholder Engagement Action Plan* (CSEAP) will be prepared and implemented to provide timely and accurate information about the Project to the community.
Way of life	The community would be notified of all work outside standard hours, which has the potential to impact noise-sensitive receivers with complaints managed through the Construction Environmental Management Plan (CEMP). For example, this includes noise nuisance complaints. Detailed noise and vibration mitigation measures are presented as part of the noise assessment within the EIS including a noise wall and targeted mitigation measures to ensure noise and vibration impacts will be at acceptable levels. In the case of using oversized and over mass (OSOM) vehicles during construction, the Traffic and Transport Impact Assessment (Aurecon, 2025) recommends that OSOM route for the Project will be subject to engagement with appropriate authorities such as TfNSW and local council, where operators will be required to follow TfNSW restricted access heavy vehicle requirements and obtain the required approvals where needed.
Community	Early and ongoing community and stakeholder engagement in accordance with the Communications and Stakeholder and Engagement Action Plan (CSEAP) and CSEP to inform the community of Project updates would contribute to mitigating potential impacts on the community.
Accessibility	In the case of using oversized and over mass (OSOM) vehicles during construction, the Traffic and Transport Impact Assessment (Aurecon, 2025) (Ref) recommends that OSOM route for the Project will be subject to engagement with appropriate authorities such as TfNSW and local council, where operators will be required to follow TfNSW restricted access heavy vehicle requirements and obtain the required approvals where needed.
Culture	The Statement of Heritage Impact (SOHI) (Aurecon, 2025) and Visual assessments identify screening and compatible colours and materials to be used for the Project. In the event of unexpected historical finds during groundbreaking works, the Unexpected Finds Procedure (contained in the SOHI) is to be implemented. The Museum of Fire is to be identified and mapped in the Construction Environmental Management Plan (CEMP) and Operational Environmental Management Plan (OEMP) for the Project to avoid accidentally directly damaging this item.
Health and wellbeing	The community would be notified of all work outside standard hours, which has the potential to impact noise-sensitive receivers. The Noise and Vibration Impact Assessment (Aurecon, 2025) recommends noise nuisance complaints to be managed through the Construction Environmental Management Plan (CEMP). Detailed noise and vibration mitigation measures are presented in the Noise and Vibration Impact Assessment (Aurecon, 2025), including the noise wall and targeted mitigation measures to ensure noise and vibration impacts will be at acceptable levels. The Electric and Magnetic Fields Report (Aurecon, 2025) report recommends that the BESS should be designed to reduce the intensity of magnetic fields and be located where health risks are minimised. The Preliminary Hazard Analysis (Aurecon, 2025) report recommends: ■ The construction contractor to prepare an adequate safety management system and documentation for the Project construction phase e.g., various management plans, emergency plans, traffic management plans, procedure for removal of contaminated land and remediation. ■ Contact the adjacent natural gas distribution pipeline operator via “Dial Before You Dig” during construction to ensure the integrity of the distribution pipeline during construction activities.

Potential social impacts	Management measure
	▪ The safety testing of the Lithium-ion BESS be conducted under the guidance of IEC 62619: *Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for secondary lithium cells and batteries, for use in industrial applications*. ▪ Detailed hazardous risk mitigation measures are presented in the Preliminary Hazard Analysis (Aurecon, 2025).
Surroundings	The Visual Impact Assessment (Aurecon, 2025) recommends limiting the visibility of construction works and machinery from the public domain. The Visual Impact Assessment (Aurecon, 2025) recommends compatible colours and materials, and design of lighting in accordance with the '*Australian Standard 4282-1997 Control of the obtrusive effects of outdoor lighting'* for the design of Project. The community would be notified of all work outside standard hours, which has the potential to impact noise-sensitive receivers. The Noise and Vibration Impact Assessment (Aurecon, 2025) recommends noise nuisance complaints to be managed through the Construction Environmental Management Plan (CEMP). Detailed noise and vibration mitigation measures are presented in the Noise and Vibration Impact Assessment (Aurecon, 2025), including the noise wall and targeted mitigation measures to ensure noise and vibration impacts will be at acceptable levels.
Livelihoods	Early and ongoing community and stakeholder engagement in accordance with the Communications and Stakeholder and Engagement Action Plan and CSEP to inform the community of Project updates would contribute to mitigating potential impacts on the community. The Visual Impact Assessment (Aurecon, 2025) recommends limiting the visibility of construction works and machinery from the public domain. The Visual Impact Assessment (Aurecon, 2025) recommends compatible colours and materials, and design of lighting in accordance with the '*Australian Standard 4282-1997 Control of the obtrusive effects of outdoor lighting'* for the design of Project. The community would be notified of all work outside standard hours, which has the potential to impact noise-sensitive receivers. The Noise and Vibration Impact Assessment (Aurecon, 2025) recommends noise nuisance complaints to be managed through the Construction Environmental Management Plan (CEMP). Detailed noise and vibration mitigation measures are presented in the Noise and Vibration Impact Assessment (Aurecon, 2025).

11 Conclusion

This SIA has been prepared in accordance with the SIA Guideline (DPE, 2023) to support the EIS.

The SIA presents a **Standard** level of assessment of potential social and economic impacts associated with the construction, operation and decommissioning of the Project. It also identifies appropriate mitigation and management measures to address the identified social impacts.

During construction, all negative social impacts are considered to be **low**. During operation, all negative social impacts are considered to be **low**. Additionally, the SIA highlights long-term positive impacts to 'way of life' and 'livelihoods' once operational.

With the presence of the Project in the wider Penrith LGA, it can improve grid stability and energy reliability, especially during peak demand periods. This enhancement benefits communities by ensuring consistent power supply, supporting local businesses, and contributing to the overall livelihood of the community. Additionally, the proposal aligns with the local strategic long-term aspirations of the Penrith LGA to improve sustainability and climate resilience, community wellbeing and inclusion, and a growing city.

Adverse impacts during construction and operation would be mitigated through a range of mitigation measures outlined in Section 10 and within the respective specialist technical reports supporting the EIS. Ongoing consultation with communities and stakeholders regarding the Project would minimise impacts during the construction and operation of the Project.

12 References

Australian Bureau of Statistics. (2021a). 2021 Census All persons Quick Stats – Penrith: Suburb and Locality. https://abs.gov.au/census/find-census-data/quickstats/2021/SAL13195

Australian Bureau of Statistics. (2021b). 2021 Census All persons Quick Stats – Penrith LGA. https://www.abs.gov.au/census/find-census-data/quickstats/2021/LGA16350

Australian Bureau of Statistics. (2021c). 2021 Census All persons Quick Stats – Greater Sydney. https://abs.gov.au/census/find-census-data/quickstats/2021/1GSYD

Australian Government. (2024). Vulnerable people. https://www.acnc.gov.au/tools/topic-guides/vulnerable-people#:~:text=Vulnerable%20people%20can%20include%3A,a%20low%20socio%2Deconomic%20background

CM Lawyers. (2024). Construction Noise: The Hidden Cost of Off-the-Plan Purchases in NSW That Could Shatter Your Peace. https://cmlaw.com.au/whats-new/construction-noise-the-hidden-cost-of-off-the-plan-purchases-in-nsw-that-could-shatter-your-peace

Ferrer, R. & Klein, W. M. (2015). Risk perceptions and health behaviour. National Library of Medicine. https://pmc.ncbi.nlm.nih.gov/articles/PMC4525709/

Hassan, N.E. & Khalil, S. (2024). Visual Pollution: Causes, Health Impacts, And Mitigation Strategies for Enhancing Environmental Aesthetics and Public Well-Being – A Review. International Journal of Multidisciplinary Research and Analysis. Volume 07 Issue 11 November 2024. https://ijmra.in/v7i11/Doc/11.pdf

Keck, F. (2020). Drivers and benefits of shared demand-side battery storage – an Australian case study. Volume 149 Issue February 2021, 112005. https://doi.org/10.1016/j.enpol.2020.112005

Mir, M., N. F., Bereznicki, H., Enticott, P., Lee, SH., Mills, A. (2023). Construction noise effects on human health: Evidence from physiological measures. Sustainable Cities and Society. Volume 91 Issue 10447 0 April 2023. https://doi.org/10.1016/j.scs.2023.104470

National Collaboration Centre for Determinants of Health (NCCDH), 2022. Vulnerable populations. Glossary of Essential Health Equity Terms. https://nccdh.ca/glossary/entry/vulnerable-populations

Smart Energy. (2023). Did you know, residential landlords benefit more from solar and battery installations than their tenants do? https://smartenergy.co/au/energy-explained/blog-article/

Perovic, M., Coffey, V., Kajewski, S., Madan, A. (2015). The Impact of Retention of Heritage Places. https://www.aicomos.com/wp-content/uploads/The-Impact-of-Retention-of-Heritage-Places-full-paper.pdf

Profile ID, 2021. Greater Sydney – Need for assistance. https://profile.id.com.au/australia/assistance?IWebID=10&submissionguid=c5ec1e22-4349-4b63-90b8-e45eb285681e&bmid=150&sex=2&WebID=260

Yung, E. H. K., Zhang, Q., Chan, E. H.W. (2017). Underlying social factors for evaluating heritage conservation in urban renewal districts. Habitat Journey. Volume 66 Issue August 2017. https://doi.org/10.1016/j.habitatint.2017.06.004

Appendices

Appendix A
SIA Scoping Worksheet

Project activities	Categories of social impacts	Potential impacts on people		Previous investigation of impact		Cumulative impacts	Elements of impacts - based on preliminary investigation						Assessment level for each impact	Clear Assessment Level Impact			Project refinement	Mitigation / enhancement measures
							Update Assessment Level Impact											
Which **project activity / activities** could produce social impacts ?	what **social impact categories** could be affected by the project activities	What impacts are likely, and what concerns/aspirations have people expressed about the impact? Summarise how each relevant stakeholder group might experience the impact. NB. Where there are multiple stakeholder groups affected differently by an impact, or more than one impact from the activity, please add an additional row.	Is the impact expected to be **positive or negative**	Has this impact previously been investigated (on this or other project/s)?	If "yes - this project," briefly describe the previous investigation. If "yes - other project," identify the other project and investigation	Will this impact combine with others from this project (think about when and where), and/or with impacts from other projects (cumulative)?	If yes, identify which other impacts and/or projects	Will the project activity (without mitigation or enhancement) cause a material social impact in terms of its: You can also consider the various magnitudes of these characteristics					Level of assessment for each social impact	What methods and data sources will be used to investigate this impact?			Has the project been refined in response to preliminary impact evaluation or stakeholder feedback?	What **mitigation / enhancement measures** are being considered?
								extent i.e. number of people potentially affected?	**duration** of expected impacts? (i.e. construction vs operational phase)	**intensity** of expected impacts i.e. scale or degree of change?	**sensitivity** or vulnerability of people potentially affected?	**level of concern/interest** of people potentially affected?		Secondary data	Primary Data - Consultation	Primary Data - Research		
Construction impacts																		
Use of local roads for transportation of Project materials, equipment, components and workers	access	Potential temporary impacts from increased levels of traffic during construction could impact limited available on-street parking and traffic along local traffic routes.	Negative	Yes - other project	Standard traffic impacts assessed for all major projects.	Yes	Potential cumulative impacts if construction timeframes of the proposed Penrith MV BESS overlap or are sequential	No	No	No	No	No	Standard Assessment	Required	N/A	Targeted research	No	Following consultation with Council and transport bodies, implement a traffic management plan to avoid impacts on surrounding business workers/visitors, residents, and existing bus operations in the area during construction hours Planned engagement with associated and non-associated residences and other stakeholders during construction so they are aware of construction schedules via engagement activities and project communication materials. Should the use of oversized and over mass (OSOM) vehicles be used during construction, traffic management measures will be implemented.
	access	Potential temporary traffic disruption during construction may change access to local services and facilities for surrounding business' and residents'.	Negative	Yes - other project	Standard traffic impacts assessed for all major projects.	Yes	Potential cumulative impacts if construction timeframes of the proposed Penrith MV BESS overlap or are sequential	No	No	No	No	No	Standard Assessment	Required	N/A	Targeted research	No	Consultation with local Council, Transport for NSW and community on transport routes, local roads and services. The Traffic and Transport Impact Assessment (Traffic and Transport Impact Assessment (Aurecon, 2025)) has concluded little to no impacts from construction traffic. Should the use of oversized and over mass (OSOM) vehicles be used during construction, traffic management measures will be implemented. Conduct timely and appropriate community engagement so nearby businesses, residents and

Project activities	Categories of social impacts	Potential impacts on people		Previous investigation of impact		Cumulative impacts	Elements of impacts - based on preliminary investigation						Assessment level for each impact				Project refinement	Mitigation / enhancement measures
							Update Assessment Level Impact							Clear Assessment Level Impact				
																		community institutions are aware of construction schedules and channels for raising and resolving concerns or complaints.
Construction of project components and additional infrastructure	surroundings	The Project might temporarily impact amenity of the locality. Construction activities will most likely impact environmental factors such as noise, vibration and air quality.	Negative	Yes - other project	Standard noise and vibration impacts assessed for all major projects.	Yes	Potential cumulative impacts if construction timeframes of the proposed Penrith MV BESS overlap or are sequential	No	No	No	Unknown	No	Standard Assessment	Required	N/A	Targeted research	No	The Noise and Vibraiton Impact Assessment (Noise and Vibration Impact Assessment (Aurecon, 2025)) concluded construction noise and vibration levels to be complying with the relevant criteria. Mitigation measures are contained within the Noise and Vibration Impact Assessment (Aurecon, 2025). Engage with stakeholder on potential construction impacts.
	livelihoods	Potential for local and regional business procurement, employment and training opportunities during construction. Local businesses stand to benefit from construction workers spending money locally in food, clothing and supplies outlets located within the vicinity of the Penrith HV BESS project and nearby.	Positive	Yes - other project	Standard social impact assessed for all major projects.	Yes	Potential cumulative impacts if construction timeframes of the proposed Penrith MV BESS overlap or are sequential	No	No	No	No	No	Standard Assessment	Required	N/A	Targeted research	No	Nil- positive impact.
	way of life	Potential for changes to local amenity (e.g. noise, dust, vibration and visual changes) that would result from construction activities. However, given that the closest residential receivers are 200m from the project site and the duration of construction is anticipated to be 15 months, it is unlikely that construction activities would result in detrimental impact on way of life.	Negative	Yes - other project	Standard social impact assessed for all major projects.	Yes	Potential cumulative impacts if construction timeframes of the proposed Penrith MV BESS overlap or are sequential	No	No	No	No	No	Standard Assessment	Required	N/A	Targeted research	No	Early and ongoing community and stakeholder engagement to inform them of Project updates would contribute to mitigating potential impacts on the community. Mitigation measures are presented in the Community and Stakeholder Engagement Action Plan and the Community and Stakeholder Engagement Plan.
	livelihoods	An increase in local demand on temporary accommodation and services from the construction workforce may be experienced, however given the limited number of workforce (up to 40 FTE construction workers during peak periods)	Negative	No		Yes	Potential cumulative impacts if construction timeframes of the proposed Penrith MV BESS overlap or are sequential	No	No	No	No	No	Standard Assessment	Required	N/A	Targeted research	No	Nil- unlikely to be an impact.

Project activities	Categories of social impacts	Potential impacts on people		Previous investigation of impact		Cumulative impacts	Elements of impacts - based on preliminary investigation						Assessment level for each impact				Project refinement	Mitigation / enhancement measures
		and the location of the Penrith HV BESS project within the Greater Sydney area, this is unlikely to have a noticeable impact.																
	surroundings	Construction activities have the potential to result in disruptions to the immediate surroundings, with the most likely impacts noted as increased levels of noise, traffic, and dust.	Negative	Yes - other project	Standard social impact assessed for all major projects.	Yes	Potential cumulative impacts if construction timeframes of the proposed Penrith MV BESS overlap or are sequential	No	No	No	No	No	Standard Assessment	Required	N/A	Targeted research	No	Early and ongoing community and stakeholder engagement to inform them of Project updates would contribute to mitigating potential impacts on the community. Mitigation measures are presented in the Community and Stakeholder Engagement Action Plan and the Community and Stakeholder Engagement Plan.
	health and wellbeing	Adjacent and nearby residents and businesses may experience temporary impacts during construction related to, for example, increased traffic levels on particular traffic routes and increased ambient noise levels. A CEMP detailing construction phasing, including details on how construction impacts are proposed to be managed and mitigated will be prepared. The Penrith HV BESS project would comply with relevant guidelines and standards to manage and mitigate potential impacts from construction (ie traffic, noise and dust).	Negative	Yes - other project	Standard social impact assessed for all major projects.	Yes	Potential cumulative impacts if construction timeframes of the proposed Penrith MV BESS overlap or are sequential	No	No	No	Unknown	No	Standard Assessment	Required	N/A	Targeted research	No	Early and ongoing community and stakeholder engagement to inform them of Project updates would contribute to mitigating potential impacts on the community. Mitigation measures are presented in the Community and Stakeholder Engagement Action Plan and the Community and Stakeholder Engagement Plan.

PROJECT ACTIVITIES	CATEGORIES OF SOCIAL IMPACTS	POTENTIAL IMPACTS ON PEOPLE		PREVIOUS INVESTIGATION OF IMPACT		CUMULATIVE IMPACTS	Update Assessment Level Impact	ELEMENTS OF IMPACTS - Based on preliminary investigation					ASSESSMENT LEVEL FOR EACH IMPACT	Clear Assessment Level Impact			PROJECT REFINEMENT	MITIGATION / ENHANCEMENT MEASURES
Operational impacts																		
Continual operation of the project	health and wellbeing	Operational noise emissions from plant and equipment associated with the Penrith HV BESS project have the potential to cause an increase in community anxiety related to noise within homes or property boundaries, including concerns related to sleep disruption. A detailed assessment of the potential for increases in ambient noise and/or impacts on sensitive receivers from operating noise, and any appropriate mitigation measures, will form part of a detailed consideration of noise in the EIS.	Negative	Yes - other project	Standard noise and vibration impacts assessed for all major projects.	Yes	Proposed Penrith BESS MV project	Unknown	Yes	Yes	Yes	Yes	Standard Assessment	Required	N/A	Targeted research	No	Ongoing community and stakeholder engagement to inform them of Project updates would contribute to mitigating potential impacts on the community. Mitigation measures are presented in the Community and Stakeholder Engagement Action Plan and the Community and Stakeholder Engagement Plan. All other operational and maintenance details would be outlined in the Operational Environmental Management Plan (OEMP).
	way of life	Operational noise emissions from plant and equipment associated with the Penrith HV BESS project have the potential to disrupt the daily activities in the ways people live, work and play.	Negative	Unknown		Yes	Proposed Penrith BESS MV project	Yes	Yes	No	Yes	Yes	Standard Assessment	Required	N/A	Targeted research	No	Ongoing community and stakeholder engagement to inform them of Project updates would contribute to mitigating potential impacts on the community. Engagement and consultation will be undertaken in accordance with the Community and Stakeholder Engagement Action Plan and the Community and Stakeholder Engagement Plan. Mitigation measures are contained in the Noise and Vibration Imapct Assessment. All other operational and maintenance details would be outlined in the Operational Environmental Management Plan (OEMP).
	access	Access to surrounding social infrastructure would have minimal impacts. Demand for carparking and the surrounding road network for residents, workers and visitors to access social infrastructure are not expected to be different from the existing conditions given the surrounding land uses and environment.	Negative	Yes - other project	Standard traffic impacts assessed for all major projects.	Yes	Proposed Penrith BESS MV project	No	No	No	No	No	Standard Assessment	Required	N/A	Required	No	Ongoing community and stakeholder engagement to inform them of Project updates would contribute to mitigating potential impacts on the community. Engagement and consultation will be undertaken in accordance with the Community and Stakeholder Engagement Action Plan and the Community and Stakeholder Engagement Plan. Mitigation measures are contained in the Traffic and Transport Imapct Assessment. All other operational and maintenance details would be outlined in the Operational Environmental Management Plan (OEMP).
	surroundings	Operational noise emissions from plant and equipment associated with the Penrith HV BESS project have the potential to disrupt the daily activities in the ways people live, work and play.	Negative	Yes - other project	Standard noise and vibration impacts assessed for all major projects.	Yes	Proposed Penrith BESS MV project	Unknown	Yes	Yes	Yes	Yes	Standard Assessment	Required	N/A	Targeted research	No	Ongoing community and stakeholder engagement to inform them of Project updates would contribute to mitigating potential impacts on the community. Engagement and consultation will be undertaken in accordance with the Community and Stakeholder Engagement Action Plan and the Community and Stakeholder Engagement Plan. Mitigation measures are contained in the Noise and Vibration Imapct Assessment. All other operational and maintenance details would be outlined in the Operational Environmental Management Plan (OEMP).
	surroundings	Changes to landscape and visual character with the presence of the Project.	Negative	Yes - other project	Standard visual impacts assessed for all major projects	Yes	Proposed Penrith BESS MV project	No	Yes	No	Unknown	No	Standard Assessment	Required	N/A	Required	No	Landscaping and urban design elements will be incorporated to minimise the visual dominance and visual intrusiveness of the Project. Mitigation measures are contained in the Visual Impact Assessment.
	culture	Impacts to culture in the social locality once the Project is operational would be minimal. The presence of the Project is not expected to have additional or different impacts on cultural connections to the site.	Negative	Yes - other project	Statement of Heritage Impact	Unknown		Unknown	Unknown	Unknown	Unknown	Unknown	Standard Assessment	Required	N/A	Targeted research	No	Any protocols would have been implemented during the construction phase and unlikely to have cultural potential or discovery. To mitigate against any accidental direct impacts to the Museum during operation (for example movement of vehicles and machinery during maintenance works), the Museum of Fire is to be included within the Operational Environmental Management Plan (OEMP) mapping and as a heritage constraint.
	livelihoods	Improved access to a reliable local energy supply during peak periods due to increased capacity and a reduction in the risk of power disruptions and outages leading to local energy supply reliability, whilst also supporting the wider NEM by accelerating the transition to renewable energy.	Positive	No		No	Not required	Yes	Yes	No	Yes	Yes	Standard Assessment	Required	N/A	Required	No	Ensure accurate project updates and information on communication channels and engagement activity materials (eg project webpage, newsletter, project 1800 number).is implemented during the construction and operation stages.
Project updates and information sharing	decision-making systems	A perceived lack of ability for community or stakeholders to make informed decisions, or an inability to access enquiry/complaint mechanisms, could lead to frustration and mistrust from some sensitive receivers. Ausconnex has, to date, made a concerted effort to invite community feedback on the Penrith HV BESS project, as detailed in Chapter 5. Community feedback will continue to be sought throughout the assessment process. In addition, engagement channels for community and stakeholder feedback will continue to be available throughout construction and operation of the Penrith HV BESS project.	Negative	No		No	Not required	No	No	No	No	No	Standard Assessment	Required	Broad consultation	Required	No	Stakeholder engagement and consultation activities (eg community drop in sessions) to commence prior to the EIS stage and will continue throughout the Project development. Communication channels such as phone, email, project webpage for community information will be established to provide timely Project updates to the community and stakeholders. Consultation with community and agency stakeholders to continue throughout the Project development and EIS preparation stage. Maintain records of stakeholder consultation outcomes to demonstrate how Project planning and ongoing operation makes an effort to engage the community in the decision-making process.
Contribute to the state's renewable energy targets	community	The Penrith HV BESS project has the potential to support the uptake of renewable energy in the NSW electricity grid, thereby meeting the needs of households, schools, hospitals, businesses and farms. The Penrith HV BESS project will also help contribute to achieving the state's net zero targets in emissions by 2050 which is regarded as a positive planning outcome.	Positive	No		Unknown	Not required	Unknown	Yes	Unknown	No	Unknown	Minor assessment of the impact	Required	Limited if required (eg customers, local Council)	Not required	No	Stakeholder engagement and consultation activities (eg community drop in sessions) to commence prior to the EIS stage and will continue throughout the Project development. Communication channels such as phone, email, project webpage for community information will be established to provide timely and accurate Project updates to the community and stakeholders.

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